To Amos

Date 11-3-98 Time 8:35 ☒ AM ☐ PM

WHILE YOU WERE OUT

M Traci Self

of PA

Phone Numbers

Office ____ (Area Code / Number / Ext.)

Voicemail ____

FAX ____

Pager ____

Mobile ____

e-mail ____

- ☒ Telephoned
- ☒ Please call
- ☐ Returned your call
- ☐ Called to see you
- ☐ Wants to see you
- ☐ Will call again
- ☐ URGENT

Message

VMM Kathy Amadon

40 TPY apples to SO2 (ect 87.7 TPY)

can't

New source Reviews

gallons diesel per hr. / per day

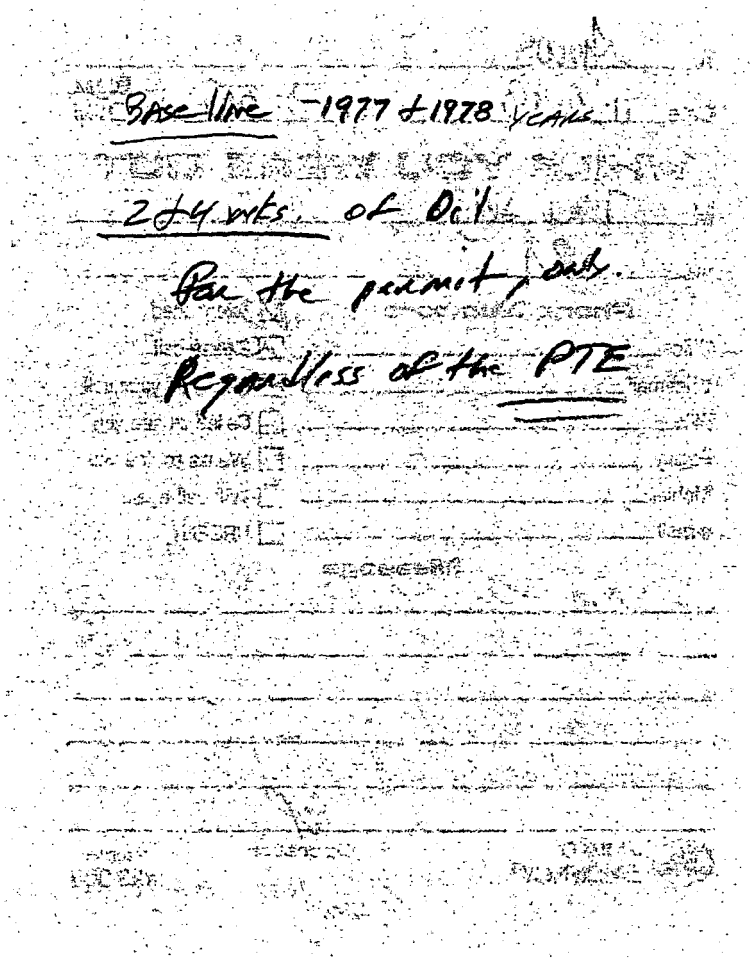
GP

AMPAD EFFICIENCY®

Operator

Reorder #23-000

(over)


Base line - 1977 & 1978 years

2 & 4 strks. of Oil

for the permit, only.

Regardless of the PTE

KOPPERS INDUSTRIES

Koppers Industries, Inc.
436 Seventh Avenue
Pittsburgh, PA 15219-1800

Telephone: (412) 227-2001
Fax: (412) 227-2423

October 27, 1998

Oregon Department Of Environmental Quality
Northwest Region
2020 SW Fourth Avenue
Suite 400
Portland, OR 97201-4987

Attention: Kathy Amidon

RE: Koppers Industries Inc. – Portland Terminal
Supplemental Information
Air Permit Application No. 26-2930
Multnomah County

Dear Ms. Amidon:

Attached are revised emission estimate spreadsheets, facility description and process flow diagram for Koppers Industries Inc. (KII) –Portland Terminal. There are four spreadsheets showing existing facility equipment and additional equipment that may be phased in over the next five years. The scenarios established for each spreadsheet are as follows:

1. **Actual Emission from Existing Units.**

2. **Maximum Potential Emissions from Existing Units.** Accounts for use of dual fuel for periods when natural gas is unavailable. The Portland terminal is presently using natural gas in the units and is operating under an interruptible contract.

3. **Maximum Potential Emissions Phase I** -consists of addition of new liquid pitch Tank 200 and a new 10 MM BTU/Hr hot oil heater. The existing 8.5 MM BTU/HR hot oil heater will be used as a back up unit.

4. **Maximum Potential Emissions, Phase II** - implemented based on business conditions. This phase if required, will consist of a second liquid pitch Tank 210 and a new Fume combustion system.

Because of the variability of business projections and the uncertainty of obtaining a non-interruptible gas supply, KII is requesting ODEQ permit the Portland facility based on the maximum potential emission calculations listed for Phase I.

As requested, KII has proposed draft permit conditions to incorporate addition of each phase based on business projections.

If you have, any questions please contact Amos Kamerer at (503) 286-3681 or me at (412) 227-2883.

October 30, 1998

Sincerely,

Traci I. Self
Environmental Manager

Attachments (3)

cc: Amos Kamerer
Jim Dietz
Kevin Fitzgerald
Steve Smith

Maximum Potential Emissions, Phase I
Koppers Industries, Inc., Portland Terminal

Unit	Comments	Commodity	NOx (lb/hr)	NOx Tons/Yr	VOC (lb/hr)	VOC Tons/Yr	CO (lb/hr)	CO Tons/Yr	SO2 (lb/hr)	SO2 Tons/Yr	PM-10 (lb/hr)	PM-10 Tons/Yr
Atlas Boiler		Gas	2.82	12.33	0.06	0.25	0.70	3.08	0.08	0.33	0.12	0.55
		Oil	3.00	13.14	0.03	0.13	0.75	3.29	10.65	46.65	0.30	1.31
		MAX	3.00	13.14	0.06	0.25	0.75	3.29	10.65	46.65	0.30	1.31
Hot Oil Heater(backup unit)		Gas	0.81	3.57	0.04	0.19	0.17	0.75	0.03	0.14	0.04	0.16
		Oil	1.22	5.32	0.01	0.05	0.31	1.33	4.33	18.88	0.12	0.53
		MAX	1.22	5.32	0.04	0.19	0.31	1.33	4.33	18.88	0.12	0.53
Fume Recovery System [1,2]		NA			12.47	21.51						
Tank 33		Heavy Oil			0.12	0.005						
Tank 67		Heavy Oil			0.04	0.002						
Fugitives		NA			0.98	0.568						
New Hot Oil Heater		Gas	1.34	5.87	0.03	0.12	0.34	1.47	0.04	0.16	0.06	0.26
		Oil	1.42	6.26	0.01	0.06	0.36	1.56	5.04	22.21	0.14	0.63
		MAX	1.42	6.26	0.03	0.12	0.36	1.56	5.04	22.21	0.14	0.63
T-200		Liquid Pitch				Note 3						
Plant Total			**5.64**	**24.72**	**13.74**	**22.64**	**1.41**	**6.18**	**20.02**	**87.74**	**0.56**	**2.47**

NOTES

[1] The fume recovery system receives emissions from the following units: T-68, T-65, T-200, railcar loading artd tank car loading.

[2] Hourly and annual VOC emissions from the fume recovery system were calculated using ChemCAD.

[3] Emissions from T-200 are included in the fume recovery system's emissions.

Koppers016032

Maximum Potential Emissions, Phase II
Koppers Industries, Inc., Portland Terminal

Unit	Comments	Commodity	NOx (lb/hr)	NOx Tons/Yr	VOC (lb/hr)	VOC Tons/Yr	CO (lb/hr)	CO Tons/Yr	SO2 (lb/hr)	SO2 Tons/Yr	PM-10 (lb/hr)	PM-10 Tons/Yr
Atlas Boiler		Gas	2.82	12.33	0.06	0.25	0.70	3.08	0.08	0.33	0.12	0.55
		Oil	3.00	13.14	0.03	0.13	0.75	3.29	10.65	46.65	0.30	1.31
		MAX	3.00	13.14	0.06	0.25	0.75	3.29	10.65	46.65	0.30	1.31
Hot Oil Heater(backup unit)		Gas	0.81	3.57	0.04	0.19	0.17	0.75	0.03	0.14	0.04	0.16
		Oil	1.22	5.32	0.01	0.05	0.31	1.33	4.33	18.88	0.12	0.53
		MAX	1.22	5.32	0.04	0.19	0.31	1.33	4.33	18.88	0.12	0.53
Fume Combustion System[1,2]		NA			0.49	2.16						
Tank 33		Heavy Oil			0.12	0.005						
Tank 67		Heavy Oil			0.04	0.002						
Fugitives		NA			0.98	0.568						
New Hot Oil Heater		Gas	1.34	5.87	0.03	0.12	0.34	1.47	0.04	0.16	0.06	0.26
		Oil	1.42	6.26	0.01	0.06	0.36	1.56	5.04	22.21	0.14	0.63
		MAX	1.42	6.26	0.03	0.12	0.36	1.56	5.04	22.21	0.14	0.63
T-200		Liquid Pitch				Note 3						
T-210		Liquid Pitch				Note 3						
Plant Total	**Maximum**		**5.64**	**24.72**	**1.76**	**3.29**	**1.41**	**6.18**	**20.02**	**87.74**	**0.56**	**2.47**

NOTES

[1] The fume combustion system recieves emissions from the following units: T-68, T-65, T-200, T-210, railcar loading and tank car loading, and an additional loading rack.

[2] Hourly emissions from the fume combustion system were calculated assuming an uncontrolled emission rate of 24.7 and a destruction efficiency of 98%. Annual emissions assumes 8,760 hours of operation.

[3] Emissions from T-200 and T-210 are included in the fume combustion system's emissions.

Koppers016033

Actual Emissions from Existing Units
Koppers Industries, Inc., Portland Terminal

Unit	Comments	Commodity	NOx (lb/hr)	NOx Tons/Yr	VOC (lb/hr)	VOC Tons/Yr	CO (lb/hr)	CO Tons/Yr	SO2 (lb/hr)	SO2 Tons/Yr	PM-10 (lb/hr)	PM-10 Tons/Yr
Atlas Boiler		Gas	2.82	2.04	0.06	0.04	0.70	0.51	0.08	0.06	0.12	0.09
Hot Oil Heater		Gas	0.81	0.59	0.04	0.08	0.17	0.12	0.03	0.02	0.04	0.03
Fume Recovery System [1,2]		NA			12.47	15.45						
Tank 33		Heavy Oil			0.12	0.003						
Tank 67		P1/P13 Distillate			1.71	0.035						
Loading Tank 67 to Rail		P1/P13 Distillate			2.46	0.005						
Fugitives		NA			0.98	0.266						
Plant Total			**3.63**	**2.63**	**17.84**	**15.88**	**0.88**	**0.63**	**0.11**	**0.08**	**0.16**	**0.12**

NOTES

[1] The fume recovery system receives emissions from the following units: T-68, T-65, railcar loading and tank car loading.

[2] Hourly and annual VOC emissions from the fume recovery system were calculated using ChemCAD. Annual VOC was adjusted by 1997 actual operating hours over 8,760 hours.

Koppers016034

Maximum Potential Emissions from Existing Units
Koppers Industries, Inc., Portland Terminal

Unit	Comments	Commodity	NOx (lb/hr)	NOx Tons/Yr	VOC (lb/hr)	VOC Tons/Yr	CO (lb/hr)	CO Tons/Yr	SO2 (lb/hr)	SO2 Tons/Yr	PM-10 (lb/hr)	PM-10 Tons/Yr
Atlas Boiler		Gas	2.82	12.33	0.06	0.25	0.70	3.08	0.08	0.33	0.12	0.55
		Oil	3.00	13.14	0.03	0.13	0.75	3.29	10.65	46.65	0.30	1.31
		MAX	3.00	13.14	0.06	0.25	0.75	3.29	10.65	46.65	0.30	1.31
Hot Oil Heater		Gas	0.81	3.57	0.04	0.19	0.17	0.75	0.03	0.14	0.04	0.16
		Oil	1.22	5.32	0.01	0.05	0.31	1.33	4.33	18.88	0.12	0.53
		MAX	1.22	5.32	0.04	0.19	0.31	1.33	4.33	18.88	0.12	0.53
Fume Recovery System [1,2]		NA			12.47	21.51						
Tank 33		Heavy Oil			0.12	0.005						
Tank 67		P1/P13 Distillate			0.85	0.035						
Loading Tank 67 to Rail		P1/P13 Distillate			2.46	0.004						
Fugitives		NA			0.98	0.568						
Plant Total			**4.22**	**18.46**	**16.98**	**22.56**	**1.06**	**4.61**	**14.98**	**65.53**	**0.42**	**1.85**

NOTES
[1] The fume recovery system receives emissions from the following units: T-68, T-65, railcar loading and tank car loading.
[2] Hourly and annual VOC emissions from the fume recovery system were calculated using ChemCAD.

Koppers016035

Facility Background

Koppers Industries operates its Portland facility to receive and distribute industrial pitch, a critical component for the production of aluminum in the Pacific Northwest. The plant operation consists of receiving both solid and liquid pitch and shipping liquid pitch to customers. Koppers also produces creosote wood preservative for distribution to wood treating customers.

The Portland operation currently includes: a solid pitch storage shed; a pitch melter tank number 65; a liquid pitch shipping tank number 68; a heavy correction oil tank number 33; a creosote blending and shipping tank number 67; a gas/oil dual fuel fired, 21 million Btu per hour steam boiler; a gas/oil-fired hot oil heater; rail car and tank truck loading stations; and a pitch fume recovery system. The fume recovery system currently collects fumes from tanks 65, 68, and the rail car and tank truck loading stations.

This air permit application is submitted after review and analysis of Koppers' business projections as well as evaluating the potential for future business. The plant operating throughput is measured in terms of short tons of pitch per year. The current throughput for 1998 is approximately 70,000 tons. The maximum future business potential throughput is estimated at 150,000 short tons per year.

Basis of Air Permit Emissions Estimates

The emissions estimates included in this application are calculated from the plant operations at defined throughputs and presented in the following format:

- Actual Emissions from Existing Units
- Maximum Potential Emissions from Existing Units
- Phase One Facility Expansion
- Phase Two Facility Expansion

Facility Expansion

The potential to expand the operation is planned in two stages. Phase One Expansion is a near term plan based on foreseeable, eminant business development. Phase Two Expansion includes anticipated changes in operations that may occur due to potential, but not immediate, business opportunities.

The plan for Phase One Expansion is to install one additional liquid pitch storage tank number T-200 (nominally two million gallons of capacity), a ship receiving terminal and pipeline and a new 10 million Btu per hour hot oil heater with the existing 8.5 million Btu per hour hot oil heater available as a standby.

The Phase Two Expansion would include a second two million gallon pitch storage tank, T-210. Also, if an additional rail car or tank truck loading station is required; a new fume combustor would be installed.

Fume Recovery System and Future Revisions

The existing pitch fume recovery system controls emissions from the pitch melter tank number 65, the shipping tank number 68 and the truck and rail car loading stations. This system utilizes a coal tar distillate to process fumes entering from the pitch fume collection duct network. The facility uses a KII coal tar distillate, called "heavy oil", as a contacting medium. Analysis shows that heavy oil is an excellent fluid in the fume recovery system and is recovered directly into the pitch product. Since heavy oil is a higher viscosity material, the fume recovery system is required to be at an elevated temperature to maintain proper operability. Thus it is equipped with electric heaters for the fume recovery circulation tank to boost the system's temperature. Refer to the system sketch as an aid in understanding the fume recovery process.

The system employs a venturi eductor to contact the fumes collected from the tanks and loading station. The heavy oil is stored within the tank mounted to the base of the eductor and is

circulated by pumping. On the outlet of the eductor vent a mist eliminator is installed in the stack of the fume recovery system. The vapor contacting the heavy oil in the fume recovery system can result in entrainment or carryover of particulates out the exit stack. The mist eliminator acts to disengage suspended organics from the vapor stream, allowing them to drop out and be returned to the fume recovery system.

In the event of a Phase Two Expansion resulting in additional requirements for fume handling capacity, the existing pitch fume recovery system will be replaced with a thermal oxidizer and heat recovery unit. As opposed to the fumes that are drawn into the existing system by a venturi, a blower would be installed to draw vapor from the pitch fume piping network and discharge them into the oxidizer. The thermal oxidizer would be designed to provide sufficient reaction time and temperature resulting in a minimal 98% destruction efficiency of VOC's from the fume system. Prior to exiting a stack, the oxidized vapors would pass through an exchanger to recover heat (energy) into a hot oil system used for plant heating systems.

Permit Conditions

The company will be required to operate its facility in such a manner to perform as follows to comply with the permit:

- The company will be permitted to discharge exhaust gases from stationary operations directly associated with the facilities described herein.

- Not exceed the following total emissions for the steam boiler and hot oil heaters:
  - 2.47 Tons per year or 0.56 Lbs/Hour of PM-10 particulate.
  - 6.18 Tons per year or 1.41 Lbs/Hour of CO
  - 24.72 Tons per year or 5.64 Lbs/Hour of NOx
  - 87.74 Tons per year or 20.02 Lbs/Hour of SO2
  - 3.29 Tons per year or 1.76 Lbs/Hour of VOC

- Perform boiler maintenance, including inspection of the combustion chamber and refractory and burner adjustment, at least every two years.

- Not exceed the following total emissions for the fume recovery system:
  - 22.64 Tons per year or 13.74 Lbs/Hour of VOCs
  - Compliance to be tested and reported by the combined Methods 1-4 and 25A of Appendix A of 40 CFR 60.

- The company shall operate and maintain any equipment generating air emissions efficiently and by the best practice.

- The company shall notify the Department within 45 days of plans to implement system or operational changes or additions associated with Phases One or Two Expansions. The company shall have 30 days to inform the Department when system changes have been started up and 90 days to come into compliance of the permit limits.

Pitch Fume Collection and Recovery System Process Flow Diagram

T-210

Future Liquid Pitch Storage Tank (Phase 2)

T-200

New Pitch Storage Tank - 1999 (Phase 1)

Solid Pitch Feed

T-65

Solid Pitch Melter

Transfer Pump

T-68

Loading Pump

Future T/W Loading (Phase 2)

T/W Loading

Railcar Loading

Stack Emissions

Fume Recovery System

Stack Emissions

Future Fume Combuster and Hot Oil Heater (Phase 2)

Existing Liquid/Solid	———
Existing Vapor	———
Future Liquid/Solid	----------
Future Vapor	- - - - - -

Koppers016040

Kamerer Amos

From: Stark Patrick
Sent: Thursday, August 12, 2004 5:19 AM
To: Operations Managers; Plant Managers; SH&E Controllers; Hyde Leslie; Self Traci; Basilone Tim; Paul Linda S; Marcinowski John
Subject: FW: EPA Finalizes Extension for Compliance with the SPCC Rule

As an addendum to my previous email regarding the SPCC extension, EPA has published the extension in the Federal Register, so it is official.

Subject: EPA Finalizes Extension for Compliance with the SPCC Rule

On July 17, 2002, EPA issued a final rule amending the Oil Pollution Prevention regulation promulgated under the authority of the Federal Water Pollution Control Act (Clean Water Act). This rule addresses requirements for Spill Prevention, Control and Countermeasure (SPCC) Plans and some provisions may also affect Facility Response Plans (FRPs). EPA proposed revisions to the SPCC rule on three occasions, in 1991, 1993, and 1997. The revised SPCC rule addresses these revisions and became effective August 16, 2002.

On June 17, 2004, EPA proposed to extend, by 12 months, certain upcoming compliance dates for the July 2002 SPCC amendments. EPA has now finalized an 18-month extension for the dates in 40 CFR 112.3(a) and (b) for a facility to amend and implement its SPCC Plan to comply with the requirements as amended in 2002 (or, in the case of a facility becoming operational after August 16, 2002, prepare and implement a Plan in a manner that complies with the 2002 amended requirements). EPA has also amended the compliance deadlines in 40 CFR 112.3(c) for mobile facilities. EPA is granting the extension to, among other reasons, provide sufficient time for the regulated community to undertake the actions necessary to prepare and update their Plans in light of a recent partial settlement of litigation involving the July 2002 amendments.
The extension is also intended to alleviate the need for individual extension requests.

This extension follows a previous 18-month extension announced on April 17, 2003, and extends deadlines for an additional 18 months from the dates promulgated at that time. The new compliance dates are February 17, 2006, to amend an existing SPCC Plan, and August 18, 2006, to implement the Plan. Affected facilities that start operations between August 16, 2002 and August 18, 2006, must prepare and implement an SPCC Plan by August 18, 2006. Affected facilities that become operational after August 18, 2006 must prepare and implement an SPCC Plan before starting operations.

The final rule was published in the Federal Register on August 11, 2004, at (69 FR 48794) You can access the Federal Register at http://www.gpoaccess.gov/fr/index.html

For further information, please see http://www.epa.gov/oilspill.

KOPPERS INDUSTRIES

Koppers Industries, Inc.
7540 N.W. St. Helens Road
Portland, OR 97210-3663

Amos S. Kamerer
Plant Manager

Telephone: 503-286-3681
Fax: 503-285-2831

Good Sam
1015 NW 22nd
97210

July 12, 2002

Pacific Terminal Services, Inc.
7900 NW Saint Helens Road
Portland, Oregon 97210-3663

Attention: Tina Garrett
Terminal Manager

Reference: Spill Prevention, Control and Countermeasure Plan.

Dear Ms. Garrett,

Attached please find a copy of our revised SPCC Plan for your files.

Should you have any questions or comments on the plan, please feel free to contact me at 503/286-3681 or via e-mail at: kamereras@koppers.com

Sincerely,

Amos S. Kamerer

CC: T. Self, KII

KOPPERS INDUSTRIES

Koppers Industries, Inc.
7540 N.W. St. Helens Road
Portland, OR 97210-3663

Amos S. Kamerer
Plant Manager

Telephone: 503-286-3681
Fax: 503-285-2831

July 12, 2002

U. S. Coast Guard
6767 N. Basin Avenue
Portland, Oregon 97203-5452

Attention: LCDR Randy Clark
Marine Safety Officer

Reference: Spill Prevention, Control and Countermeasure Plan.

Dear Commander Clark,

Attached please find a copy of our revised SPCC Plan for your files.

Should you have any questions or comments on the plan, please feel free to contact me at 503/286-3681 or via e-mail at: kamereras@koppers.com

Sincerely,

Amos S. Kamerer

CC: T. Self, KII

KOPPERS
INDUSTRIES

Koppers Industries, Inc.
7540 N.W. St. Helens Road
Portland, OR 97210-3663

Amos S. Kamerer
Plant Manager

Telephone: 503-286-3681
Fax: 503-285-2831

July 12, 2002

City of Portland
Bureau of Environmental Services
6543 N. Burlington Avenue
Portland, Oregon 97203-5452

Attention: Michael J. Pronold
Permit Manager

Reference: Spill Prevention, Control and Countermeasure Plan.

Dear Mr. Pronold,

Attached please find a copy of our revised SPCC Plan for your files.

Should you have any questions or comments on the plan, please feel free to contact me at 503/286-3681 or via e-mail at: kamereras@koppers.com

Sincerely,

Amos S. Kamerer

CC: T. Self, KII

KOPPERS
INDUSTRIES

Koppers Industries, Inc.
7540 N.W. St. Helens Road
Portland, OR 97210-3663

Amos S. Kamerer
Plant Manager

Telephone: 503-286-3681
Fax: 503-285-2831

July 12, 2002

Portland Fire Bureau
2915 SE 13th Place
Portland, Oregon 97202

Attention: William A. Henle, C.H.M.M.
Hazardous Materials Coordinator

Reference: Spill Prevention, Control and Countermeasure Plan.

Dear Mr. Henle,

Attached please find a copy of our revised SPCC Plan for your files.

Should you have any questions or comments on the plan, please feel free to contact me at 503/286-3681 or via e-mail at: kamereras@koppers.com

Sincerely,

Amos S. Kamerer

CC: T. Self, KII

KOPPERS
INDUSTRIES

Koppers Industries, Inc.
7540 N.W. St. Helens Road
Portland, OR 97210-3663

Amos S. Kamerer
Plant Manager

Telephone: 503-286-3681
Fax: 503-285-2831

July 12, 2002

Oregon Department of Environmental Quality
Northwest Region
2020 SW Forth Ave., Suite 400
Portland, Oregon 97201-4987

Attention: Randy Bailey
Air Quality Permits and Inspections

Reference: Spill Prevention, Control and Countermeasure Plan.

Dear Mr. Bailey,

Attached please find a copy of our revised SPCC Plan for your files.

Should you have any questions or comments on the plan, please feel free to contact me at 503/286-3681 or via e-mail at: kamereras@koppers.com

Sincerely,

Amos S. Kamerer

CC: T. Self, KII

KOPPERS
INDUSTRIES

Koppers Industries, Inc.
7540 N.W. St. Helens Road
Portland, OR 97210-3663

Amos S. Kamerer
Plant Manager

Telephone: 503-286-3681
Fax: 503-285-2831

July 12, 2002

Oregon Department of Environmental Quality
Northwest Region
2020 SW Forth Ave., Suite 400
Portland, Oregon 97201-4987

Attention: Elliot J. Zais
Sr. Environmental Engineer

Reference: Spill Prevention, Control and Countermeasure Plan.

Dear Mr. Zais,

Attached please find a copy of our revised SPCC Plan for your files.

Should you have any questions or comments on the plan, please feel free to contact me at 503/286-3681 or via e-mail at: kamereras@koppers.com

Sincerely,

Amos S. Kamerer

CC: T. Self, KII

KOPPERS INDUSTRIES

Koppers Industries, Inc.
7540 N.W. St. Helens Road
Portland, OR 97210-3663

Amos S. Kamerer
Plant Manager

Telephone: 503-286-3681
Fax: 503-285-2831

May 27, 1998

Mr. Elliot Zais
State of Oregon
Department of Environmental Quality
2020 SW Fourth Ave., #400
Portland, OR 97201-4987

Reference: Spill Prevention, Control, and Countermeasures Plan

Dear Sir,

As per our company policy, enclosed please find a copy of our revised SPCC plan for your files. Should you have any questions or comments, please feel free to contact me at any time.

Sincerely,

Amos S. Kamerer

BCC: T.I. Self, J.T. Dietz

KOPPERS INDUSTRIES

Koppers Industries, Inc.
7540 N.W. St. Helens Road
Portland, OR 97210-3663

Amos S. Kamerer
Plant Manager

Telephone: 503-286-3681
Fax: 503-285-2831

February 25, 2000

Elliot J. Zais
Sr. Environmental Engineer
Oregon Department of Environmental Quality
Northwest Region
2020 SW Fourth Ave., Suite 400
Portland, OR 97201-4987

Reference: Spill Prevention, Control and Countermeasure Plan.

Dear Elliot,

Attached please find a copy of our revised SPCC plan for your files. Should you have any questions or comments on the plan's content, please feel free to contact me at any time.

Also, if you feel that someone else within your operations should have a copy of this plan, please feel free to copy it for that purpose.

Sincerely,

Amos

Amos S. Kamerer

cc: T. Self, KII
M. Cilley, KII

KOPPERS INDUSTRIES

Koppers Industries, Inc.
7540 N.W. St. Helens Road
Portland, OR 97210-3663

Amos S. Kamerer
Plant Manager

Telephone: 503-286-3681
Fax: 503-285-2831

February 25, 2000

William A. Henle
Hazardous Materials Coordinator
Portland Fire Bureau
2915 SE 13th Place
Portland, Or 97202

Reference: Spill Prevention, Control and Countermeasure Plan.

Dear William,

Attached please find a copy of our revised SPCC plan for your files. Should you have any questions or comments on the plan's content, please feel free to contact me at any time.

Also, if you feel that someone else within your operations should have a copy of this plan, please feel free to copy it for that purpose.

Sincerely,

Amos

Amos S. Kamerer

cc: T. Self, KII
M. Cilley, KII

KOPPERS INDUSTRIES

Koppers Industries, Inc.
7540 N.W. St. Helens Road
Portland, OR 97210-3663

Amos S. Kamerer
Plant Manager

Telephone: 503-286-3681
Fax: 503-285-2831

February 25, 2000

Colleen F.G. Harold
Permit Manager
City of Portland
Bureau of Environmental Services
6543 N. Burlington Ave.
Portland, OR 97203-5452

Reference: Spill Prevention, Control and Countermeasure Plan.

Dear Colleen,

Attached please find a copy of our revised SPCC plan for your files. Should you have any questions or comments on the plan's content, please feel free to contact me at any time.

Also, if you feel that someone else within your operations should have a copy of this plan, please feel free to copy it for that purpose.

Sincerely,

Amos

Amos S. Kamerer

cc: T. Self, KII
M. Cilley, KII

KOPPERS INDUSTRIES

Koppers Industries, Inc.
7540 N.W. St. Helens Road
Portland, OR 97210-3663

Amos S. Kamerer
Plant Manager

Telephone: 503-286-3681
Fax: 503-285-2831

February 25, 2000

LCDR Ed Parsons
Marine Safety Office
U.S. Coast Guard
6767 N. Basin Ave.
Portland, OR 97217-3992

Reference: Spill Prevention, Control and Countermeasure Plan.

Dear Ed,

Attached please find a copy of our revised SPCC plan for your files. Should you have any questions or comments on the plan's content, please feel free to contact me at any time.

Also, if you feel that someone else within your operations should have a copy of this plan, please feel free to copy it for that purpose.

Sincerely,

Amos

Amos S. Kamerer

cc: T. Self, KII
M. Cilley, KII

KOPPERS INDUSTRIES

Koppers Industries, Inc.
7540 N.W. St. Helens Road
Portland, OR 97210-3663

Amos S. Kamerer
Plant Manager

Telephone: 503-286-3681
Fax: 503-285-2831

March 17, 1997

Mr. Stephen Rosenberger
City of Portland
Environmental Services
1211 SW Fifth Ave. Suite 800
Portland, OR 97204-3713

Reference: Permit #314-001

Dear Mr. Rosenberger,

As part of our annual review process, updates and needed changes have been made to our Spill Prevention, Control and Countermeasures Plan. Enclosed please find a revised copy for your files. Please discard the old copy.

Please feel free to call at anytime, should you have any questions.

Sincerely,

Amos S. Kamerer
Plant Manager

bcc: W.E. Swearingen, KII
J. E. Marcinowski, KII

Carbon copies have also been sent to: Mr. Mike Franzen, Portland Fire Bureau
Mr. Elliot Zais, DEQ
EPA, Region X
Mr. Stephen Rosenberger, City of Portland

KOPPERS INDUSTRIES

Koppers Industries, Inc.
7540 N.W. St. Helens Road
Portland, OR 97210-3663

Amos S. Kamerer
Plant Manager

Telephone: 503-286-3681
Fax: 503-285-2831

June 12, 1996

Mr. Stephen Rosenberger
City of Portland
Environmental Services
1211 SW Fifth Ave. Suite 800
Portland, OR 97204-3713

Reference: Permit #314-001

Dear Mr. Rosenberger,

As per your request during your annual inspection on May 21, enclosed please find revised pages 14, 15 and 17 to our Spill Prevention, Control and Countermeasures Plan, adding the requirement to notify the cities Duty Officer, in the event a spill would reach the cities storm or sanitary sewer drains. No other changes were made to the original SPCC Plan.

By copies to the parties listed below, enclosed please find copies of these same pages for you to replace in your copy of our plan.

If any one has any questions in this regard, please feel free to contact me at any time.

Sincerely,

Amos S. Kamerer
Plant Manager

cc: EPA, Region X
DEQ, Mr. Elliot Zais
Portland Fire Bureau, Mr. Mike Franzen
KII, W.E. Swearingen
KII, J. S. Marcinowski

KOPPERS INDUSTRIES

Koppers Industries, Inc.
7540 N.W. St. Helens Road
Portland, OR 97210-3663

Amos S. Kamerer
Plant Manager

Telephone: 503-286-3681
Fax: 503-285-2831

June 12, 1996

Environmental Protection Agency
Region X
1200 Sixth Ave.
Seattle, WA 98101

Reference: Spill Prevention, Comtrol and Countermeasure Plan

Dear Sirs:

As per your request during your annual inspection on May 21, enclosed please find revised pages 14, 15 and 17 to our Spill Prevention, Control and Countermeasures Plan, adding the requirement to notify the cities Duty Officer, in the event a spill would reach the cities storm or sanitary sewer drains. No other changes were made to the original SPCC Plan.

By copies to the parties listed below, enclosed please find copies of these same pages for you to replace in your copy of our plan.

If any one has any questions in this regard, please feel free to contact me at any time.

Sincerely,

Amos S. Kamerer
Plant Manager

cc: EPA, Region X
DEQ, Mr. Elliot Zais
Portland Fire Bureau, Mr. Mike Franzen
KII, W.E. Swearingen
KII, J. S. Marcinowski

KOPPERS INDUSTRIES

Koppers Industries, Inc.
7540 N.W. St. Helens Road
Portland, OR 97210-3663

Amos S. Kamerer
Plant Manager

Telephone: 503-286-3681
Fax: 503-285-2831

June 12, 1996

Mr. Elliot Zais
Dept. of Environmental Quality
2020 SW Fourth Ave., 4th Floor
Portland, OR 97201

Reference: Spill Prevention, Comtrol and Countermeasure Plan

Dear Mr. Zais,

As per your request during your annual inspection on May 21, enclosed please find revised pages 14, 15 and 17 to our Spill Prevention, Control and Countermeasures Plan, adding the requirement to notify the cities Duty Officer, in the event a spill would reach the cities storm or sanitary sewer drains. No other changes were made to the original SPCC Plan.

By copies to the parties listed below, enclosed please find copies of these same pages for you to replace in your copy of our plan.

If any one has any questions in this regard, please feel free to contact me at any time.

Sincerely,

Amos S. Kamerer
Plant Manager

cc: EPA, Region X
DEQ, Mr. Elliot Zais
Portland Fire Bureau, Mr. Mike Franzen
KII, W.E. Swearingen
KII, J. S. Marcinowski

KOPPERS
INDUSTRIES

Koppers Industries, Inc.
7540 N.W. St. Helens Road
Portland, OR 97210-3663

Amos S. Kamerer
Plant Manager

Telephone: 503-286-3681
Fax: 503-285-2831

June 12, 1996

Mr. Mike Franzen
Fire Inspector
Portland Fire Bureau
55 S.W. Ash Street
Portland, OR 97204

Reference: Spill Prevention, Comtrol and Countermeasure Plan

Dear Mr. Franzen,

As per your request during your annual inspection on May 21, enclosed please find revised pages 14, 15 and 17 to our Spill Prevention, Control and Countermeasures Plan, adding the requirement to notify the cities Duty Officer, in the event a spill would reach the cities storm or sanitary sewer drains. No other changes were made to the original SPCC Plan.

By copies to the parties listed below, enclosed please find copies of these same pages for you to replace in your copy of our plan.

If any one has any questions in this regard, please feel free to contact me at any time.

Sincerely,

Amos S. Kamerer
Plant Manager

cc: EPA, Region X
DEQ, Mr. Elliot Zais
Portland Fire Bureau, Mr. Mike Franzen
KII, W.E. Swearingen
KII, J. S. Marcinowski

KOPPERS INDUSTRIES

Koppers Industries, Inc.
7540 N.W. St. Helens Road
Portland, OR 97210-3663

Amos S. Kamerer
Plant Manager

Telephone: 503-286-3681
Fax: 503-285-2831

January 8, 1996

Environmental Protection Agency
Region X
1200 Sixth Ave.
Seattle, WA 98101

Ref: Spill Prevention, Control and Countermeasure Plan

Dear Sirs:

I just have noticed an incomplete entry in our SPCC plan that effects the tank listing table (page 9) and corresponding site plan (page 24) of this document. Enclosed please find a corrected copy for your files, no other changes were made to the original plan.

Sincerely,

Amos S. Kamerer
Plant Manager

cc: W.E. Swearingen, KII
J. S. Marcinowski, KII

KOPPERS INDUSTRIES

Koppers Industries, Inc.
7540 N.W. St. Helens Road
Portland, OR 97210-3663

Amos S. Kamerer
Plant Manager

Telephone: 503-286-3681
Fax: 503-285-2831

January 8, 1996

Mr. Elliot Zais
Dept. of Environmental Quality
2020 SW Fourth Ave., 4th Floor
Portland, OR 97201

Ref: Spill Prevention, Control and Countermeasure Plan

Dear Mr. Zais,

I just have noticed an incomplete entry in our SPCC plan that effects the tank listing table (page 9) and corresponding site plan (page 24) of this document. Enclosed please find a corrected copy for your files, no other changes were made to the original plan.

Sincerely,

Amos S. Kamerer
Plant Manager

cc: W.E. Swearingen, KII
J. S. Marcinowski, KII

KOPPERS
INDUSTRIES

Koppers Industries, Inc.
7540 N.W. St. Helens Road
Portland, OR 97210-3663

Amos S. Kamerer
Plant Manager

Telephone: 503-286-3681
Fax: 503-285-2831

January 8, 1996

Mr. Stephen Rosenberger
City of Portland
Environmental Services
1120 SW Fifth Ave., Room 400
Portland, OR 97204-1972

Ref: Spill Prevention, Control and Countermeasure Plan

Dear Mr. Rosenberger,

I just have noticed an incomplete entry in our SPCC plan that effects the tank listing table (page 9) and corresponding site plan (page 24) of this document. Enclosed please find a corrected copy for your files, no other changes were made to the original plan.

Sincerely,

Amos S. Kamerer
Plant Manager

cc: W.E. Swearingen, KII
J. S. Marcinowski, KII

KOPPERS INDUSTRIES

Koppers Industries, Inc.
7540 N.W. St. Helens Road
Portland, OR 97210-3663

Amos S. Kamerer
Plant Manager

Telephone: 503-286-3681
Fax: 503-285-2831

January 8, 1996

Mr. Don Bloom
CHMM Hazmat Planner
Portland Fire Bureau
4800 N.E. 122nd Ave.
Portland, OR 97230

Ref: Spill Prevention, Control and Countermeasure Plan

Dear Mr. Bloom,

I just have noticed an incomplete entry in our SPCC plan that effects the tank listing table (page 9) and corresponding site plan (page 24) of this document. Enclosed please find a corrected copy for your files, no other changes were made to the original plan.

Sincerely,

Amos S. Kamerer
Plant Manager

cc: W.E. Swearingen, KII
J. S. Marcinowski, KII

CITY OF

PORTLAND, OREGON

FIRE PREVENTION DIVISION

Charlie Hales
Commissioner of Public Safety
Jim Crawford, Fire Marshal
55 S.W. Ash Street
Portland, Oregon 97204-3590
(503) 823-3700
FAX (503) 823-3710

"YOUR SAFETY IS YOUR RESPONSIBILITY"

January 31, 1996

Mr. Amos S. Kramer, Plant Manager
Koppers Industries, Inc.
7540 NW St. Helens Road
Portland, OR 97210-3663

RECEIVED
FEB - 2 1996
KOPPERS INDS., INC.
PORTLAND, OR

Mr. Kramer,

Thank you for submitting your Spill Prevention, Control and Countermeasure Plan.

I have sent a copy of this plan to Captain Sprando at Station 22 for him to review and shall place the original plan on file in the Title III office located at 10 SW Ash.

If you have any questions, you may contact me at 823-3934.

Sincerely,

Mike Franzen,
Fire Inspector, Portland Fire Bureau

CITY OF
PORTLAND, OREGON
BUREAU OF FIRE, RESCUE & EMERGENCY SERVICES

Charlie Hales, Commissioner of Public Safety
Walt Arnold, Chief Training Officer
Training Section
4800 N.E. 122nd
Portland, Oregon 97230
(503) 823-3890
Fax: (503) 823-3893

Cheryl,
Please make corrections on the original — make copies for all sets.

Amos S. Kamerer
Koppers Industries, Inc.
7540 NW St Helens RD
Portland OR 97210-3663

December 28, 1994

Dear Mr. Kamerer,

Thank you for the recent update of your Emergency Contingency Plan for the Koppers plant in Portland Oregon. A copy of Pages 9 & your facility map have been forwarded to Fire Station #22 for their emergency response pre-plan books.

I have mailed a copy of page 4, for some minor corrections. While this information is not critical for emergency response the notification procedures are critical. On page 4, center of the page it states that corporate phone numbers are found on page 15. I believe this should say page 14. At the bottom of page 4 in section 3.1 the Tank Listing Table is shown as Table 3.1 but I believe it should say Table 3.7 as stated in paragraph 2.4.

The critical items however are in the notification procedures on pages 14, and 17, (copies enclosed). At the top of page 14 "If release or threatened release of hazardous material, IMMEDIATELY:"..... The first and immediate notification should go to 9-1-1 Fire. In this manner you can get help immediately on the way to assist your plant personnel resolve any problems you might have. Oregon Emergency Management must also be notified along with the National Response Center, but neither can send help immediately. On page 17 9-1-1 Fire should be the first notification since the Fire Bureau is the Primary Emergency Responder for Hazardous Materials Incidents in Portland. Additionally on page 17 the Oregon Emergency Management Notification number is shown as 1-800-424-8802, this number is actually the National Response Center's number. Oregon Emergency Management's phone number is 1-800-452-0311.

Please make the corrections to at least the notification procedures and return the corrected pages to me so I can replace the current pages in your contingency plan with the corrected information.

Thank you for your prompt attention to this matter.

If I may be of further assistance or can answer any questions for you please call me at 503-823-3936.

Sincerely

Don Bloom

Don Bloom, CHMM, Hazmat Planner

cc
Charles Price, Senior Inspector
Bill Henle, Hazmat Coordinator
George Houston, Division Chief TEMP

The above people can normally be reached during work hours at the business phone number, (503) 286-3681. Additionally, the night shift operator (when there is a night shift) can be reached at (503)286-3681.

The plant manager is the Primary Emergency Coordinator and should be contacted first. If he is not available, the others should be called, in the order listed, until someone is reached. The Primary Emergency Coordinator and alternates have complete authority to commit all necessary resources of the company in the event of an emergency.

During off shifts, holidays, and weekends, the shift foreman will be the acting Emergency Coordinator. During these times, the shift foreman will notify the Emergency Coordinator, above, who will assume responsibility for implementation upon his arrival at the plant. Also on nights,weekends and holidays when there is no shift work occuring the plant is patrolled by N.W. Natural Gas guards who make rounds of the plant hourly. The guards have been provided a list of emergency phone numbers to call in case of a problem.

Phone numbers for Koppers Industries Corporate Contacts are provided on Page 15. 14?

2.4 Hazardous Materials Inventory

The primary hazardous materials which are used or stored on the Koppers site are listed by tank in Table 3.7, Tank Listings Table (page 9). The tanks and facilities are shown on the site map by number or name.

3.0 SPILL PREVENTION, CONTROL, AND COUNTERMEASURES

3.1 Description

This section of the Plan provides information specific to the storage and handling of hazardous liquids, spill prevention and containment equipment, and countermeasures to be implemented to control the impact of a spill. The Tank Listings Table, Table 3.1, 3.7? lists all the tanks used at the Koppers plant by number along with their name, contents, and capacity. Locations can be found for processes and tanks on the site map.

If release or threatened release of hazardous material.
IMMEDIATELY: Call 9-1-1 Fire

Call the Oregon Emergency Management Office at 1-800-452-0311 This report shall be made unless it is determined that the release poses no significant hazard to human health and safety, property, or the environment and is less than the reportable quantity for the material.

Such releases which cannot be recovered must also be included in the SARA Title III annual reports.

If health threat or release outside of facility: OR

If the release results in or has the potential to cause an oil sheen on or discoloration of runoff water: OR

If release of hazardous or extremely hazardous material exceeds the Title III Reportable Quantity, IMMEDIATELY:

Call National Response Center at 800-424-8802.

If hazardous waste or a hazardous waste unit is involved OR if the plant contingency plan is implemented; IMMEDIATELY AND NOT LATER THAN 24 HOURS:

Call the Oregon Emergency Management office at #1-800-452-0311
AND, Within 15 days
Submit a written report of the incident to them at:
595 Cottage Street, N.E.
Salem, Oregon 97310

If injuries result in 3 or more people being hospitalized or 1 or more person killed, **IMMEDIATELY:**

Call the U. S. Occupational Safety and Health Administration or authorized state OSHA agency **WITHIN 8 HOURS**!

In all cases, as soon as the emergency situation allows, Koppers management in Pittsburgh shall be called. Follow the guidance contained in "Internal Emergency Notification Procedures" for Koppers Industries, Inc. At least one of the following primary contacts in Pittsburgh shall be notified:

Name, Position	Work Phone	Home Phone
Bill Swearingen, Program Manager	(412)227-2677	[redacted]
Lee Allison, Mgr. Occ. Health	(412)227-2592	
Randy Collins, Mgr. Loss Control	(412)227-2456	

Form 4.1
EMERGENCY AND/OR HAZARDOUS MATERIALS
INCIDENT REPORT

NOTIFICATION LOG:

Agency	Phone No.	Name of Person	Date/Time Notified
Portland Police	911 (Emergency)		
Portland Fire Dept. 911			
Oregon Emergency Management	1-800-424-8802 1-800-452-0311		
National Response Center	800-424-8802		
OSHA	503-229-5910		
Environmental Program Manager-KII	412-227-2883	Bill Swearingen	
or Home:	304-737-0627		

move to first agency called, for the most immediate assistance

ADDITIONAL DESCRIPTION OF INCIDENT AND ACTIONS TAKEN (Attach page if needed):

REPORT BY (Name): _____ DATE: _____
REPORT REVISED: _____ DATE: _____
REPORT REVISED: _____ DATE: _____

RECEIVED

DEC 29 1994

KOPPERS INDS., INC.
PORTLAND, OR

Oregon
Theodore R. Kulongoski, Governor

Department of Environmental Quality
Northwest Region
2020 SW Fourth Avenue, Suite 400
Portland, OR 97201-4987
(503) 229-5263
Fax: (503) 229-6945
TTY: (503) 229-5471

October 17, 2006

CERTIFIED MAIL
RETURN RECEIPT REQUESTED

Amos S. Kamerer
KOPPERS INDUSTRIES
7540 NW St. Helens Rd
Portland, OR 97210-3663

OCT 22 2006

File#:47430

Re: Issuance of Willamette Basin TMDL and Water Quality Management Plan

Dear Mr. Kamerer,

On September 21, 2006, the Department of Environmental Quality (DEQ) issued the Willamette Basin Total Maximum Daily Load (TMDL) as an Order, and submitted the TMDL to the Environmental Protection Agency (EPA) for approval. This is a huge milestone and comes after many years of working closely with the Willamette TMDL Council and other basin partners to develop a TMDL that was approved by EPA on September 29, 2006. When implemented, it will result in a cleaner, healthier Willamette River for current and future generations.

The Willamette River and numerous tributaries do not currently meet several water quality standards including bacteria, mercury and temperature. These standards assure that beneficial uses of the river and tributaries, such as swimming, fish consumption and fish rearing, are protected. When water quality standards are not met, the federal Clean Water Act requires a TMDL to be established. A TMDL determines how much pollution can be added to the river without exceeding water quality standards.

This letter is intended to provide you with notification that the TMDL has been issued as an order and that the summary of responses to comments is available as directed under OAR 340-042-0050 to 0070. Copies of the final TMDL, Water Quality Management Plan (WQMP) and Response to Comments are available on the DEQ Website at http://www.deq.state.or.us/wq/tmdls/willamettebasin.htm

Water quality improvements will depend on the actions of Willamette Basin communities, businesses and citizens. The wastewater treatment facilities that you manage have been identified as a potential source of mercury discharged to the Willamette River or its tributaries. DEQ will be requiring certain facilities to provide monitoring data to characterize its loads of mercury in their effluent and to develop mercury minimization plans. This requirement will be implemented through a Permit Action Letter which we expect to take out for public comment and to issue in the coming months.

Waste Load Allocations that were developed for temperature will be added to your permit at its next scheduled renewal date. Actions may need to be to taken, depending how close your discharge is to the new limits. The renewed permit may include a compliance schedule describing the timeline to implement actions to address these waste load allocations. If you have any questions regarding these actions, please contact your DEQ permit writer.

We look forward to working with you to improve water quality in the Willamette Basin. If you have any questions regarding the TMDL overall or would like to request a copy/CD of the TMDL/WQMP, please call Andy Schaedel in our Portland office at 503-229-6121, or Mike Wolf in our Eugene Office at 541-686-7848.

Sincerely,

Dick Pedersen, Administrator
Northwest Region

Encl:

Fact Sheet

Reducing Temperature in the Willamette Basin

Temperature Concerns

At times, the Willamette River and its tributaries are too warm to support healthy salmon and trout. Some of these cold water fish including lower Columbia coho, spring Chinook, winter steelhead, and bull trout are threatened with extinction and elevated stream temperatures have contributed to their decline.

Warm water interferes with adult salmon and trout migration and spawning. Warm water also decreases chances of juvenile survival; it affects egg and embryo development, alters juvenile fish growth rates, and decreases their ability to compete with temperature-tolerant fish species for habitat and food. Salmon and trout are also more susceptible to disease when water temperatures are warmest.

Temperature Standards

Oregon water quality standards for temperature are established to protect each freshwater phase of the salmon and trout lifecycle. These include migration, spawning, and juvenile rearing. Standards identify where and when each phase of the lifecycle occurs and include numeric criteria necessary to protect it. For example, salmon and steelhead trout rearing and migration occur in the summer and early fall and the numeric criterion designated to protect that use is 18°C. Other uses require different criteria as seen in the side panel or at the DEQ website: http://www.deq.state.or.us/wq/standards/WQStdsTemp.htm

Causes of Stream Warming

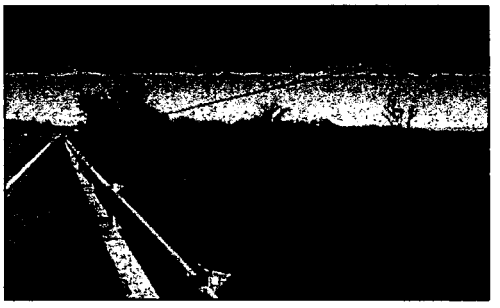
Stream temperatures are influenced by climate, elevation, geology, hydrology, stream side vegetation and many other factors. Natural warming is greatest during late spring, summer and early autumn when solar radiation levels are high and stream flows are usually at their lowest levels of the year.

A legacy of historical land use practices and current watershed management activities cause many Willamette Basin streams to warm beyond natural temperatures. Throughout the basin a principal cause of stream heating has been the removal of trees and other shade-producing vegetation from stream banks. This loss of riparian vegetation allows more solar energy to reach the water's surface. This warming is most noticeable in unshaded, small tributaries which typically can be well shaded.

Water diversions also contribute to stream heating by reducing stream flow during critical periods. This increases stream sensitivity to natural warming processes while also slowing the movement of water downstream. Thus, the water that remains in the stream channel has greater exposure to solar radiation and other sources of heat. Some dams, that store water for uses such as hydropower, recreation and flood control, can also affect stream temperature by releasing colder water later in the Spring and releasing warmer water later in the Fall.

Wastewater from industrial and municipal treatment facilities may also be a source of heat when discharged to streams. This is most apparent in smaller tributaries and the upper Willamette River which have less flow than the lower river.

Activities that regulate or restrict river connectivity with its floodplain can affect water temperatures and stream habitats. Channel dredging, bank armoring and other activities in the stream channel and floodplain may degrade areas of cool tributary and groundwater inflow. These areas of cool inflow provide small but important refuges that sustain salmon and trout through periods of seasonally warm water temperatures.



TMDL Analysis

The federal Clean Water Act requires the establishment of a total maximum daily load for pollutants when water quality standards are not met. A TMDL determines how much pollution a waterbody may receive without exceeding water quality standards. The TMDL identifies where

State of Oregon
Department of Environmental Quality

Northwest Region Water Quality Section
2020 SW 4th Avenue, # 400
Portland, OR 97201
Phone: (503) 229-5294
(800) 452-4011
Fax: (503) 229-6945
Lower Willamette
Contact: Manette Simpson
www.deq.state.or.us

Western Region Water Quality Section
750 Front St NE, Suite 120
Salem, OR 97301
Phone: (503) 378-5073
(800) 349-7677
Fax: (503) 373-7944
Middle Willamette
Contact: Nancy Gramlich
www.deq.state.or.us

Western Region Water Quality Section
1102 Lincoln St, Suite 210
Eugene, OR 97401
Phone: (541) 687-7437
(800) 844-8467
Fax: (541) 686-7551
Upper Willamette
Contact: Jared Rubin
www.deq.state.or.us

04-WQ-00

Last Updated: 09-08-06
By: Dennis Ades

Koppers016071

the pollution comes from and divides or allocates the pollutant load among difference sources.

DEQ, in collaboration with Portland State University, United States Geological Survey and basin stakeholders, developed dynamic stream flow and temperature models of the Willamette River. These models included water temperature and stream flow data, information on channel characteristics, stream side vegetation and meteorological. DEQ and its partners used these models to simulate a condition free of point source and nonpoint source pollution. With this understanding DEQ determined how much heat the river could accept from human sources and still meet water quality standards. Heat loads were then allocated to all point and nonpoint sources of pollution with a small amount set aside in reserve for future use.

TMDL Results

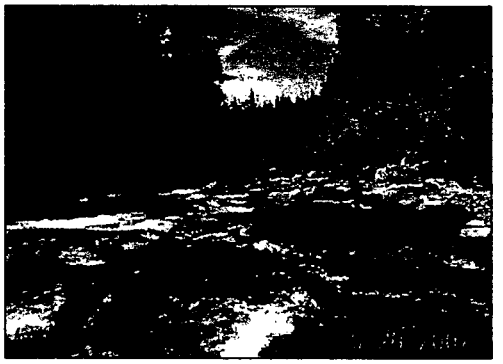
The TMDL requires reductions in point source heat loads during periods of low river flow. The TMDL also requires reductions from nonpoint sources of heat. This means protection and restoration of streambanks and shade-producing vegetation throughout the basin. Heat load allocations were also assigned to hydroelectric project dams that require reductions from the PGE Clackamas River project. Allocations for the federal flood control dams target natural stream temperatures that require substantial reductions in late summer and fall heat loads.

TMDL Implementation

Stream restoration activities that will cool stream temperatures and restore fish populations are underway throughout the basin. Local landowners in collaboration with federal, state and local agencies and other stakeholders are actively protecting and restoring streamside vegetation. Many of these agencies will submit implementation plans for DEQ approval that detail actions planned within their jurisdiction to cool stream temperatures.

DEQ is also including thermal limits in many of the discharge permits the agency issues to point source discharges. These limits will be added to permits as they are renewed over the next five years. Permitted sources may reduce their heat load through investments in pollution control technology, wastewater reclamation or pollution trading.

DEQ will insure that hydroelectric facilities meet water quality standards before issuance of water quality certifications. DEQ will work with the US Army Corps of Engineers to implement the TMDL at the federal flood control dams located throughout the Willamette basin.



Adaptive Management

Because of the uncertainties involved in the development of a TMDL and in the effectiveness of management strategies to reduce pollution, it is necessary to use an "adaptive management" approach to implement TMDLs. The adaptive management approach involves continual tracking and evaluation of actions taken to reduce pollution. TMDL implementation will be adjusted based on actual pollution reductions and water quality improvements.

For more information

For more information, contact Manette Simpson in Portland at (503) 229-5294, Nancy Gramlich in Salem at (503) 378-5073, Jared Rubin in Eugene at (541) 686-7838, ext. 261, or use the toll-free number in Oregon at (800) 452-4011. The Willamette website is: http://www.deq.state.or.us/wq/willamette/WRBhome.htm

Alternative Formats

Alternative formats (Braille, large type) of this document can be made available. Contact DEQ's Office of Communication & Outreach, Portland, at (503): 229-5696, or toll-free in Oregon at 1-800-452-4011, ext. 5696.

Oregon Temperature Criteria

- ***Waters identified as migration corridors including the mainstem Willamette below the Yamhill River* - 20.0°Celsius** (68.0°Farhrenheit (F)), applies year round.
- ***Salmon/trout rearing and migration waters*** - **18.0°C** (64.4°F), generally applies late spring to early fall in most waters other than the lower mainstem Willamette;
- ***Core cold water habitat*** - **16.0°C** (60.8°F), generally applies late spring to early fall to important reaches of several rivers flowing from the Cascades including portions of the McKenzie, North Santiam and Clackamas River;
- ***Salmon and steelhead spawning waters*** - **13.0°C** (55.4°F), generally applies late fall through early spring to all but the lower 50 miles of the Willamette River; and
- ***Bull trout spawning and rearing waters*** - **12.0°C *(53.6°F) generally applies year round to cold tributaries flowing from the Cascades.***

Koppers016072

Fact Sheet

Reducing Mercury Pollution in the Willamette River

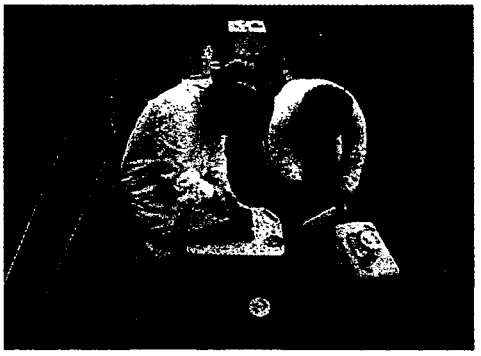
State of Oregon
Department of Environmental Quality

Water Quality Division
Watershed Management Section
811 SW 6th Avenue
Portland, OR 97204
Phone: (503) 229-5247
(800) 452-4011
Fax: (503) 229-6037
Contact: Agnes Lut
www.deq.state.or.us

Mercury Concerns

The accumulation of mercury in fish is a well-recognized environmental problem throughout the United States. Mercury is a potent toxin that can cause damage to the brain and nervous system. Small children and the developing fetus are most sensitive to mercury's toxic effects. The primary way that humans are exposed to mercury is through the consumption of fish or seafood containing elevated levels of mercury.

In Oregon, the state's Department of Human Services (DHS) has issued fish consumption advisories for the Willamette River and the Dorena and Cottage Grove Reservoirs because the levels of mercury in bass and northern pikeminnow exceed levels deemed to be safe for human consumption (0.35 parts per million).



DEQ staff collect fish samples as part of the Basin-wide Willamette mercury study.

Sources of Mercury

Mercury is a naturally occurring element found in soils throughout the Willamette Basin. Mercury is also found in trees and fossil fuels such as coal, natural gas, diesel and heating oil. The mercury present in these fuels is released into the atmosphere upon combustion. This mercury can be transported great distances and can later be deposited on the land where storm water runoff can carry it into rivers and lakes.

Mercury was mined commercially in Oregon and used in many products including fluorescent lights, thermometers, automobile switches and dental fillings.

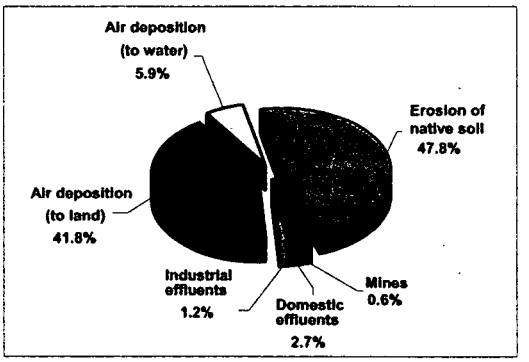
Total Maximum Daily Load for Mercury

When State water quality standards are not met, the federal Clean Water Act requires the establishment of a Total Maximum Daily Load (TMDL). A TMDL determines how much pollution can be added to the river without exceeding water quality standards. The TMDL identifies where pollution comes from and divides or "allocates" the load of the pollutant among different sources.

With grant funding from the US Environmental Protection Agency, the DEQ implemented a basin-wide mercury monitoring program to develop the TMDL for mercury. The goal of the TMDL is to reduce mercury levels in the basin to a point where fish are no longer unsafe to eat. DEQ has utilized an incremental approach for the mercury TMDL with the establishment of *interim* targets and allocations. Final targets and allocations will be completed in 2011 following additional data collection, analysis and stakeholder outreach.

TMDL Results

DEQ's preliminary analysis indicates that the majority of the mercury in the Willamette River comes from non-point sources such as the erosion of native soils containing mercury and the runoff of atmospherically-deposited mercury from urban, agricultural and forested landscapes.



Pie chart depicting the sources of mercury in the Willamette Basin.

Mercury is also discharged at low levels by some industrial facilities and domestic wastewater treatment facilities. These sources contribute a relatively minor amount of mercury to waters of the Willamette Basin.

Last Updated: 09/06/06
By: Jared Rubin
DEQ 06-WR-012

Koppers016073

In the Cottage Grove watershed, mercury residuals from old mining operations represent a significant source of mercury to the system. Legacy mining, however, is a relatively small contributor of mercury to the *mainstem* Willamette River.

How Much Mercury Needs to be Reduced?

DEQ's analysis suggests that a 27 percent reduction in the total mercury load is needed to reduce mercury in fish tissue to a safe level. This corresponds to the elimination or removal of 37.5 kg of total mercury per year.

TMDL Implementation for Mercury

Beginning in 2007, DEQ will require selected municipal and industrial facilities to increase monitoring and reporting of mercury, and take steps to reduce known sources of mercury by developing mercury minimization plans. DEQ will also work with communities and businesses to reduce soil erosion that can carry mercury to rivers. Best management practices to reduce soil erosion in agricultural, forested and urban sectors will also serve to keep mercury out of the Basin's waterways. By 2011, DEQ will evaluate the effectiveness of this implementation strategy and update the mercury TMDL, as necessary.

Ongoing Mercury Reduction Efforts

The DEQ is actively promoting efforts to recycle products containing mercury such as fluorescent lights, thermometers, automobile switches, and dental amalgam. The DEQ partners with other groups like the Association of Oregon Recyclers, the Oregon Dental Association and the Association of Clean Water Agencies to reduce mercury in communities across the State.

The DEQ's mercury reduction strategy is available on line at:
http://www.deq.state.or.us/programs/consumercorner/mercury/mercuryreduction.htm

Additional Information

For more information on the mercury TMDL, contact Agnes Lut at (503) 229-5247 or toll-free in Oregon at (800) 452-4011.

For more information on the Willamette TMDLs, visit:
http://www.deq.state.or.us/wq/willamette/WRBhome.htm

For more information on the fish consumption advisories issued by the Department of Human Services see:
http://www.oregon.gov/DHS/ph/envtox/fishconsumption.shtml

For more information on methylmercury in fish see the DHS factsheet at:
http://www.oregon.gov/DHS/ph/envtox/fishfact.shtml

For more information on mercury TMDL Implementation, contact Manette Simpson in Portland at (503) 229-5294, Nancy Gramlich in Salem at (503) 378-5073, Jared Rubin in Eugene at (541) 687-7437, or use the toll-free number in Oregon at (800) 452-4011.

Alternative formats

Alternative formats (Braille, large type) of this document can be made available. Contact DEQ's Office of Communications & Outreach, Portland, at (503) 229-5696, or toll-free in Oregon at 1-800-452-4011, ext. 5696.

DEQ-DC1

Kamerer Amos

From: Self Traci
Sent: Monday, June 20, 2005 12:13 PM
To: 'Elliot Zais (zais.elliot@deq.state.or.us)'
Cc: Turner TJ; Kamerer Amos
Subject: Koppers Inc. Portland Norwest Terminal

Hi Elliot,

Sorry I have been unable to return your call today but I wanted to respond that Koppers Inc. does not have an update because we are awaiting the draft NPDES permit so that we may clearly understand what Oregon is going to require as a condition of an NPDES permit renewal. Once we have this information we can consider all options and decide the best way to proceed. If you have any questions, please give me a call at 412-227-2883. Thank You

Traci I. Self
Environmental Manager

RYCEWICZ & CHENOWETH LLP

October 25, 2005

Elliot Zais, PhD
Oregon Department of Environmental Quality
2020 SW 4th Avenue, 1st Floor
Portland, Oregon 97201

Re: Koppers, Inc.: NPDES Permit Renewal, Permit No. 101642
7540 NW St. Helens Road, Portland Oregon

Dear Dr. Zais:

As you are aware, I have been retained by Koppers, Inc. (Koppers) to evaluate changes DEQ has proposed for the renewal of Koppers' NPDES Stormwater Permit, Permit No. 101642 (Permit).

I have reviewed DEQ's proposed permit modifications, the Applicant Review comments, and your letter of August 25, 2005 responding to those comments. As part of our effort to understand DEQ's authority and rationale for the significant proposed Permit changes, please provide responses to the following questions and issues.

1. Rationale for Effluent Limitations.

A. Proposed Permit Limits.

Under the current Permit, Koppers has consistently discharged within its Permit effluent limit for PAH of 1000 µg/L. Now DEQ is proposing a limit of "not detect" which effectively mandates treatment of the previously permitted discharge. Furthermore, new limits for Benzene, BTEX and Cyanide appear in the Applicant Review draft Permit.

In response to Koppers' earlier questions about how DEQ came to these new effluent limits, you state in an August 25, 2005 letter that DEQ was following its authority under OAR 340-041-0033(3), which provides:

> To establish permit or other regulatory limits for toxic substances for which criteria are not included in Tables 20, 33A, or 33B, the department may use the guidance values in Table 33C, public health advisories, and other published scientific literature. The department may also require or conduct bio-assessment studies to monitor the toxicity to aquatic life of complex effluents, other suspected discharges, or chemical substances without numeric criteria.

601 SW Second Avenue, Ste. 1940, Portland, Oregon 97204-3176
503-221-7958, fax 503-221-2182
www.northwestlaw.com

ORS 340-41-0033(1) further states:

> Toxic substances may not be introduced above natural background levels in waters of the state in amounts, concentrations, or combinations that may be harmful, may chemically change to harmful forms in the environment, or may accumulate in sediments or bioaccumulate in aquatic life or wildlife to levels that adversely affect public health, safety, or welfare or aquatic life, wildlife, or other designated beneficial uses.

From these provisions, it appears that the regulation of effluent discharge of toxics is conditional on a finding that the discharge is above background levels, poses a risk of harm to wildlife or humans or may accumulate in sediments or aquatic life. We request an explanation as to how DEQ believes these criteria have been met concerning the Koppers batch discharge.

As to your citation to narrative criteria, OAR 340-041-0007 Narrative Criteria provide as follows:

> (12) The creation of tastes or odors or toxic or other conditions that are deleterious to fish or other aquatic life or affect the potability of drinking water or the palatability of fish or shellfish may not be allowed;
>
> (13) The formation of appreciable bottom or sludge deposits or the formation of any organic or inorganic deposits deleterious to fish or other aquatic life or injurious to public health, recreation, or industry may not be allowed;
>
> (14) Objectionable discoloration, scum, oily sheens, or floating solids, or coating of aquatic life with oil films may not be allowed;

Again, the focus appears to be on the creation of conditions that will have a deleterious impact to fish, human health and recreation, and it is not clear on what basis DEQ may have concluded a violation of narrative standards exists.

Referring to the citations in your August 25, 2005 letter, there do not appear to be any guidance values in Table 33C which correspond to the proposed Permit limits. Koppers has not been made aware of any specific public health advisories, published scientific literature or bio-assessment studies related to Koppers' discharge. Please direct me to, or provide copies of, any such advisories, literature or studies.

We understand DEQ has authority under its delegated CWA program to modify effluent limitations in NPDES permits to attain or maintain water quality standards (*see* 33 U.S.C. §1312(a)) in order to protect beneficial uses such as drinking water, fish and shellfish, and recreational uses. What is not clear is whether (or how) DEQ has determined that Koppers' current discharge limits might need to be modified to protect any specific beneficial use(s).

B. Application of Cleanup Standards to NPDES Discharge.

From our review and discussions, it appears that DEQ is applying the most stringent Portland Harbor Superfund (eco-risk) Screening Level Values (SLVs) in setting the effluent limits for Koppers' NPDES draft Permit. This raises several questions.

First, on what basis has DEQ determined that cleanup SLVs should apply to Koppers' Clean Water Act NPDES discharge? The cleanup rules in ORS Chapter 340, Division 122, only apply when there is a "release or threat of release" as defined in ORS 465.200(21). As you point out in your August 25, 2005 letter DEQ cleanup laws (and CERCLA) provide an exemption to cleanup liability for permitted NPDES discharges. You cite OAR 340-122-0030 with the implication that DEQ has determined that the cleanup rules apply in our case. Again, has DEQ determined (as required by OAR 340-122-0030(2)) that Koppers' discharge is causing a "deposition, accumulation, or migration" of contaminants and poses a threat to the health and safety of humans or the environment?

We understand that DEQ and EPA have developed a joint source control strategy for the Portland Harbor. In this regard, some guidance is provided in the *Interim Final* Joint Source Control Strategy (JCSC), wherein it states in section 5.3:

> "Piped stormwater discharges to surface water are fundamentally different than groundwater discharges. Groundwater discharges have the potential to exert toxic effects on the benthic community with little or no dilution. However, piped discharges of soluble contaminants are typically diluted through rapid mixing with the waters of the receiving body."

In this regard, has DEQ considered that the groundwater surfacing on the Koppers leased property is likely no different than the groundwater entering the Willamette River from the site in general? Has DEQ concluded that Koppers' batch discharges somehow increase the contaminants above background levels, i.e., above the water quality leaving the site via groundwater? Koppers is not pumping any groundwater and the vast majority of its discharges occur during periods of high dilution (i.e., high rainfall and high river levels). Moreover, the JSCS also acknowledges that the conditional exemption for permitted discharges only applies if there is accumulation in sediment. As with the water quality regulations, discussed above, there seems to be a threshold question about the real impact of Koppers currently permitted discharge that has not been fully articulated by DEQ.

Based on my review of the Portland Harbor "Framework for Portland Harbor Storm Water Screening Evaluations" (August 2005) (SWSE), which is a companion document to the JSCS, it appears that the eco-risk screening levels focus on the risk that contaminated sediments, related interstitial groundwater, and surface water impacted by such sediment pose to the benthic community, fish, and other beneficial uses. As recognized in the JSCS, this appears to be a very different analysis than whether a transient stormwater discharge creates chronic or acute

deleterious conditions, or whether such a discharge poses any risk of accumulating in sediments. The JSCS also discusses a "weight of evidence" approach to analyzing storm water discharge risk and it is not clear if DEQ has engaged in such a process.

It is our understanding that Northwest Natural is already under a cleanup order or plan with DEQ to pump and treat contaminated groundwater from the site. You have stated that DEQ believes the groundwater chemical fingerprint from Koppers discharge is essentially the same as the groundwater being treated by Northwest Natural under its cleanup plan. The implication is that Koppers is picking up contaminated groundwater in its stormwater collection activities. I would appreciate receiving copies of the analytical data or reports that DEQ reviewed in reaching its conclusion about this groundwater issue. I would also like to clarify DEQ's thoughts on the source of the PAHs that Koppers is encountering, and whether the chemical fingerprint of the Northwest Natural groundwater indicates the same concentrations of PAHs that exist in Koppers' stormwater discharges. We will pay for all photo copies pursuant to this request.

2. Additional Permit Limits and Monitoring.

Koppers previously requested that DEQ explain the rationale for additional sampling requirements, including cyanide, pesticides, metals, tars, oils, and petroleum distillates. Some explanation would be appreciated. We have some concerns about costly sampling to analyze contaminated groundwater that both Koppers and DEQ seem to believe are unrelated to Koppers stormwater.

3. Contaminated Aquifer Policy.

I question if DEQ has appropriately considered its "Contaminated Aquifer Policy" (5/20/04) in evaluating the application of cleanup standards to Koppers NPDES draft Permit. As mentioned above, DEQ has conceded that the groundwater that is infiltrating the Koppers sumps (via entirely natural processes) is part of Northwest Natural's ongoing groundwater remediation. This raises a serious question about whether Koppers should be responsible for cleanup (i.e., treatment) of this contaminated groundwater under the Contaminated Aquifer Policy, which states:

> It is DEQ's policy, subject to specific conditions listed below, that where hazardous substances in groundwater have come to be located at a property, solely as the result of subsurface migration from a source or sources outside the property, DEQ will not take enforcement action against the owner or operator of the impacted property to require the performance of remedial actions or the payment of remedial action costs associated with the contaminated groundwater.

Under this policy, if DEQ is applying cleanup regulations or standards to, or requiring remedial actions of, Koppers via the NPDES Permit process and Cleanup Program criteria, then such

action would appear to be contrary to DEQ's statewide Contaminated Aquifer Policy. Some comment from DEQ on this issue would be helpful.

4. Additional Comments.

As I stated at the outset of this letter, Koppers goal at this time is to better understand DEQ's rationale for the significant proposed changes to the NPDES Permit, and the significant related costs. We will certainly continue to work with DEQ while considering all our options, and clarification on the above points will be very helpful in this effort.

Very truly yours,

RYCEWICZ & CHENOWETH, LLP

Christopher W. Rich
Email: crich@northwestlaw.com

Oregon
Theodore Kulongoski, Governor

Department of Environmental Quality
Northwest Region Portland Office
2020 SW 4th Avenue, Suite 400
Portland, OR 97201-4987
(503) 229-5263
FAX (503) 229-6957
TTY (503) 229-5471

25 August 2005

Traci Self
Koppers Inc.
436 7th Ave.
Room K-1800
Pittsburg PA 15219-1800

Re: NPDES permit

Dear Ms. Self:

This letter is in response to your request on 14 July 2005 for further justification of the conditions we proposed for the NPDES permit for the Koppers site in Portland at 7540 NW St Helens Road.

In order to issue an NPDES permit, DEQ is required to look at all parts of the waste stream. For this facility, the waste stream has always been characterized as tank farm runoff water, i.e., storm water and boiler blowdown water. Previous permits before 1988 also included non-contact cooling water. The containment areas are presumed to be competent and to not allow a connection to groundwater. We have analytical data that suggest Koppers' discharge has a chemical signature very similar to water being pumped as part of NW Natural's groundwater remediation. This NPDES permit does not authorize the discharge of contaminated groundwater. If Koppers is, indeed, intersecting groundwater in the containment area and discharging it, it would be an unpermitted discharge. The permit would have to be modified to include this waste stream, any appropriate effluent limitations, and any additional monitoring requirements.

Therefore, the Department would request any information Koppers has that provides the necessary engineering evaluation to demonstrate that the permitted system does not contain contaminated groundwater. Specifically, the evaluation would have to show that the storm water contaminated areas are not influenced by groundwater.

Mr. Kamerer inquired about DEQ's legal authority to set additional limits that are not directly addressed in Tables 20, 33A, and 33B. The following citation from the Oregon Administrative Rules speaks to his question.

"OAR 340-041-0033(3) To establish permit or other regulatory limits for toxic substances for which criteria are not included in Tables 20, 33A, or 33B, the department may use the guidance values in Table 33C, public health advisories, and other published scientific literature. The department may also require or conduct bio-assessment studies to monitor the toxicity to aquatic life of complex effluents, other suspected discharges, or chemical substances without numeric criteria."

The email and the Hahn and Associates, Inc. report I forwarded to you around 3 August 2005 provided some additional information about the Department's continuing investigations on the Gasco site and in Portland Harbor. Source control is a major issue which must be dealt with in order to do an effective cleanup. The soon to be released Joint Source Control Strategy document will lay out the DEQ/EPA plan to clean up the harbor.

Normally, a facility discharging in compliance with an NPDES permit is exempt from cleanup rules. However, if the discharge is causing accumulation of toxic materials to unsafe levels, the discharger's permit may no longer be appropriate. The following is the relevant part of the Oregon Administrative Rules (OAR).

OAR 340-122-0030
Scope and Applicability

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The Department sees the following possibilities for the Koppers facility:

1. Koppers could choose to work with NW Natural and maybe other tenants and build a treatment system which will be viewed as adequate, such as a GAC system. The NPDES permit for the discharge could be held individually by NW Natural or jointly by all the dischargers.

2. Koppers could choose to continue the renewal process for the current permit. This permit would include the limits in the 6 August 2004 applicant review draft permit. Discharge would be possible to either Doane Creek or to the Willamette River.

Please contact me at your earliest convenience to discuss this further.

Sincerely,

Elliot J. Zais, PhD, PE
Senior Environmental Engineer
Northwest Region

cc: Amos Kamerer and T. J. Turner

Oregon
Theodore Kulongoski, Governor

Department of Environmental Quality
Northwest Region Portland Office
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25 August 2005

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Pittsburg PA 15219-1800

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DEQ-DCI

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1. Koppers could choose to work with NW Natural and maybe other tenants and build a treatment system which will be viewed as adequate, such as a GAC system. The NPDES permit for the discharge could be held individually by NW Natural or jointly by all the dischargers.

2. Koppers could choose to continue the renewal process for the current permit. This permit would include the limits in the 6 August 2004 applicant review draft permit. Discharge would be possible to either Doane Creek or to the Willamette River.

Please contact me at your earliest convenience to discuss this further.

Sincerely,

Elliot J. Zais, PhD, PE
Senior Environmental Engineer
Northwest Region

cc: Amos Kamerer and T. J. Turner

Oregon

Department of Environmental Quality
Northwest Region
2020 SW Fourth Avenue Suite 400
Portland, OR 97201-4987

ADDRESS SERVICE REQUESTED

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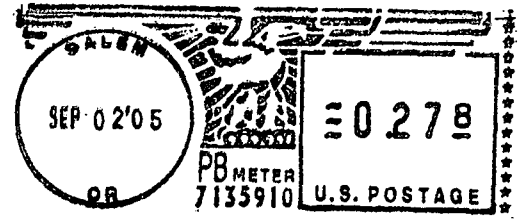

AMOS KRAMERER & TJ TURNER
KOPPERS INDUSTRIES
7540 NW ST HELENS RD
PORTLAND OR 97210-3663

GAUNEMS 97210

Koppers016085

CITY OF PORTLAND
ENVIRONMENTAL SERVICES

Water Pollution Control Laboratory
6543 N. Burlington Ave., Portland, Oregon 97203-5452
(503) 823-5600

October 3, 2005

Koppers Industries, Inc.
Amos Kamerer
7540 NW St. Helen's Rd.
Portland, OR 97210

Re: Stormwater discharge to City of Portland sewer system.

Dear Mr. Kamerer:

In response to your request for stormwater discharge to the City sewer system dated September 28, 2005; the city has discharge limits that will need to be met before discharge can be allowed. The following is the current local limitations in effect at this time.

Pollutant Name	Local Limit Daily Max (mg/L)
METALS	
Arsenic	0.2
Cadmium	0.7
Chromium	5.0
Copper	3.7
Lead	0.7
Mercury	0.010
Molybdenum	1.4
Nickel	2.8
Selenium	0.6
Silver	0.4
Zinc	3.7
NON-METALS (INORGANICS)	
Cyanide	1.2
pH	5.0-11.5 su
Sulfide	4.0

NON-METALS (ORGANICS)

1,2-Dichloroethane	0.50
2,4-Dinitrotoluene	0.13
Acrylonitrile	1.00
Chlordane	0.03
Chlorobenzene	0.20
Chloroform	0.20
Nitrobenzene	2.00
Pentachlorophenol	0.04
Trichloroethylene	0.20
Non-polar Oil & Grease	110

Sampling listed in your submittal indicated high readings for Selenium; 6.9 mg/l and for Zinc, 6.3 mg/l. Benzene at 29 mg/l would also be a concern. If you want to consider pretreating the discharge to local limitations you may apply for a permit at any time. I am also enclosing a copy of the City Code which includes the local limits for your review.

If you have comments or questions as you read through the materials, please do not hesitate to contact me at 823-7230.

Respectfully,

Ann O'Roke

Ann O'Roke, Permit Manager
Industrial Source Control Division

Cc: Industry File

Oregon
Theodore Kulongoski, Governor

Department of Environmental Quality
Northwest Region Portland Office
2020 SW 4th Avenue, Suite 400
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OCT 11 2005

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The Department sees the following possibilities for the Koppers facility:

1. Koppers could choose to work with NW Natural and maybe other tenants and build a treatment system which will be viewed as adequate, such as a GAC system. The NPDES permit for the discharge could be held individually by NW Natural or jointly by all the dischargers.

2. Koppers could choose to continue the renewal process for the current permit. This permit would include the limits in the 6 August 2004 applicant review draft permit. Discharge would be possible to either Doane Creek or to the Willamette River.

Please contact me at your earliest convenience to discuss this further.

Sincerely,

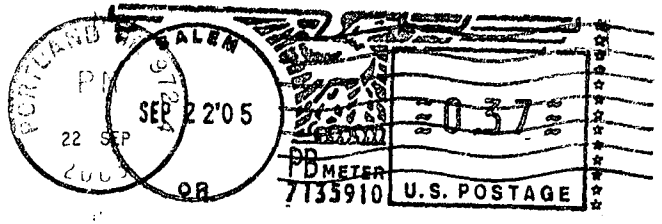
Elliot J. Zais, PhD, PE
Senior Environmental Engineer
Northwest Region

cc: Amos Kamerer and T. J. Turner

Oregon

Department of Environmental Quality
Northwest Region
2020 SW Fourth Avenue Suite 400
Portland, OR 97201-4987

ADDRESS SERVICE REQUESTED



T J TURNER
KOPPERS INC
436 7TH AVENUE
ROOM K-1800
PITTSBURG PA 15219-1800

Portland
Oregon

15213+1800

Koppers016090

KOPPERS

Koppers Inc.
436 Seventh Avenue
Pittsburgh, PA 15219-1800

PITTSBUR
OCT 6 '05
PA

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KOPPERS INDUSTRIES, INC.
7540 NW SAINT HELENS ROAD
PORTLAND, OR 97210-3663

First Class Mail

97210-3663

Koppers016091

Oregon
Theodore R. Kulongoski, Governor

Department of Environmental Quality
811 SW Sixth Avenue
Portland, OR 97204-1390
503-229-5696
TTY 503-229-6993

DEC 21 2005

December 19, 2005

Amos S. Kamerer
Koppers Industries, Inc.
7540 NW Saint Helens Rd
Portland, OR 97210-3663

Dear Amos S. Kamerer,

This is to notify you that DEQ is revising the fee schedule for water quality permit holders. The attached Fact Sheet provides more information on the changes that are currently planned, and on the reasons for these changes. The changes will affect most of the water quality permits issued by DEQ's Water Quality Division. It is anticipated that the changes will come into effect July 1, 2006.

According to our records, you have a NPDES-IW-N individual permit for the discharge of industrial waste. Currently, the fees associated with this permit are:

Filing Fee: $60
Renewal Fee: $1,415 (due every 5 years)
Annual Compliance Determination Fee: $2,260

Under the proposed revised fee schedule, the total amount of fees paid will increase by 11.8%. The filing fee, renewal fee, and ACD fee will also be combined into a single annual fee of $2,856 so you will receive only one permit fee invoice a year. Because the new annual fee will incorporate the renewal fee, you will receive a credit for the applicable portion of the current renewal fee if you have paid a renewal fee within the last 5 years.

Along with changing fees, DEQ is also proposing to change to a rolling invoicing system. This means that instead of having your annual fee due by July 31, 2006, it will be due the last day of the month prior to the date of permit issuance. In your case, this date is January 31. You can expect to receive an invoice for the appropriate amount including any credit after the new fees are adopted.

DEQ has scheduled a series of meetings throughout the state to provide information on the upcoming revisions and answer any question you may have. We hope that you will be able to attend one of these meetings. The schedule for these meetings is as follows:

City	Location	Date/Time
Pendleton	**The Community Room 501 SW Emigrant Avenue (back entrance of City Hall)**	**Jan. 17th Tuesday 2-4pm**
Portland	**DEQ Headquarters, Rm. 3A 811 SW Sixth Avenue**	**Jan. 19th Thursday 3-5pm**
Bend	**Deschutes County Office Barns Rm., 1st. fl. Front Entrance 1300 NW Wall**	**Jan. 24th Tuesday 2-4pm**
Medford	**Council Chambers 411 West 8th Street**	**Jan. 25th Wednesday 9-11am**
Salem	**Salem Public Library 585 Liberty St SE Anderson Room A/B, located on the lowest level**	**Jan. 26th Thursday 1-3pm**

If you cannot attend but would still like to give input, please contact either of the following staff after January 2, 2006:

Sonja Biorn-Hansen
(503)229-5257
biorn-hansen.sonja@deq.state.or.us

Scott Manzano
(503)229-5185
Manzano.scott@deq.state.or.us

Sincerely,

Annette Liebe, Manager
Surface Water Management Section
Water Quality Division

SBH
Attachments (Fact Sheet)

Fact Sheet

Implementing Blue Ribbon Committee Changes to Water Quality Permit Fees

Background

In December 2002, DEQ convened a special committee to recommend improvements to the state's wastewater permitting program. This Blue Ribbon Committee on the Oregon Wastewater Permitting Program included industry, environmental and local government representatives. DEQ also focused resources on reducing its water quality permit backlog dramatically, from 45% to 27% of all permits. Staff emphasis shifted from compliance and inspections to achieve this reduction. Future backlog improvements cannot be maintained without instituting committee recommendations.

In August 2004, the committee made the following recommendations for structural changes to DEQ's wastewater program:

- Institute program improvements that promote efficiency, effectiveness and consistency within the permitting program.
- Implement new accountability standards.
- Ensure stable, ongoing funding that improves fee predictability for rate payers and revenue for budget management.
  - o Maintain a mix of fee and public funding.
  - o Annualize fees and simplify fee table.
  - o Phase in increased resources.
  - o Allow for up to 3% annual permit fee increase to help address inflation.

The 2005 Legislature approved the Blue Ribbon Committee's recommendations for additional public funds and a fee increase in DEQ's wastewater program budget. The funding continues four existing permit staff whose positions would have been cut without the additional revenues. The funding will add 2.5 new positions to phase in during 2006-2007.

What are the proposed fee changes?

Annualized fees

- Permit holders will pay a single annual fee on the anniversary of their permit issuance date instead of paying several different fees over the permit's five-year term. This annual fee will be consistent from year to year, allowing for improved budget management.

Simplified fee table structure

- The number and types of permit fees will be reduced.
- Obsolete, unused permit categories will be eliminated and replaced with categories that better reflect the mix of industries in Oregon.

Phased Invoicing

- Currently, annual compliance determination fees are due by July 31 of each year, regardless of permit issuance date. To reduce confusion around the timing of invoices and spread out DEQ's invoicing workload, the new annual fees for a particular permit will be due the last day of the month prior to the date of permit issuance.

Proposed Fee Increases

- After the renewal fees are annualized and simplified, the overall revenue for DEQ's Wastewater Permitting Program will be increased as the Blue Ribbon Committee recommended:
  - o 7% increase in Fiscal Year (FY) 05-06 to restore four permit staff that will otherwise be eliminated. (Note: DEQ did not assess this increase for the July 05 billing and will combine it with the increase authorized fee for FY 06-07.)
  - o 4% increase in FY 06-07 to add 2.5 positions. This will improve management and delivery of the wastewater program to permit holders.

Because the Blue Ribbon Committee recommended modifying fee categories, it is possible that some permit fees will go up by more or less than the percentages listed above.

Will all permits issued by DEQ's Water Quality Permit Program be affected?

All permits will be affected by these changes with the exception of on-site (septic program) permits and suction dredge permits.

When will these fees be adopted?

DEQ anticipates that the Oregon Environmental Quality Commission will adopt the revised fee rule in the summer of 2006.

State of Oregon
Department of Environmental Quality

Water Quality Division
Surface Water Management
811 SW Sixth Ave.,
Portland, OR 97204
Phone: (503) 229-5257
(800) 452-4011, x5257
Fax: (503) 229-5408

For more information
Contact Sonja Biorn-Hansen of DEQ's Water Quality Division, Portland, at (503) 229-5257.

Alternative formats
Alternative formats (such as Braille, large type) of this document can be made available. Contact DEQ's Office of Communications & Outreach at (503) 229-5696, Portland, or toll-free in Oregon at 1-800-452-4011, ext 5696.

Last Updated: 12/05
DEQ-05-WQ-009

Koppers016094

Expected results

The fee increase will allow DEQ to fulfill its responsibilities under state and federal law to protect Oregon's water quality. Specifically:

- The wastewater permit backlog will be reduced to less than 10% of all permits by 2007
- Improved accountability, including annual permit issuance plans
- Permits issued by watershed, for an improved emphasis on key water quality concerns and a more holistic solution
- Timely review of compliance data and improved compliance inspections

KOPPERS

Koppers Inc.
Carbon Materials and Chemicals
7540 NW Saint Helens Road
Portland, OR 97210-3663
Tel 503 286 3681
Fax 503 285 2831
www.koppers.com

April 5, 2004

Oregon Department of Environmental Quality
Northwest Region
2020 SW Forth Ave., Suite 400
Portland, Oregon 97201-4987

Attention: Anne Hill
Permits Coordinator

Reference: NPDES Permit No. 101642
File No. 47430
Multnomah County

Dear Ms. Hill,

As part of the renewal for subject NPEDS permit, enclosed please find the completed EPA forms, Form 3510-1 and Form 2C, on the two samples that we have taken and analyzed in December 2004 and in October 2004.

Also, per conversation's with Elliot Zais, Traci Self and Amos Kamerer, we are inclosing copies of both complete set's of analyses on both samples, per Elliot's request. Per the Form 2C instructions, the analysis data entered on this form, is the highest result of the two samples for each parameter.

If you have any question's I can be reached via telephone at 505-286-3681 or via email at turnertj@koppers.com.

Sincerely,

T. J. Turner
General Foreman

cc: E. Zais, ODEQ
T. Self, KI

Oregon
Theodore R. Kulongoski, Governor

Department of Environmental Quality
Northwest Region Portland Office
2020 SW 4th Avenue, Suite 400
Portland, OR 97201-4987
(503) 229-5263
FAX (503) 229-6945
TTY (503) 229-5471

October 10, 2003

AMOS S KAMERER
KOPPERS INDUSTRIES, INC
7540 NW St Helens Road
Portland OR 97210-3663

File Number: 47430
Permit Number: 101642
Common Name/Site Location: KOPPERS, 7540 NW St. Helens Road, Portland
County: Multnomah

As indicated in our October 6, 2003 letter to you, DEQ is making a concerted effort over the next 12 months to reduce the backlog of expired permits in the wastewater permitting program. Oregon has the highest backlog in the nation for the 78 major facilities in the state (the largest dischargers) and one of the highest for other minor facilities. While these expired permits still hold legal force, they may not appropriately address current water quality standards, pollution limits for degraded streams (called Total Maximum Daily Loads), or current federal effluent standards.

The permitting program is one of several important tools that Oregon uses to protect and enhance the quality of its rivers and streams. The purpose of renewing permits at regular intervals is to ensure good water quality through reviewing and updating permit requirements as appropriate. In addition, the expired permit backlog creates an uneven playing field for businesses that may have similar operations, but operate under permits that were drafted to meet standards from different time periods.

As a part of this initiative, DEQ will change the focus of its wastewater program to emphasize permit issuance. At this time, DEQ plans to renew the permit for your facility during the upcoming year. We are asking for your support in this effort.

In the past, DEQ has provided permittees repeated opportunities to informally review, comment and negotiate changes to draft permit conditions prior to the formal Applicant Review and Public Comment. We want to continue this dialogue with permittees, but in the interest of timely permit issuance, we now ask that this be limited, where possible, to a single round of comments. We ask your cooperation by thoroughly reviewing the draft permit conditions during this period, and to do your best to identify fully all issues in the permit during this

review. DEQ's permit writer and your staff can then meet to review the complete list of issues and identify any changes that are appropriate.

We do not intend this change to be a decrease in the Department's commitment to customer service. Rather, it is our hope that by fully and completely identifying issues at one time, together we will streamline the process and clarify the interrelatedness of the various parts of the permit. Ultimately, we hope this will lead to greater levels of certainty for permittees that will facilitate your planning efforts.

We appreciate your cooperation in assisting DEQ in this highly-focused permitting effort.

If you have any questions, please contact Elliot Zais, your permit writer (503.229.5292) or Neil Mullane, Water Quality Program Administrator for Northwest Region (503.229.5287).

Sincerely,

Mike Llewelyn
Division Administrator, Water Quality Division
Department of Environmental Quality

Neil Mullane

Neil Mullane
Water Quality Program Administrator, Northwest Region
Department of Environmental Quality

cc: T. Self
B. Bauman

10/17/03

RECEIVED
OCT 17 2003
KOPPERS INDS. INC
PORTLAND OR

Oregon
John A. Kitzhaber, M.D., Governor

Department of Environmental Quality
811 SW Sixth Avenue
Portland, OR 97204-1390
(503) 229-5696
TTY (503) 229-6993

December 6, 2001

Re: Drought Conditions Update

Dear NPDES Permittee:

This last April and October, the Department notified you of the serious drought conditions throughout the state and asked for your help to minimize impacts from your wastewater discharge on the receiving stream. In October, the Department asked that you voluntarily comply with conditions outlined in the letter, and set forth a DEQ Internal Management Directive under which the Department would consider offering conditional civil penalty amnesty for certain water quality standards violations due to the drought. The Directive and offer of amnesty from civil penalty is effective until December 31, 2001.

Fortunately, the fall weather precipitation amounts are resulting in normal stream flows for this time of year throughout most of the state. If the receiving stream you discharge to is at normal flow, then you should comply with the winter season limitations stated in your permit. Some parts of the state though may still be experiencing below normal stream flows as streams continue to recover from record low or near record low flows. If your facility does discharge to a receiving stream that is still impacted due to low stream flows, please continue to comply with the conditions that were set forth in the October 2, 2001 letter.

Thank you for your continued efforts and cooperation to minimize your discharge during the critical drought period that was recorded as one of the worst on record in Oregon. Your staff are to be commended as they work towards achieving high standards of operation to lessen impacts of wastewater discharge on streams, especially during critical times of low stream flow.

Sincerely,

Michael T. Llewelyn, Administrator
Water Quality Division

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DEC 10 2001
KOPPERS INDS, INC.
PORTLAND OR

Oregon
John A. Kitzhaber, M.D., Governor

Department of Environmental Quality
811 SW Sixth Avenue
Portland, OR 97204-1390
(503) 229-5696
TTY (503) 229-6993

October 2, 2001

Re: Drought Conditions Update

Dear NPDES Permittee:

As you are probably aware, Oregon continues to experience serious drought conditions as a result of abnormally low rainfall and snowfall during the past year. Last April, the Department notified you of extremely low stream flows in many parts of the state, and asked for help in minimizing impacts from your wastewater discharge on the receiving stream. The Department anticipates that low stream flows may extend into fall and early winter. If rain does not come within the next month, critical low flow conditions may further impact the quality of water in streams and rivers.

Under normal winter and spring rainfall conditions, there is usually enough dilution in the receiving stream to assimilate the wastes discharged from your facility. With the very low flows anticipated this fall, some streams may not have enough dilution to assimilate the wastes discharged. This could create a situation where your facility would discharge wastes that meet permitted effluent limitations but nonetheless violate certain instream water quality standards.

During this emergency, you can assist by voluntarily complying with these conditions:

- **If your facility does not discharge to the Columbia River or Pacific Ocean and your permit has less stringent winter season limitations than those applicable during summer, you should continue to comply with your permit's summer effluent limitations.**

- **If your permit prohibits discharge to state waters until November 1, but allows such discharges thereafter, you should extend your nondischarge period until rainfall has set in and stream flows increase.** If you operate a lagoon treatment system, you should evaluate your operations to ensure that the system will not be structurally jeopardized with higher storage levels. If you operate an irrigation system for reclaimed water, you should ensure that your irrigation practices do not cause runoff or other environmental problems.

I would like to clarify the Department's position regarding water quality standards violations during this emergency. If you observe the above conditions and those conditions set forth in the DEQ Internal Management Directive, the Department will consider offering conditional civil penalty amnesty for certain water quality standards violations. The full set of conditions in the directive is available on the internet at <http://www.deq.state.or.us/wq/wqpermit/droughtamnesty.pdf > or in hard copy at any DEQ office.

RECEIVED
OCT - 3 2001
KOPPERS INDS, INC.
PORTLAND OR

DEQ-1

In addition, the Department asks you to take the following steps to protect water quality:

- **If your facility uses chlorine for disinfection, or your feed water carries a chlorine residual, please limit the amount of chlorine you discharge.** Chlorine is extremely toxic to fish and other aquatic life. If you are using chlorine for disinfection and a chlorine residual limit has not been established in your NPDES permit, you should only maintain a residual sufficient to reduce bacteria levels below permit limits. Control of disinfection processes requires consideration of the chlorine dosage and residual, the detention time in the chlorine contact chamber, the effluent quality, and the bacteria test results. You may wish to increase sampling for bacteria if you make adjustments in the chlorine feed rate.

- **If your permit includes Schedule F conditions regarding operation and maintenance, please review all outstanding maintenance needs to ensure that wastewater control facilities are being operated and maintained as efficiently as possible to prevent overflows, bypassing and other problems due to breakdown of equipment.**

Thank you for minimizing discharges during this drought period. The Department will continue to evaluate drought conditions and work with you to ensure that water quality is protected in Oregon's streams and rivers. If your facility discharges to a receiving stream that is critically affected by drought conditions, and you have concerns about reducing or eliminating discharge to meet instream water quality standards until drought conditions are relieved, please contact your DEQ regional office.

Sincerely,

Michael T. Llewelyn, Administrator
Water Quality Division

Kamerer Amos

From: ZAIS.Elliot@deq.state.or.us
Sent: Thursday, August 02, 2001 11:55 AM
To: kamereras@koppers.com
Subject: Compliance sampling point

Amos,

I have reviewed your letter of July 24, 2001. The change in sampling location you described is acceptable and will be addressed when your permit comes up for renewal. Please keep this email with your permit in case anyone has questions about the proper sampling location.

Please call if you have any questions.

Elliot J. Zais, PhD, PE
Senior Environmental Engineer
DEQ NWR, Water Quality
503/229-5292

Oregon
John A. Kitzhaber, M.D., Governor

Department of Environmental Quality
811 SW Sixth Avenue
Portland, OR 97204-1390
(503) 229-5696
TTY (503) 229-6993

April 12, 2001

Re: Drought Conditions

Dear NPDES Permittee:

Oregon is experiencing a period of abnormally low rainfall and snowfall creating extremely low stream flows in many parts of the state. With low stream flows, water quality in a stream may deteriorate to a point that fish and other aquatic life and other beneficial uses are threatened. We need your help in protecting water quality in streams which may be impacted by your operation.

Under normal winter and spring rainfall conditions, there is usually enough dilution in the receiving stream to assimilate the wastes discharged from your facility. With the very low flows this winter and the expected low flows this spring and summer, we anticipate that some streams may not have enough dilution to assimilate the wastes that are discharged. We are asking for your help to minimize the impact of your wastewater discharge on the receiving stream and suggest the following:

- **If your facility does not discharge to the Willamette River, Columbia River, or Pacific Ocean and has higher winter limits than summer limits, try to achieve the summer limits prior to the date that these limits normally go into effect, which is usually May 1 or June 1.** Current modeling of low river flow conditions for the Willamette River indicates that flows should be sufficient to protect water quality until June 1. Flow conditions in the Columbia River and the Pacific Ocean also are adequate to provide enough dilution. The Department is currently evaluating other projected river flows and what impacts these flows could have on water quality. If drought conditions continue into the fall and winter seasons, the Department may require that you maintain summer limits until winter rains set in and stream flows increase.

- **If you operate a lagoon treatment system and have a non-discharge period for summer, you should evaluate your operations to ensure that adequate storage will be available if drought conditions continue into the fall season.** Care needs to be taken to ensure that the lagoon system will not be structurally jeopardized with higher storage levels, or that irrigation does not run off or cause other environmental problems. If drought conditions continue into the normal discharge period, which usually begins November 1, you may be asked to extend the non-discharge period until winter rains set in and stream flows increase.

- **If your facility uses chlorine for disinfection, or your feed water carries a chlorine residual, please be careful with the amount of chlorine that is discharged.** Chlorine is extremely toxic to fish and other aquatic life. If you are using chlorine for disinfection and no chlorine residual limit has been established in your NPDES permit, you should only maintain a residual sufficient to reduce bacteria levels below permit limits. Control of disinfection processes requires consideration of the chlorine dosage and residual, the detention time in the chlorine contact chamber, the effluent quality, and the bacteria test results. You may wish to increase sampling for bacteria if you make adjustments in the chlorine feed rate.

- **Review all outstanding maintenance needs to ensure that wastewater control facilities are operating as efficiently as possible so as to prevent overflows, bypassing and other problems due to breakdowns of equipment.** Under Schedule F of your NPDES permit, you are required to properly operate and maintain all facilities and systems of treatment and control (and related appurtenances) at all times.

- **Consideration should be given to preparations for possible power outages affecting the treatment and collection systems, in order to maintain treatment system effectiveness and to avoid sewer overflows.** Besides the drought conditions, power outages are also of major concern. Please ensure that back-up or auxiliary systems are operational if needed to achieve compliance with permit conditions.

The Department will continue to evaluate the drought conditions and work with other state and federal agencies. We will be reviewing basin specific information to identify potentially critical locations. You will be notified of further drought management planning updates that may affect your operations.

Thank you for your continued efforts in protecting Oregon's streams and rivers. We hope that these voluntary measures will allow us to get through this critical time without damaging our valuable natural resources. If the drought conditions continue past the summer months, it may be necessary to take additional steps to protect our water quality.

If you have any questions, please contact your DEQ regional office.

Sincerely,

Michael T. Llewelyn, Administrator
Water Quality Division

drought.doc

RECEIVED
APR 16 2001
KOPPERS INDS, INC.
PORTLAND OR

KOPPERS INDUSTRIES

INTEROFFICE CORRESPONDENCE

To: L. F. Flaherty

From: A. S. Kamerer

Location: K-1750

Location: Portland

Subject: Alleged spill

Date: Jan. 20, 1994 Faxed 1:45 pm

At about 11:15 a.m. yesterday, Wednesday, January 19, 1994, the following men arrived at the Portland Plant:

Paul Christiansen, PE, Oregon Department of Environmental Quality
Lynn F. Asla, Commercial Fish Investigator, Oregon State Police
Kelly O'Neill, EPA, Criminal Investigation Division

They indicated that they were investigating an anonymous complaint alleging that a 500 gallon spill of a hazardous material, namely creosote, had occurred here at Koppers last week, and not been reported as required by law. They asked me if I understood the seriousness of these allegations, and I said that I did. I indicated that we had not had a creosote spill of any kind, and asked them where they wanted to start their investigation.

We did a complete tour of the plant: creosote loading and unloading areas, tank farm, pitch melter and pitch storage buildings. We reviewed our NPDES permit, the waste water storage tanks and their discharge location. We reviewed the car unloading file: no cars have been unloaded this year. One creosote car and one heavy oil car were unloaded during the last two weeks of December, and I gave the investigators those car numbers. They also asked about tank capacities and contents; I gave them a copy of my 1/14/94 weekly inventory that contains all of this information.

I informed them of our recent problems with disgruntled ex-employees and the recent OSHA complaints, etc. They asked for and were given a complete list of our current employee's addresses and telephone numbers, as well as John and Mary's.

They were satisfied that we had not had a spill, and indicated that they would pursue the source of the anonymous complaint, to the best of their abilities.

Amos

Amos S. Kamerer

cc: J. R. Batchelder, K-1700
B. Sweringen, K-1800

KOPPERS INDUSTRIES

Koppers Industries, Inc.
7540 N.W. St. Helens Road
Portland, OR 97210-3663

Amos S. Kamerer
Plant Manager

Telephone: 503-286-3681
Fax: 503-285-2831

June 12, 1996

Mr. Stephen Rosenberger
City of Portland
Environmental Services
1211 SW Fifth Ave. Suite 800
Portland, OR 97204-3713

Reference: Permit #314-001

Dear Mr. Rosenberger,

As per your request during your annual inspection on May 21, enclosed please find revised pages 14, 15 and 17 to our Spill Prevention, Control and Countermeasures Plan, adding the requirement to notify the cities Duty Officer, in the event a spill would reach the cities storm or sanitary sewer drains. No other changes were made to the original SPCC Plan.

By copies to the parties listed below, enclosed please find copies of these same pages for you to replace in your copy of our plan.

If any one has any questions in this regard, please feel free to contact me at any time.

Sincerely,

Amos S. Kamerer
Plant Manager

cc: EPA, Region X
DEQ, Mr. Elliot Zais
Portland Fire Bureau, Mr. Mike Franzen
KII, W.E. Swearingen
KII, J. S. Marcinowski

KOPPERS INDUSTRIES

Koppers Industries, Inc.
7540 N.W. Saint Helens Road
Portland, OR 97210-3663

Telephone: (503) 286-3681
FAX: (503) 285-2831

May 27, 1992

Mr. Bruce Arnold
D.E.Q.- 811 S. W. 6th Ave.
Portland, Oregon 97204-1390

Dear Sir:

This letter is in follow up to a telephone conversation between yourself and Mr. T. J. Turner, of Koppers Industries Inc. As Mr. Turner informed you due to a recent expansion in our plant, here in Portland, inadvertently the expiration date for recertifying Mr. Turner-ID # F03380 and Mr. Randall Beehler-ID # F03379 for working with asbestos was overlooked.

I have received approval from my superiors in our home office in Pittsburgh, Pa. to go ahead with their recertification. I have contacted Sue at N. W. Enviricon, and she informs me that she can place them in the training class of June 1, 1992. We would prefer to pursue this course of action, if there is no objection from you. Again, I apologize that this was not handled in a timely fashion. If any further information is needed please feel free to contact me at (503) 286-3681.

Yours Truly,

John A Oxford

John A. Oxford
Plant Manager

CC: Amos Kamerer
Wm. Swearingen
Plant File

Oregon

DEPARTMENT OF
ENVIRONMENTAL
QUALITY

RECEIVED
AUG 1 1992
KOPPERS CO.
PORTLAND, OR

August 11, 1992

Re: Drought Alert for Dischargers

Dear NPDES Discharger:

As you are probably aware, light winter snowfall and an unusually warm dry spring, on top of seven previous years of less than average precipitation, have yielded a very dry summer. According to Barry Norris of the Water Resources Department and the Oregon Drought Council, Oregon is experiencing the worst drought conditions on record.

Streamflow during June was 26 percent of normal statewide. The Willamette and South Coast basins were in the best shape in June at 38 percent of normal. Reservoir storage, statewide, was about 31 percent of normal in June. Many streams are experiencing record low flows this summer (Water Availability Report, Barry Norris, Water Resources Department, July 15, 1992). The Corps of Engineers expects to maintain 5500 cfs in the Willamette River at Salem through August.

The Department of Environmental Quality (DEQ) is asking for your help in minimizing water quality problems and any harm to beneficial uses that could result from the absence of adequate streamflow for dilution and assimilation.

Here is what DEQ is doing:

- Gathering information to identify potentially critical problem areas and locations with sensitive resources needing protection.
- Discussing potential actions with municipal and industrial permittees and other agencies.
- Working on a coordinated water conservation public information campaign with the Water Resources Department.

Here is what YOU can do:

- Review your maintenance schedule to ensure that your treatment facility is in peak operation during the lowest streamflows, which occur in late summer and early fall.

811 SW Sixth Avenue 97204

8/17

Post-it™ brand fax transmittal memo 7671 | # of pages ▸ 2

To Wm Scanlon	From John Gifford
Co. K-1800	Co. Portland
Dept.	Phone #
Fax #	Fax #

- Identify opportunities (or obstacles) your facility may have to reduce or eliminate discharges during the critical low flow period. Communicate these ideas to DEQ so that we can help overcome the obstacles and share ideas with others. This is a time for creative thinking.

During past droughts, 1977 and 1987, DEQ has taken two different approaches. In 1977, flows and dissolved oxygen levels in the Willamette River were a concern. DEQ asked the pulp and paper mills to investigate and prepare to land irrigate their waste as an alternative to discharge to the Willamette during the critical low flow period.

In 1987, streamflows were still low as the November 1 date for switching from summer season discharge limits to higher winter limits approached. The Department modified permits requiring that facilities maintain their summer discharge limits due to drought conditions until notified.

In both of these prior cases, the drought conditions were relieved shortly after the actions were implemented. But we can not count on being as lucky this year. We must be prepared to do our part to get through this time of shortage with as little permanent damage to our natural resources as possible.

The Department will contact you again should the situation this summer require the implementation of discharge reduction measures or temporary permit modifications.

We look forward to working with you to address this problem, and we would appreciate hearing your concerns and suggestions. To discuss ideas and concerns for your facility, please contact your permit writer, or Renato Dulay in Portland (229-5374). For general information contact Debra Sturdevant at 229-5289.

Thank you in advance for your attention to this issue.

Sincerely,

for Lydia Taylor
Administrator
Water Quality Division

(DJS:djs)

State of Oregon
Department of Environmental Quality Memorandum

Date: March 3, 1993

To: Potential Wash Water Permit Applicants

From: Water Quality Division
Department of Environmental Quality

Subject: Wash Water General Permit

BACKGROUND

Wastewater from vehicle and equipment cleaning operations contains a variety of contaminants which are harmful to our waterways. The discharge of chemicals, degreasers, oils, and even biodegradable detergents can be toxic to aquatic life.

A DEQ General National Pollutant Discharge Elimination System Permit #1700-J is required for certain types of washing activities. This permit will protect water quality by requiring that wastewater be monitored and treated prior to discharge.

The fee for this permit is $300. A $100 fee will be billed for each subsequent year to maintain the permit. An application and a Land Use Compatibility Statement (LUCS) for your use is attached. The LUCS must signed by your local land use authority and submitted to the Department along with the application. Applications must be submitted as soon as possible if you wish to be in compliance with the regulations. **A list of activities that do not require a permit may be found on the instruction sheet for the application.**

PERMIT REQUIREMENTS

The requirements of the permit will vary depending on the type of cleaning activity you do. In general, the following will be required:

1. You must use a biodegradable detergent.

2. You cannot use detergents or cleaners that contain phosphate.

3. The wash water must have a pH between 6 and 9.

4. The wash water must not have more than 10 milligrams/liter (10 parts per million) of oil and grease.

5. All steam cleaning, hot water or chemical cleaning of oily or greasy equipment must be done over an impermeable slab so that any grit, oil or grease can be removed before disposing of the wash water.

6. You cannot discharge wash water from the inside of trailers.

PERMIT REQUIREMENTS continued

7. Weekly monitoring of pH if you use acids, caustics or metal brighteners during your cleaning process.

8. Monthly monitoring of pH and oil/grease if you clean oily or greasy equipment or engines.

Wash water discharge limits and monitoring requirements in the permit are somewhat relaxed at this time. The DEQ intends to further evaluate washing practices and develop final limits and requirements over the next several months. After a public participation process, these final limits and monitoring requirements will be added to the permit.

If you would like a copy of the permit or would like to placed on our wash water mailing list, please call the DEQ at (503)229-6756 or toll free, inside Oregon, at 1-(800)452-4011.

OPTIONS INSTEAD OF DEQ PERMIT

If your current washing activity does not meet the exemption requirements listed in the permit application instructions, you may want to consider the following options if you desire to continue your current activities but avoid a DEQ permit:

Sanitary Sewer

You may discharge wastewater to an available sanitary sewer by connecting to the sanitary sewer through floor drains or through existing sanitary sewer lines that run through your site. You may also store your wastewater in a holding tank and have it emptied and taken to your local sewage treatment plant. This option requires the permission of the city or county. There may be a fee and you may also have to pre-treat your wash water before the discharge is allowed. Please check with your city or county to find out which of these options are possible for you.

Recycling

You may install a washing system that recycles all wastewater. Recycling systems remove oil and solids from wastewater so that the water may be reused. The installation of such a system may require a permit from your local planning or building department.

Approved Facility

You may wash your vehicles or equipment at a facility that has an approved disposal system like the ones discussed in this section. Not all car or truck washes dispose of their wastewater properly so please check before using the facility.

3/3/93 wash.303

INSTRUCTIONS
FOR FILING
THE REGISTRATION APPLICATION FOR WASH WATER PERMIT

CTIVITIES ALLOWED WITHOUT PERMIT

The following activities are allowed outright without having to apply for a permit:

1. Residential (private) and non-profit (one time) washing activities. If detergents or chemicals are used, try to keep the wash water out of storm drains and surface waters. The wash water should soak into the ground.

2. Commercial and industrial facilities washing the exterior of less than eight (8) vehicles, boats, trailers, or pieces of equipment a week without using detergents or chemicals. Tractors and trailers count as separate vehicles.

3. Commercial and industrial facilities washing the exterior of less than 8 vehicles, boats, etc. a week, using biodegradable detergents or chemicals without phosphates provided the wash water is kept out of storm drains and surface waters. To avoid having a permit the wash water must soak into the ground or evaporate..

4. The in-stream cleaning (brushing only) and out-of-stream cleaning of non-painted fiberglass pleasure boat hulls without the use of detergents or chemicals.

   In-stream cleaning must take place in an area where it will not create a nuisance and where sediment will not accumulate on the bottom of the stream.

   Wash water from out-of-stream cleaning must be settled or screened to prevent particles with a size larger than a 40 mesh screen from entering storm drains and surface waters.

5. The rinsing of pleasure boats to remove salt water without the use of detergents or chemicals and without causing the erosion of soil in the area.

6. The rinsing of the chute and the outside of a ready-mix concrete truck with water at the construction site as long as the water soaks into the ground.

7. The washing of buildings without the use of harsh chemicals, acids or caustics.

8. The washing of roads, parking lots, sidewalks, and other paved surfaces that have been previously been swept without the use of detergents or chemicals.

9. The washing of the exterior of new or used vehicles or equipment for sale, rental or delivery without the use of detergents or chemicals. If detergents or chemicals are used, the wash water must be kept out of storm drains and surface waters. To avoid having a permit the detergent must be biodegradable and the wash water must soak into the ground or evaporate.

10. The washing of golf carts and mowing machines without the use of detergents or chemicals provided grass and debris are removed before the wash water flows to storm drains and surface waters.

11. Systems which totally recycle wash water and do not rely on evaporation or seepage to get rid of wash water.

12. Discharges of wash water to sanitary sewer (sewage treatment plant).

I. FACILITY INFORMATION

A. Enter the applicant's official or legal name and mailing address.

   For mobile washing activities, either the mobile washing operation or the facility where the washing is performed may apply for a permit. If the mobile operator is the permittee, he or she will be responsible for meeting the conditions in the permit. If the facility is the permittee, the facility is responsible for meeting permit conditions.

B. Enter the site address if different from the mailing address in A.

   Contiguous operations under the same ownership may be covered by one application. For example, an automobile dealer with a used car lot across the street from a new lot only needs one permit for washing activities at both sites. Include the addresses of all the sites to be covered by one permit.

Mobile washing operations may be permitted for multiple sites. If you are a mobile operation, fill in this section with "various".

C. Give the name and phone number of the responsible official we should contact if there are any questions about the application or the facility.

D. List any other DEQ permits currently in force for the facility. These could include Air Contaminant Discharge Permits (ACDPs), Water Pollution Control Facilities (WPCF) Permits, National Pollutant Discharge Elimination System (NPDES) Permits, Solid Waste Permits, or RCRA Treatment Storage and Disposal Permits.

E. Enter the latitude and longitude of the site. This information may be found in existing property deeds, at the County or City Assessors office, or by reviewing a U.S. Geological Survey map.

WASH WATER DISCHARGE INFORMATION

A. Complete as indicated.

B. Complete as indicated.

C. Complete as indicated. Any facility discharging into municipal (city or county) storm sewer must have written approval from the municipality. In most cases, you should be able to obtain the approval from the same office that approves the Land Use Compatibility Statement. The approval must be submitted with the application.

D. Complete as indicated.

E. Complete as indicated.

F. Complete as indicated.

G. Complete as indicated.

DISCHARGES OTHER THAN WASH WATER

A. Complete as indicated

SITE DRAINAGE MAP

A. Complete as indicated. The site map may be drawn by hand. It does not need to be to exact scale but should be a fairly accurate representation of your facility.

SIGNATURE

Complete as indicated.

DEFINITION:

Signature Line — *"Legally Authorized Representative"*

- **Corporation — By a principal executive officer of at least the level of vice president;**
- **Partnership or Sole Proprietorship — By a general partner or the proprietor, respectively; or**
- **Municipality, State, Federal, or other Public Facility — By either a principal executive officer or ranking elected official.**

OTHER INFORMATION

Land Use Compatibility Statement (LUCS): The Department will not process a permit application without evidence that the proposal is approved by the local land use planning agencies. The attached LUCS form must be completed by you and your local land use authority and then submitted with the application.

Fees: A $300 application fee must accompany this application. Please make your check payable to the Department of Environmental Quality.

Koppers016113

SUBMIT APPLICATION TO:

DEPARTMENT OF ENVIRONMENTAL QUALITY
Business Office
811 S.W. Sixth Avenue
Portland, OR 97204
(503) 229-5269

REGISTRATION APPLICATION FOR GENERAL WASH WATER PERMIT – STATE OF OREGON

(Attach additional sheets if necessary.)

OFFICIAL DEQ USE ONLY

Date Received:
Amount Received:
Application No.:
File No.:

I. FACILITY INFORMATION

FIRM NAME: This name will appear on the permit and must be the legal Oregon corporate name (i.e., Acme Products) or the legal representative of the company if the company operates under an assumed business name (i.e., John Smith, dba Acme Products).

A. Name and Address of Owner or Operator:

B. Site Address if different than A:

C. Facility Contact Person:
Phone: ( )

D. Other DEQ Permits Currently in Force for the Facility:

E. Site Location:

Latitude:			Longitude:		
Deg.	Min.	Sec.	Deg.	Min.	Sec.

NOTE:
Please list the latitude and longitude of the approximate center of the regulated site to the nearest 15 seconds. In addition, attach a map to this application upon which the site location is identified. (For multiple rock pits or gravel mining sites, please attach an additional sheet.)

II. WASH WATER DISCHARGE INFORMATION

A. Briefly describe the washing activities which take place at the site which may contribute to the disposal of wash water:

B. Number of outfalls or channelized flows that run off your property (as shown on the site map in Part IV):

C. Where does wash water discharge?

- Public Storm Sewer System? No: Yes: (Owner):
- Private Storm Sewer System? No: Yes: (Owner):

– OVER –

Koppers016114

- Public Sanitary Sewer System? No: ____ Yes: ____ (Owner): _____
- Private Sanitary Sewer System? No: ____ Yes: ____ (Owner): _____
- Surface Waterbody? No: ____ Yes: ____ (Name): _____
- Seeps into Ground? No: ____ Yes: ____ (If "Yes" — Well: ____ Seepage Pit: ____ Pond: ____ Other: ____)

D. Has any wash water quality analytical data been collected? No: ____ Yes: ____ (If "Yes", please attach.)

E. Describe any wash water treatment and/or control facilities in use: _____

F. Are soaps or other cleaning chemicals used in the washing process? No: ____ Yes: ____ (If "Yes", please attach list of what is used and the quantities used per week.)

G. Please indicate which type of washing activities you are intending to be regulated under this general permit:

☐ Steam Cleaning ☐ Vehicle Pressure Washing ☐ Other Equipment
☐ Vehicle Wash Rack ☐ Boat Washing ☐ Other *(Please Explain)*

III. DISCHARGES OTHER THAN WASH WATER

A. Are other permitted discharges using any of the wash water outfalls? No: ____ Yes: ____ (Describe:) _____

If so, give NPDES Permit Number? _____

IV. SITE MAP

A. Attach a site map which includes the following items:

- Outline of areas where washing occurs.
- Location of wash water treatment system.
- Location of wash discharge outfalls.
- Facility's property lines.
- Discharge conveyance structures — storm sewer, ditch, etc.

V. SIGNATURE

I HEREBY CERTIFY THAT THE INFORMATION THAT IS INCLUDED IN THIS APPLICATION IS TRUE AND ACCURATE TO THE BEST OF MY KNOWLEDGE, AND THERE ARE NO WASTEWATERS BEING DISCHARGED TO THE ENVIRONMENT WHICH HAVE NOT BEEN IDENTIFIED IN THIS APPLICATION.

Name of Owner (Or Legally Authorized Representative) _____ Title _____

Signature _____ Date _____

Fees in the amount of $300 are required with this application. (Make your check payable to the Department of Environmental Quality.) Unless the DEQ has a Land Use Compatibility statement on file for this facility, one must be filed with this application.

Koppers016115

DEPARTMENT OF ENVIRONMENTAL QUALITY
LAND USE COMPATIBILITY REQUIREMENT FOR ENVIRONMENTAL PERMITS/APPROVALS

The Department of Environmental Quality requires regulatory source permits/approvals for facilities that discharge or release pollutants into the environment. Through these permits, specific environmental criteria or standards must be met. The criteria and standards are intended to ensure that public health, safety and the environment are protected.

Land uses that are subject to environmental regulations must also comply with local government planning regulations. Land uses are classified into land use zones, in part due to their general impact on and compatibility with other types of uses. It is the Department's policy that proof of local land use compatibility be submitted with a source permit application. This assures that the type of land use and activities in conjunction with that use have been reviewed and approved by local government before a permit is processed and issued. The Department's land use program rules are in OAR Chapter 340 Division 18.

I. NEW PERMITS/APPROVALS. The Department of Environmental Quality requires that a Land Use Compatibility Statement (LUCS) from the affected local government(s) be submitted with an application for the following:

1. Approval of Air Quality Notice of Construction
2. Air Contaminant Discharge Permits (ACDP)
3. Noise Impact Boundaries for Racing Facilities
4. Airport Abatement Plan/Noise Impact Boundaries
5. Air Indirect Source Construction Permits
6. Parking and Traffic Circulation Plans
7. Solid Waste Disposal Permits/Authorization Letter
8. Waste Tire Storage Permits
9. HW/PCB Storage, Treatment and Disposal Permits
10. Pollution Control Bond Fund Requests
11. Wastewater System Facility/Sewer System Plans
12. Water Quality Construction Grants
13. Municipal Wastewater Treatment System - State Revolving Loan Requests
14. Certification of Water Quality Standards for Federal Permits
15. On-Site Sewer Permits
16. Water Discharge Permits (NPDES/WPCF/General)

II. PERMIT MODIFICATION/RENEWAL. A permit modification requires an approved LUCS if any of the following apply: (1) The permitted source or activity involves the use of additional property or a physical expansion on the existing property. The LUCS applies to physical changes on the property, not to existing permit conditions; (2) The permitted source or activity involves a significant increase in discharge to state waters or into the ground; (3) The permitted source or activity involves the relocation of an outfall outside of the source property; (4) For a major modification of an air contaminant discharge permit, which means any physical change or change of operation of a source that results in a net significant emission rate increase as defined in OAR 340-20-225(25).

A permit renewal requires an approved LUCS if the renewal is to address a modification which applies to (1), (2), (3), or (4) above, or if an approved LUCS was not provided for the existing permit.

An applicant seeking a Department permit or approval is required to submit a LUCS to the affected local government(s) for a determination of compatibility with the local comprehensive plan(s). Typically, a local compatibility review includes a determination that the use or proposed use is allowable within its given zoning designation. The local government must include written findings of fact substantiating its determination. Required findings must: 1) State the relevant criteria, standards or policies; 2) State the facts relied upon in rendering the decision; and 3) State the conclusions and reasoning, referencing applicable policies. For example, if a use is allowed outright, a copy of the zone provision or citation and summary would constitute sufficient findings. If a review of some sort is required, the findings must include the review criteria and review conclusions.

In cases where a city and county share jurisdiction, a compatibility determination, sign off, and written findings are required from both entities.

- DEQ administrative rule Division 120 requires specific findings.

Koppers016116

DEPARTMENT OF ENVIRONMENTAL QUALITY
811 SW Sixth Avenue
Portland, Oregon 97204

LAND USE COMPATIBILITY STATEMENT

(read page 1 before completing)

TO BE COMPLETED BY APPLICANT

1. Name: _____ Address: _____
   City State Zip

   Phone: _____ Type of permit/approval: _____

2. Application to DEQ will be for: ___ New Permit/Plan Approval ___ Permit Renewal
   ___ Permit Modification ___ Authorization Letter

3. Name and address of business: _____

4. Describe the type of business and product or service the business provides:

   _____

   _____

5. If not a new source, explain the change in circumstances that require a permit/approval:

   _____

   _____

6. Describe the specific source/facility that requires a permit/approval:

   _____

   _____

7. For permit modification/renewal only: Does the criteria in section II, page 1 apply to the proposed permit modification or renewal? ___ Yes ___ No
   Explain basis for determination:

   _____

   If yes, describe how the changes may impact land uses, i.e. increased lot coverage; increased air emissions, water discharges or noise levels; impacts to transportation system, etc.:

   _____

   _____

TO BE COMPLETED BY LOCAL GOVERNMENT PLANNING DEPARTMENT

(The jurisdiction in which the business is located)

3. Business/facility location: ___ Inside city limits ___ Inside UGB ___ Outside UGB

   What local government(s) has planning jurisdiction over this use? _____

   Is the local plan currently acknowledged? ___ Yes ___ No
   If no, is this use affected by any portion of the plan which is not acknowledged? ___ Yes ___ No

9. The business/facility:

   A. ___ *Is an allowed outright use.
   B. ___ Is allowed subject to siting, design, construction or operational standards.
   C. ___ Is allowed subject to conditional use or review requirements which require public notice.
   D. ___ Is prohibited by the plan.
   E. ___ Is not addressed by the plan.

* This means the use may exist without any further local planning conditions or authorizations.

Koppers016117

If A. applies, identify or provide duplicate copy of applicable zone/provisions and state specific name of the designated allowed use applied to this business/facility.

If applicable, have the additional requirements under B. or C. been met? ___ Yes ___ No

Date of decision or expected decision: _____

Written findings are required for determinations checked under section 9. B, C, D and E. Findings may include plan policies, criteria, conditions, standards or related regulations. (State findings below or attach separately to statement.) If the activity is not addressed in the plan, under 9. E., compatibility findings must be based on the statewide goals.

10. Is public notice and opportunity for public hearing required? ___ Yes ___ No

If yes, date of notice: _____ Date of public hearing: _____

If a public hearing was held, attach a summary or hearing report.

11. Would the city/county like to receive a copy of DEQ's public notice regarding this source?

___ Yes ___ No

REQUIRED SIGNATURES

City land use jurisdiction:_____ Phone:_____

Signature:_____ Title:_____ Date:_____

County land use jurisdiction:_____ Phone:_____

Signature:_____ Title:_____ Date:_____

Please direct questions to the Management Services Division at 800-452-4011 or 229-6408, or contact the Division responsible for processing the application (Air, Water, Solid Waste) through the above toll free number.

Koppers016118

KOPPERS

INDUSTRIES

OCCUPATIONAL HEALTH
& PRODUCT SAFETY
JAN 11 1990

Mr. Richard Wixom,
Oregon Dept. of Environmental Quality
Northwest Region
Portland, Oregon

January 5, 1990

Dear Sir,

First of all let me apologize at the outset for the late date of this letter to you, but due to a strong flurry of business and the late arrival of a ship at the Port of Portland, our time was more than put to the test.

I am pleased to report to you that the fume system which we installed to control "nuisance emissions" at our Creosote unloading rail track was completed within the agreed time set down by D.E.Q.. As you recall we informed you that a outside contractor was brought in by Koppers to ensure the projects timely completion. On the afternoon of December 20, 1989, the system was started and put through its paces, all the results were pleasing.

Should any further information be needed by you, Please feel free to call.

Regards,

John A. Oxford
Plant Manager

CC: W. Swearingen K-1900
L. Flaherty K-1750
Plant File

KOPPERS INDUSTRIES

INTEROFFICE CORRESPONDENCE

To:	J. A. Oxford	From:	William E. Swearingen
Location:	Northwest Terminal	Location:	K-1801
Subject:	Response To Odor Complaints Notice of Non-Compliance	Date:	November 22, 1989

The enclosed letter provides an updated response to the subject complaint. Please sign and mail to DEQ as noted in the letter heading.

Send me a copy of the letter after you have signed it. Also, would you send me a signed copy of the September 28, 1989 letter that you sent to Wixom.

I will be on vacation the week of November 27th so call me at home (304) 737-0627 if you have any questions.

William E. Swearingen

WES/rks

KOPPERS INDUSTRIES

Koppers Industries, Inc.
436 Seventh Avenue
Pittsburgh, PA 15219-1800

Telephone: (412) 227-2001
FAX: (412) 227-2022

November 22, 1989

Mr. Richard H. Wixom
Department of Environmental Quality
811 S. W. 6th Ave.
Portland, OR 97204-1390

Re: Koppers Industries, Inc.
Notice of Non-Compliance
NWR-89-122

Dear Mr. Wixom:

We have been proceeding with construction of the fume scrubber for #3 track using plant personnel. It is estimated that the installation is over 30% completed at this time. Due to unforeseen mechanical problems and breakdowns in our production facilities, we have not been able to devote full time to this project. Using plant personnel only, we project that the construction time for the fume scrubber may extend well into the first quarter of 1990.

In an effort to complete this project by December 31, 1989, we have engaged the services of an outside contractor as of this date. Our discussions with the contractor indicate that the fume scrubber installation can be completed by year end.

A fume abatement system for #5 track is still being evaluated by our engineering department. In the meantime, a modification to the loading spout has significantly reduced the emissions from tank cars when they are heated. We will continue to evaluate other appropriate control systems for this area.

We believe that the installation of the fume scrubber on #3 track and the spout modifications made at #5 track will significantly reduce odors that are attributable to the "nuisance conditions" noted in the notice of non-compliance. Please call me at (503) 286-3681 if you have any questions.

Sincerely yours,

John A. Oxford
Plant Manager

cc: J. R. Batchelder - K-1701
L. F. Flaherty - K-1750
W. E. Swearingen - K-1800

JAO/rks

KOPPERS

7540 N.W. ST. HELENS ROAD
PORTLAND, OREGON 97210

TO: W. E. [illegible]

COMPANY NAME: [illegible]

FROM: Koppers / [illegible]

NUMBER OF PAGES TO FOLLOW: [illegible]

IF YOU DO NOT RECEIVE ALL MATERIAL TRANSMITTED, PLEASE CALL US AT: (503) 286-2631

OUR FAX NUMBER IS: (503) 286-2631

SENT BY: [illegible] TIME: [illegible] DATE: [illegible]

Note 12/21/89

Discussed with Oxford on phone today

Fame scrubber went on line Wed 12/20/89 and performed well. Don't expect any more fumes (odor problems) from heating T/C's on #5 track

Will review further after Jan 1, 1990 on status of extending pipeline to #5 Track area.

KOPPERS INDUSTRIES

Koppers Industries, Inc.
7540 N.W. Saint Helens Road
Portland, OR 97210-3663

Telephone: (503) 286-3681
FAX: (503) 285-2631

November 1, 1989

Mr. Richard Wixom
D. E. Q.
811 S. W. 6th Ave.
Portland, Oregon 97204

Dear Sir:

This letter is in compliance with our promise to you to keep you informed of our progress in eliminating the problem of nuisance emissions from our plant. After conferring with our engineering department in Pittsburgh, it has been decided that we will continue with the plan to install the vapor recovery unit at Track #3. This should overcome the issue of vapor emissions in that area of the plant.

In regards to Rail Track #5 we have already implemented Mr. Swearingen's suggestion of putting motal plates over the opening of the rail cars while they are heating and processing. This has resulted in a large improvement by restricting the vapor emissions while not jeopardizing the safety of venting the cars while they heat and process. Further, we will look at refurbishing an old vapor recovery system that is presently in the area in question.

I am now estimating that the construction time needed to complete the system at Track #3 will carry over into the month of March, 1990. Please be assured that we will do everything possible to expedite this installation. Please advise your feelings on these matters.

Regards,

John A Oxford

John A. Oxford
Plant Manager

KOPPERS INDUSTRIES

Koppers Industries, Inc.
436 Seventh Avenue
Pittsburgh, PA 15219-1800

Telephone: (412) 227-2001
FAX: (412) 227-2022

September 28, 1989

Mr. Richard H. Wixom
Department of Environmental Quality
811 S. W. 6th Avenue
Portland, Oregon 97204

Dear Sir:

This letter is in response to the notice of non-compliance issued by you to Koppers Industries, Inc. on August 22, 1989. In that letter you stated that "nuisance conditions" existed in our plant at the creosote unloading area on Rail Track #3 and the Tar/Pitch heating area on Rail Track #5.

Through prior arrangement and agreement between us, a meeting was held on Friday, September 22, 1989 at my office which was attended by you, this writer, and Mr. William Swearingen, Environmental Manager for the Tar Division of Koppers Industries Inc., Pittsburgh, PA. At this meeting, the D.E.Q.'s concerns were discussed at length. We are indeed concerned and want to be considered as a "good neighbor" in the community and are committed to operating in compliance with the law. As we discussed, there are several options that must be considered concerning a course of action that would address solving these problems for the long term, and we would like to be sure that the proper course of action is taken. To that end, Mr. Swearingen will consult with our Management in Pittsburgh, and also our Engineering Department, for their recommendations on these matters.

Furthermore, we agreed to address these "nuisance conditions" for the short term by trying to better seal the vents on these tank cars while they are in the heating process, thereby lessening their vapors and odors.

Let me assure you that as soon as an engineering decision is reached and a long term course of action is put together, I will be in contact with your office advising you of our proposed action.

Sincerely,

John A. Oxford
Plant Manager

JAO/rks

NEIL GOLDSCHMIDT
GOVERNOR

Department of Environmental Quality

811 SW SIXTH AVENUE, PORTLAND, OREGON 97204-1390 PHONE (503) 229-5696

August 22, 1989

John A. Oxford
Koppers Industries, Inc.
7540 N.W. St. Helens Road
Portland, OR 97210-3663

Re: AQ-Koppers Industries, Inc.
Multnomah County
NWR-89-122
NOTICE OF NONCOMPLIANCE

Dear Sir:

On or about August 7, 1989, while driving on St. Helens Road I observed odors drifting from your property which were very strong and had physical effects. Because of the intensity, I drove into Koppers and spoke to you about the operation.

The emissions have been identified to be from the steam released from heating a tank car of coaltar creosote on track #3, and heating an additional coaltar pitch rail tank car on track #5. The odors coming from these two sources are unacceptable and both are classified as a "nuisance condition" (see enclosure).

Please submit your corrective action plans to the Department for approval by September 30, 1989. Implementation and construction are to be finished by December 31, 1989, excluding just cause. Starting in October, the Department is to receive a monthly report on the progress of construction until completion.

If you have any question, please call me at 229-6020.

Sincerely,

Richard H. Wixom
Environmental Analyst
Northwest Region

RHW:y
RY8778
Enclosures
cc: Air Quality Division, DEQ

Stat. Auth.: ORS Ch. 468
Hist.: DEQ 37, f. 2-15-72, ef. 3-1-72

Particulate Emissions From Process Equipment

Applicability

340-21-035 This rule shall apply to all industrial processes other than those for which specific emission standards have been adopted. Also excluded are fuel burning and refuse burning equipment in which combustion gases do not mix directly with process materials.

Stat. Auth.: ORS Ch. 468
Hist.: DEQ 37, f. 2-15-72, ef. 3-1-72

Emission Standard

340-21-040 No person shall cause, suffer, allow, or permit the emission of particulate matter in any one hour from any process in excess of the amount shown in Table 1, for the process weight rate allocated to such process.

Stat. Auth.: ORS Ch. 468
Hist.: DEQ 37, f. 2-15-72, ef. 3-1-72

Determination of Process Weight

340-21-045 (1) Process weight per hour is the total weight of all materials introduced into any specific process, which process may cause any discharge of particulate matter. Solid fuels charged will be considered as part of the process weight, but liquid and gaseous fuels and combustion air will not. For a cyclical or batch operation, the process weight per hour will be derived by dividing the total process weight by the number of hours in one complete operation from the beginning of any given process to the completion thereof, excluding any time during which the equipment is idle. For a continuous operation, the process weight per hour will be derived by dividing the process weight by a typical period of time.

(2) Where the nature of any process or operation or the design of any equipment is such as to permit more than one interpretation of this rule, the interpretation that results in the minimum value for allowable emission shall apply.

Stat. Auth.: ORS Ch. 468
Hist.: DEQ 37, f. 2-15-72, ef. 3-1-72

Fugitive Emissions

Definitions

340-21-050 As used in this rule, unless otherwise required by context:

(1) "Fugitive emissions" means dust, fumes, gases, mist, odorous matter, vapors or any combination thereof not easily given to measurement, collection, and treatment by conventional pollution control methods.

(2) "Nuisance conditions" means unusual or annoying amounts of fugitive emissions traceable directly to one or more specific sources. In determining whether a nuisance condition exists, consideration shall be given to all of the circumstances, including density of population, duration of the activity in question, and other applicable factors.

Stat. Auth.: ORS Ch. 468
Hist.: DEQ 37, f. 2-15-72, ef. 3-1-72

Applicability

340-21-055 This rule shall be applicable:

(1) Within Special Control Areas, as defined in rule 340-71-010

(2) When ordered by the Department, in other areas when the need for application of the regulation, and the practicability of control measures, have been clearly demonstrated.

Stat. Auth.: ORS Ch. 468
Hist.: DEQ 37, f. 2-15-72, ef. 3-1-72

Requirements

340-21-060 (1) When fugitive emissions escape from a building or equipment in such a manner and amount as to create nuisance conditions or to violate any regulation, the Department may, in addition to other means of obtaining compliance, order that the building or equipment in which processing, handling and storage are done be tightly closed and ventilated in such a way that air contaminants are controlled or removed before discharge to the open air.

(2) No person shall cause, suffer, allow, or permit any materials to be handled, transported, or stored; or a building, its appurtenances, or a road to be used, constructed, altered, repaired or demolished; or any equipment to be operated, without taking reasonable precautions to prevent particulate matter from becoming airborne. Such reasonable precautions shall include, but not be limited to the following:

(a) Use, where possible, of water or chemicals for control of dust in the demolition of existing buildings or structures, construction operations, the grading of roads or the clearing of land;

(b) Application of asphalt, oil, water, or other suitable chemicals on unpaved roads, materials stockpiles, and other surfaces which can create airborne dusts;

(c) Full or partial enclosure of materials stockpiles in cases where application of oil, water, or chemicals are not sufficient to prevent particulate matter from becoming airborne;

(d) Installation and use of hoods, fans, and fabric filters to enclose and vent the handling of dusty materials;

(e) Adequate containment during sandblasting or other similar operations,

(f) Covering, at all times when in motion, open bodied trucks transporting materials likely to become airborne;

(g) The prompt removal from paved streets of earth or other material which does or may become airborne.

Stat. Auth.: ORS Ch. 468
Hist.: DEQ 37, f. 2-15-72, ef. 3-1-72

Upset Conditions

Introduction

340-21-065 Emission of air contaminants in excess o applicable standards as a result of scheduled maintenance o equipment breakdown shall not be considered a violation o said standards provided the conditions of rules 340-21-07 and 340-21-075 are met.

Stat. Auth.: ORS Ch. 468
Hist.: DEQ 37, f. 2-15-72, ef. 3-1-72

Koppers016126

From log 8/11/89

Northwest 503-286-3681

Return of Oxford call of 8/14/89 — DEQ violation 8/10/89
melting out pitch - cited — have fume system installed by Dec 1989
oral notification by inspection

Also questions:
(1) NPDES Permit transfer OK? Any problems in meeting limits?
(2) Send plant map, plot plan, etc to me.
(3) Waste mgmt OK?

Had a permit for operating a distillation permit Shut down 1976?
but Sent reboiler loop to Fall.

Will have to get air permit if fumes not stopped

Turner wanted rail cars melted out
Add K364 then add pitch
1000 gallons

Koppers016127

503 285 2831
05/25/89 14:51 KOPPERS PORTLAND NO. 026 001

URGENT URGENT URGENT

KOPPERS

7540 N.W. ST. HELENS ROAD
PORTLAND, OREGON 97210

TO: L. FLAHERTY K-1750--J. BATCHELDER K-1701---W SWEARINGEN K-1700

COMPANY NAME: K I I

FROM: KOPPERS/PORTLAND

NUMBER OF PAGES TO FOLLOW: (2) TWO

IF YOU DO NOT RECEIVE ALL MATERIAL TRANSMITTED, PLEASE CALL US AT: (503) 286-3681

OUR FAX NUMBER IS: (503) 285-2831

SENT BY: JOHN TIME: 3 PM DATE: 5-25-89

NEIL GOLDSCHMIDT
GOVERNOR

Department of Environmental Quality

811 SW SIXTH AVENUE, PORTLAND, OREGON 97204-1390 PHONE (503) 229-5696

MAY 23 1989

Mr. John Oxford
Koppers Industries, Inc.
7540 N. W. St. Helens Road
Portland, Oregon 97229

Dear Mr. Oxford:

By letter of November 15, 1988 you were identified by the Oregon Department of Environmental Quality (DEQ) as a party to the Doane Lake Study. The study is intended to provide regional hydrogeologic information. The DEQ and the EPA agreed that DEQ would negotiate an order with the Doane Lake parties by March 31, 1989, requiring the parties to conduct the hydrogeologic investigation. The EPA provided a scope of work for the order to the parties in October, 1988. A draft consent order was submitted to the parties for comment at a meeting with DEQ on December 8, 1988. When the parties disagreed with the scope of work provided by the EPA, DEQ and the parties agreed to negotiate a new scope of work. The EPA provided a list of the data gaps which the original scope of work was crafted to fill, with the understanding that the new scope of work would provide the information necessary to fill those data gaps. The EPA also agreed to accept a letter of intent in lieu of an order by March 31, to give the DEQ and the parties more time to come to agreement on the order.

As of the date of this letter, neither the DEQ nor the EPA are satisfied with the progress of negotiations for the study. The scope of work proposed by the parties does not commit them to filling the data gaps identified by the EPA. The work proposed to date does not meet the needs of DEQ or EPA, and we have no commitment from the parties that such work will be proposed or done.

We are disappointed that our efforts to come to agreement on this study have not resulted in a firm commitment by the parties to perform the work we have identified as necessary. Accordingly, DEQ has agreed with EPA that DEQ will evaluate its enforcement options to achieve an order meeting our needs by August 1, 1989. We invite the identified parties to designate a legal representative and a technical representative to negotiate with the DEQ on a Consent Order. Should we be unable to come to agreement with the parties by August 1, DEQ intends to pursue enforcement action under a cooperative agreement with the EPA, and/or under state authority as necessary.

MAY 25

We anticipate meeting with the designated group representatives within the next two weeks. Please have your representative contact Sandra Anderson of my staff at 503-229-6744 to set up a meeting time convenient for you, or if you have any questions.

Sincerely,

Fred Hansen
Director

SA:m
SM2246
cc: Larry Edelman, DOJ
Al Goodman, OOO, EPA
Ed Woods, NWR, DEQ
Bev Thacker- Morgan, PA, DEQ

Similar letters sent to:
John Pittman, Wacker Siltronic
Roger Neu - Schnitzer Investment Corp.
David Simon - Liquid Air Corp.
Edmond Bolin - NW Natural Gas
Roger Sherwood - ESCO
David Waldschmidt - Pacific Northern Oil
Robert Ferguson - Rhone-Poulenc
Larry Patterson - Pennwalt Chemical Corp.
Janet D. Smith - NL Industries, Inc.
Michael Veysey - Gould, Inc.

1999 SARA REPORT
PORTLAND TAR PLANT
KOPPERS INDUSTRIES, INC.
PORTLAND, OREGON

June 1999

Prepared for:

Mr. Amos Kamerer
Koppers Industries, Inc.
Portland Tar Plant
7540 N.W. St. Helens Road
Portland, Oregon 97210-3663

Prepared by:

Air/Compliance Consultants, Inc.
1050 William Pitt Way
Pittsburgh, Pennsylvania 15238
(412) 826-3636

Project Number 00-063e

Air/Compliance Consultants, Inc.

Air/Compliance Consultants, Inc.

June 29, 2000

Project No. 00-063e

Mr. Amos Kamerer
Koppers Industries, Inc.
Portland Tar Plant
7540 N.W. St. Helens Road
Portland, OR 97210-3663

RE: 1999 SARA Report

Dear Mr. Kamerer:

Please find enclosed the following:

1. One (1) diskette containing the toxic release inventory for submittal to the EPCRA Reporting Center, with cover letter;
2. One (1) diskette containing the toxic release inventory for submittal to the Oregon Emergency Response Commission, with cover letter;
3. One (1) copy of the SARA 313 Report for your files.

Please sign the cover letters and send it, along with the appropriate diskette to the EPCRA Reporting Center and Oregon Emergency Response Commission. The address for EPCRA is on the cover letter and the address for the Oregon Emergency Response Commission is as follows:

Mr. Bob Albers
Oregon Emergency Response Commission
Office of State Fire Marshall
4760 Portland Road, Northeast
Salem, Oregon 97305-1760

It is a pleasure doing business with you. Should you have any questions or desire further clarification on the report and submittal, please do not hesitate to call me at (412) 826-3636.

Sincerely,

AIR/COMPLIANCE CONSULTANTS, INC.

Kimberly D. Coy
Project Engineer

Jill W. Merrill
President/Principal Engineer

cc: Traci Self, KII

1050 William Pitt Way
Pittsburgh, PA 15238
412-826-3636
412-826-3640 fax

\\Server1\Data\APROJECT\KOPPERS\KII_PORT\00-063e 99 SARA\Admin\LOTKOPS.doc

Attachment 1-a. 1997/1998/1999 Comparison of SARA 313 Reports
Koppers Industries, Inc., Portland Tar Plant, Portland, Oregon

Chemical	Air Releases Non-Point (lbs/yr) Section 5.1	Air Releases Point (lbs/yr) Section 5.2	Water Releases Wastewater (lbs/yr) Section 5.3	Transfers Off-Site Cresoste (lbs/yr) Section 6.2	Transfers Off-Site RT (lbs/yr) Section 6.2	Quantity Released (lbs/yr) Section 8.1	Recycled On-site (lbs/yr) Section 8.4	Recycled Off-site (lbs/yr) Section 8.5	Treated On-site (lbs/yr) Section 8.6	Treated Off-site (lbs/yr) Section 8.7
Anthracene										
1997	2	49	0	NA	NA	52	12,433	0	0	0
1998	2	203	0	0	4	209	373	0	0	0
1999	4	0	0	1	NA	4	63,201	0	0	1
Biphenyl										
1997	0	24	0	NA	NA	24	0	0	0	0
1998	EXEMPT FROM REPORTING, <25,000 lbs AND 10,000 lbs									
1999	EXEMPT FROM REPORTING, DEMINIMIS									
Creosote										
1997	10	57	0	NA	NA	66	0	0	0	0
1998	11	16	0	206	0	233	25,200	0	0	0
1999	0	0	0	168	NA	0	0	0	0	168
Dibenzofuran										
1997	0	27	0	NA	NA	27	0	0	0	0
1998	0	2,741	0	3	0	2,744	346	0	0	0
1999	EXEMPT FROM REPORTING, DEMINIMIS									
Naphthalene										
1997	3	1,735	0	NA	NA	1,738	11,951	0	0	0
1998	3	22,096	0	51	1	22,151	6,276	0	0	0
1999	0	2,530	13	40	NA	2,544	47,557	0	0	40
PAC's										
1997	23	0	2	NA	NA	25	70,998	0	2	0
1998	14	1,764	20	0	16	1,814	52,776	0	0	0
1999	42	0	5	0	NA	47	146,315	0	0	0

Koppers016133

Attachment 1-b. List of Changes and Assumptions for the 1999 SARA 313 Report
Koppers Industries, Inc., Portland Tar Plant, Portland, Oregon

* Heavy oil replaces creosote in 1999 for scrubber fluid, increasing anthacene and PAC emissions and decreasing creosote emissions.
* Creosote emissions decreased because loading did not take place in 1999.
* Pitch production increased in 1999 increasing anthacene and PAC emissions.
* New tank T-200 fugitives not included - only in service 6 days in 1999.
* Recycling On-site: It will be assumed that the pitch vapors going to the fume scrubber are recycled. The pitch fumes going to the fume scrubber will not be considered waste treatment, only recycling on-site.
* With respect to reporting of nitrate compounds, no historical data is available to determine applicability. Refer to June 27, 2000 email contained in the 1999 SARA Report.

1999 SARA REPORT
PORTLAND TAR PLANT
KOPPERS INDUSTRIES, INC.
PORTLAND, OREGON

June 1999

Prepared for:

Mr. Amos Kamerer
Koppers Industries, Inc.
Portland Tar Plant
7540 N.W. St. Helens Road
Portland, Oregon 97210-3663

Prepared by:

Air/Compliance Consultants, Inc.
1050 William Pitt Way
Pittsburgh, Pennsylvania 15238
(412) 826-3636

Project Number 00-063e

Air/Compliance Consultants, Inc.

ATTACHEMENT 1

SARA 313 FORM R REPORTS

TABLE OF CONTENTS

ATTACHMENT	DESCRIPTION	
1	**SARA 313 Form R Reports**	
	Anthracene	
	Creosote	
	Naphthalene	
	Polycyclic Aromatic Compounds	
2	**Supporting Tables**	
	Table 1-a.	Summary of SARA 313 Reporting Quantities
	Table 1-b.	Summary of Projected 2000 SARA 313 Reporting Quantities
	Table 1-c.	Summary of Projected 2001 SARA 313 Reporting Quantities
	Table 2.	Input Data for the 1999 SARA 313 Report
	Table 3.	Reporting Inventories for Threshold Quantities and Maximum On-Site
	Table 4.	Summary of Storage Tank Emissions, Point Air Releases
	Tabel 5.	Fugitive Equipment Leak Air Emissions, Nonpoint Air Releases
	Table 6-a.	Fume Recovery Emissions, Point Air Releases
	Table 6-b.	Fume Recovery Emissions, Operating Hours
	Tabel 7.	Summary of Water Releases
	Table 8.	Calculation of Hazardous Waste Shipments, Transfer to Off-Site Locations
	Table 9.	Calculation of Fume Recovery Fluid Recycling, Recycling On-Site
	Table 10.	Calculation of Pitch Fume Recycling, Recycling On-Site
	Table 11.	Calculation of Production Ratio
3	**Company Supplied Data**	

(IMPORTANT: Type or print; read instructions before completing form)

EPA FORM R

TOXIC CHEMICAL RELEASE INVENTORY REPORTING FORM

United States Environmental Protection Agency

Section 313 of the Emergency Planning and Community Right-to-Know Act of 1986, also known as Title III of the Superfund Amendments and Reauthorization Act

WHERE TO SEND COMPLETED FORMS: 1. EPCRA Reporting Center, P.O Box 3348, Merrifield, VA 22116-3348, ATTN: TOXIC CHEMICAL RELEASE INVENTORY 2. APPROPRIATE STATE OFFICE (See instructions in Appendix F)

Enter "X" here if this is a revision: [ ]

For EPA use only

Important: See instructions to determine when "Not Applicable (NA)" boxes should be checked.

PART I. FACILITY IDENTIFICATION INFORMATION

SECTION 1. REPORTING YEAR 1999

SECTION 2. TRADE SECRET INFORMATION

2.1 Are you claiming the toxic chemical identified on page 2 trade secret? [ ] Yes (Answer question 2.2; Attach substantiation forms) [X] No (Do not answer 2.2; Go to Section 3)

2.2 Is this copy [ ] Sanitized [ ] Unsanitized (Answer only if "YES" in 2.1)

SECTION 3. CERTIFICATION (Important: Read and sign after completing all form sections.)

I hereby certify that I have reviewed the attached documents and that, to the best of my knowledge and belief, the submitted information is true and complete and that the amounts and values in this report are accurate based on reasonable estimates using data available to the preparers of this report.

Name and official title of owner/operator or senior management official:	Signature:	Date Signed:
MR. AMOS KAMERER PLANT MANAGER		06/30/1999

SECTION 4. FACILITY IDENTIFICATION

4.1 TRI Facility ID Number: 97210-KPPRS-7540N

Facility or Establishment Name	Facility or Establishment Name or Mailing Address(if different from street address)
JPPERS INDUSTRIES, INC. PORTLAND TAR PLANT	
Street	**Mailing Address**
7540 N.W. ST. HELENS ROAD	
City/County/State/Zip Code	**City/County/State/Zip Code**
PORTLAND MULTNOMAH OR 97210-3663	

4.2 This report contains information for: (Important : check a or b; check c if applicable) a. [X] An entire facility b. [ ] Part of a facility c. [ ] A Federal facility

4.3 Technical Contact Name: MR. AMOS KAMERER — Telephone Number (include area code): (503) 286 - 3681

4.4 Public Contact Name: MR. AMOS KAMERER — Telephone Number (include area code): (503) 286 - 3681

4.5 SIC Code (s) (4 digits)

Primary					
a. 2865	b.	c.	d.	e.	f.

4.6 Latitude / Longitude

Latitude Degrees	Latitude Minutes	Latitude Seconds	Longitude Degrees	Longitude Minutes	Longitude Seconds
045	34	52	122	45	28

4.7 Dun & Bradstreet Number(s) (9 digits)	4.8 EPA Identification Number (RCRA I.D. No.) (12 characters)	4.9 Facility NPDES Permit Number(s) (9 characters)	4.10 Underground Injection Well Code (UIC) I.D. Number(s) (12 digits)
a. 027734359	a. ORD027734359	a. OR0101003	a. NA
b. NA	b. NA	b. NA	b.

SECTION 5. PARENT COMPANY INFORMATION

5.1	Name of Parent Company	NA [ ]	KOPPERS INDUSTRIES, INC.
2	Parent Company's Dun & Bradstreet Number	NA [ ]	196991582

EPA FORM R
PART II. CHEMICAL-SPECIFIC INFORMATION

TRI Facility ID Number: 97210-KPPRS-7540N

Toxic Chemical, Category or Generic Name: ANTHRACENE

SECTION 1. TOXIC CHEMICAL IDENTITY (Important: DO NOT complete this section if you completed Section 2 below.)

1.1 CAS Number (Important: Enter only one number exactly as it appears on the Section 313 list. Enter category code if reporting a chemical category.)
000120127

1.2 Toxic Chemical or Chemical Category Name (Important: Enter only one name exactly as it appears on the Section 313 list.)
ANTHRACENE

1.3 Generic Chemical Name (Important: Complete **only** if Part 1, Section 2.1 is checked "yes". Generic Name must be structurally descriptive.)
NA

SECTION 2. MIXTURE COMPONENT IDENTITY (Important: DO NOT complete this section if you completed Section 1 above.)

2.1 Generic Chemical Name Provided by Supplier (Important: Maximum of 70 characters, including numbers, letters, spaces, and punctuation.)
NA

SECTION 3. ACTIVITIES AND USES OF THE TOXIC CHEMICAL AT THE FACILITY
(Important: Check all that apply.)

3.1 Manufacture the toxic chemical:
- a. [X] Produce b. [ ] Import

If produce or import:
- c. [ ] For on-site use/processing
- d. [ ] For sale/distribution
- e. [ ] As a byproduct
- f. [X] As an impurity

3.2 Process the toxic chemical:
- a. [ ] As a reactant
- b. [ ] As a formulation component
- c. [X] As an article component
- d. [ ] Repackaging

3.3 Otherwise use the toxic chemical:
- a. [ ] As a chemical processing aid
- b. [ ] As a manufacturing aid
- c. [ ] Ancillary or other use

SECTION 4. MAXIMUM AMOUNT OF THE TOXIC CHEMICAL ONSITE AT ANY TIME DURING THE CALENDAR YEAR

4.1 04 (Enter two-digit code from instruction package.)

SECTION 5. QUANTITY OF THE TOXIC CHEMICAL ENTERING EACH ENVIRONMENTAL MEDIUM ONSITE

			A. Total Release (pounds/year) (Enter range code or estimate*)	B. Basis of Estimate (enter code)	C. % From Stormwater
5.1	Fugitive or non-point air emissions	NA [ ]	4	E	
5.2	Stack or point air emissions	NA [X]	NA		
5.3	Discharges to receiving streams or water bodies (enter one name per box)				
	Stream or Water Body Name				
5.3.1	NA				
5.3.2					
5.3.3					
5.4.1	Underground Injection onsite to Class I Wells	NA [X]	NA		
5.4.2	Underground Injection onsite to Class II-V Wells	NA [X]	NA		

If additional pages of Part II, Section 5.3 are attached, indicate the total number of pages in this box [1] and indicate the Part II, Section 5.3 page number in this box. [1] (example: 1,2,3, etc.)

* Range Codes: A= 1 - 10 pounds; B= 11- 499 pounds; C= 500 - 999 pounds.

EPA FORM R

PART II. CHEMICAL - SPECIFIC INFORMATION (CONTINUED)

TRI Facility ID Number
97210-KPPRS-7540N
Toxic Chemical, Category or Generic Name
ANTHRACENE

SECTION 5. QUANTITY OF THE TOXIC CHEMICAL ENTERING EACH ENVIRONMENTAL MEDIUM ONSITE (Continued)

		NA	A. Total Release (pounds/year) (enter range code* or estimate)	B. Basis of Estimate (enter code)
5.5	Disposal to land onsite			
5.5.1A	RCRA Subtitle C landfills	X	NA	
5.5.1B	Other landfills	X	NA	
5.5.2	Land treatment/application farming	X	NA	
5.5.3	Surface Impoundment	X	NA	
5.5.4	Other disposal	X	NA	

SECTION 6. TRANSFERS OF THE TOXIC CHEMICAL IN WASTES TO OFF-SITE LOCATIONS

6.1 DISCHARGES TO PUBLICLY OWNED TREATMENT WORKS (POTWs)

6.1.A Total Quantity Transferred to POTWs and Basis of Estimate

6.1.A.1. Total Transfers (pounds/year) (enter range code* or estimate)	6.1.A.2 Basis of Estimate (enter code)
NA	

6.1.B.1	POTW Name	NA					
POTW Address							
City		State		County		Zip	-
6.1.B.2	POTW Name						
POTW Address							
City		State		County		Zip	

If additional pages of Part II, Section 6.1 are attached, indicate the total number of pages in this box [1] and indicate the Part II, Section 6.1 page number in this box [1] (example: 1,2,3, etc.)

SECTION 6.2 TRANSFERS TO OTHER OFF-SITE LOCATIONS

6.2.1 Off-Site EPA Identification Number (RCRA ID No.)	UTD981552177						
Off-Site Location Name	SAFETY-KLEEN, ARAGONITE						
Off-Site Address	11600 NORTH APTUS ROAD						
City	ARAGONITE	State	UT	County		Zip	84029-

Is location under control of reporting facility or parent company? [ ] Yes [X] No

* Range Codes: A = 1 - 10 pounds; B = 11 - 499 pounds; C = 500 - 999 pounds.

EPA FORM R

PART II. CHEMICAL-SPECIFIC INFORMATION (CONTINUED)

TRI Facility ID Number
97210-KPPRS-7540N
Toxic Chemical, Category or Generic Name
ANTHRACENE

SECTION 6.2 TRANSFERS TO OTHER OFF-SITE LOCATIONS (Continued)

A. Total Transfers (pounds/year) (enter range code* or estimate)	B. Basis of Estimate (enter code)	C. Type of Waste Treatment/Disposal/ Recycling/Energy Recovery (enter code)
1. 1	1. C	1. M50
2.	2.	2.
3.	3.	3.
4.	4.	4.

6.2.2 Off-Site EPA Identification Number (RCRA ID No.)

Off-Site location Name

Off-Site Address

City | State | County | Zip -

Is location under control of reporting facility or parent company? [ ] Yes [ ] No

A. Total Transfers (pounds/year) (enter range code* or estimate)	B. Basis of Estimate (enter code)	C. Type of Waste Treatment/Disposal/ Recycling/Energy Recovery (enter code)
1.	1.	1.
2.	2.	2.
3.	3.	3.
4.	4.	4.

SECTION 7A. ON-SITE WASTE TREATMENT METHODS AND EFFICIENCY

[X] Not Applicable (NA) - Check here if no on-site waste treatment is applied to any waste stream containing the toxic chemical or chemical category.

a. General Waste Stream (enter code)	b. Waste Treatment Method(s) Sequence [enter 3-character code(s)]								c. Range of Influent Concentration	d. Waste Treatment Efficiency Estimate	e. Based on Operating Data ?
7A.1a	7A.1b	1		2		3		4	7A.1c	7A.1d	7A.1e
NA	5		6		7		8			0 %	Yes [ ] No [ ]
7A.2a	7A.2b	1		2		3		4	7A.2c	7A.2d	7A.2e
	5		6		7		8			%	Yes [ ] No [ ]
7A.3a	7A.3b	1		2		3		4	7A.3c	7A.3d	7A.3e
	5		6		7		8			%	Yes [ ] No [ ]
7A.4a	7A.4b	1		2		3		4	7A.4c	7A.4d	7A.4e
	5		6		7		8			%	Yes [ ] No [ ]
7A.5a	7A.5b	1		2		3		4	7A.5c	7A.5d	7A.5e
	5		6		7		8			%	Yes [ ] No [ ]

Additional pages of Part II, Section 6.2/7A are attached, indicate the total number of pages in this box [1]
and indicate the Part II, Section 6.2/7A page number in this box : [1] (example: 1,2,3, etc)

* Range Codes: A = 1 - 10 pounds; B = 11 - 499 pounds; C = 500 - 999 pounds.

Koppers016141

EPA FORM R

PART II. CHEMICAL-SPECIFIC INFORMATION (CONTINUED)

TRI Facility ID Number
97210-KPPRS-7540N
Toxic Chemical, Category or Generic Name
ANTHRACENE

SECTION 7B. ON-SITE ENERGY RECOVERY PROCESSES

[X] Not Applicable (NA) - Check here if no on-site energy recovery is applied to any waste stream containing the toxic chemical or chemical category.

Energy Recovery Methods [enter 3-character code(s)]

1 NA | 2 | 3 | 4

SECTION 7C. ON-SITE RECYCLING PROCESSES

[ ] Not Applicable (NA) - Check here if no on-site recycling is applied to any waste stream containing the toxic chemical or chemical category.

Recycling Methods [enter 3-character code(s)]

1. R14 | 2. | 3. | 4. | 5.

6. | 7. | 8. | 9. | 10.

SECTION 8. SOURCE REDUCTION AND RECYCLING ACTIVITIES

		Column A Prior Year (pounds/year)	Column B Current Reporting Year (pounds/year)	Column C Following Year (pounds/year)	Column D Second Following Year (pounds/year)
8.1	Quantity released **	210	4	3	4
8.2	Quantity used for energy recovery onsite	0	0	0	0
8.3	Quantity used for energy recovery offsite	0	0	0	0
8.4	Quantity recycled onsite	370	63000	43000	52000
8.5	Quantity recycled offsite	0	0	0	0
8.6	Quantity treated onsite	0	0	0	0
8.7	Quantity treated offsite	0	1	1	1
8.8	Quantity released to the environment as a result of remedial actions, catastrophic events, or one-time events not associated with production processes (pounds/year)			0	
8.9	Production ratio or activity index			0001.24	

8.10 Did your facility engage in any source reduction activities for this chemical during the reporting year? If not, enter "NA" in Section 8.10.1 and answer Section 8.11.

	Source Reduction Activities [enter code(s)]	Methods to Identify Activity (enter codes)		
8.10.1	NA	a.	b.	c.
8.10.2		a.	b.	c.
8.10.3		a.	b.	c.
8.10.4		a.	b.	c.

		YES	NO
8.11	Is additional information on source reduction, recycling, or pollution control activities included with this report ? (Check one box)	[ ]	[X]

**Report releases pursuant to EPCRA Section 329(8) including "any spilling, leaking, pumping, pouring, emitting, emptying, discharging, injecting, escaping, leaching, dumping, or disposing into the environment." Do not include any quantity treated onsite or offsite.

EPA FORM R TOXIC CHEMICAL RELEASE INVENTORY REPORTING FORM

United States Environmental Protection Agency

Section 313 of the Emergency Planning and Community Right-to-Know Act of 1986, also known as Title III of the Superfund Amendments and Reauthorization Act

WHERE TO SEND COMPLETED FORMS: 1. EPCRA Reporting Center P.O Box 3348 Merrifield, VA 22116-3348 ATTN: TOXIC CHEMICAL RELEASE INVENTORY	2. APPROPRIATE STATE OFFICE (See instructions in Appendix F)	Enter "X" here if this is a revision	
		For EPA use only	

Important: See instructions to determine when "Not Applicable (NA)" boxes should be checked.

PART I. FACILITY IDENTIFICATION INFORMATION

SECTION 1. REPORTING YEAR 1999

SECTION 2. TRADE SECRET INFORMATION

2.1	Are you claiming the toxic chemical identified on page 2 trade secret?	2.2	Is this copy ☐ Sanitized ☐ Unsanitized
	☐ Yes (Answer question 2.2; Attach substantiation forms) ☒ No (Do not answer 2.2; Go to Section 3)		(Answer only if "YES" in 2.1)

SECTION 3. CERTIFICATION (Important: Read and sign after completing all form sections.)

I hereby certify that I have reviewed the attached documents and that, to the best of my knowledge and belief, the submitted information is true and complete and that the amounts and values in this report are accurate based on reasonable estimates using data available to the preparers of this report.

Name and official title of owner/operator or senior management official:	Signature:	Date Signed:
MR. AMOS KAMERER PLANT MANAGER		06/30/1999

SECTION 4. FACILITY IDENTIFICATION

4.1		TRI Facility ID Number	97210-KPPRS-7540N
Facility or Establishment Name		Facility or Establishment Name or Mailing Address(if different from street address)	
KOPPERS INDUSTRIES, INC. PORTLAND TAR PLANT			
Street		Mailing Address	
7540 N.W. ST. HELENS ROAD			
City/County/State/Zip Code		City/County/State/Zip Code	
PORTLAND MULTNOMAH OR 97210-3663			

4.2	This report contains information for: (Important : check a or b; check c if applicable)	a. ☒ An entire facility	b. ☐ Part of a facility	c. ☐ A Federal facility
4.3	Technical Contact Name	MR. AMOS KAMERER	Telephone Number (include area code)	(503) 286 - 3681
4.4	Public Contact Name	MR. AMOS KAMERER	Telephone Number (include area code)	(503) 286 - 3681

4.5	SIC Code (s) (4 digits)	Primary a. 2865	b.	c.	d.	e.	f.

4.6	Latitude	Degrees	Minutes	Seconds	Longitude	Degrees	Minutes	Seconds
		045	34	52		122	45	28

4.7 Dun & Bradstreet Number(s) (9 digits)	4.8 EPA Identification Number (RCRA I.D. No.) (12 characters)	4.9 Facility NPDES Permit Number(s) (9 characters)	4.10 Underground Injection Well Code (UIC) I.D. Number(s) (12 digits)
a. 027734359	a. ORD027734359	a. OR0101003	a. NA
b. NA	b. NA	b. NA	b.

SECTION 5. PARENT COMPANY INFORMATION

5.1	Name of Parent Company	NA ☐	KOPPERS INDUSTRIES, INC.
2	Parent Company's Dun & Bradstreet Number	NA ☐	196991582

EPA FORM R
PART II. CHEMICAL-SPECIFIC INFORMATION

TRI Facility ID Number
97210-KPPRS-7540N
Toxic Chemical, Category or Generic Name
CREOSOTE

SECTION 1. TOXIC CHEMICAL IDENTITY (Important: DO NOT complete this section if you completed Section 2 below.)

1.1	CAS Number (Important: Enter only one number exactly as it appears on the Section 313 list. Enter category code if reporting a chemical category.)
	008001589
1.2	Toxic Chemical or Chemical Category Name (Important: Enter only one name exactly as it appears on the Section 313 list.)
	CREOSOTE
1.3	Generic Chemical Name (Important: Complete only if Part 1, Section 2.1 is checked "yes". Generic Name must be structurally descriptive.)
	NA

SECTION 2. MIXTURE COMPONENT IDENTITY (Important: DO NOT complete this section if you completed Section 1 above.)

2.1	Generic Chemical Name Provided by Supplier (Important: Maximum of 70 characters, including numbers, letters, spaces, and punctuation.)
	NA

SECTION 3. ACTIVITIES AND USES OF THE TOXIC CHEMICAL AT THE FACILITY
(Important: Check all that apply.)

3.1 Manufacture the toxic chemical:	3.2 Process the toxic chemical:	3.3 Otherwise use the toxic chemical:
a. [X] Produce b. [ ] Import		
If produce or import:		
c. [ ] For on-site use/processing	a. [ ] As a reactant	a. [ ] As a chemical processing aid
d. [ ] For sale/distribution	b. [ ] As a formulation component	b. [ ] As a manufacturing aid
e. [ ] As a byproduct	c. [X] As an article component	c. [ ] Ancillary or other use
f. [X] As an impurity	d. [ ] Repackaging	

SECTION 4. MAXIMUM AMOUNT OF THE TOXIC CHEMICAL ONSITE AT ANY TIME DURING THE CALENDAR YEAR

4.1	03 (Enter two-digit code from instruction package.)	

SECTION 5. QUANTITY OF THE TOXIC CHEMICAL ENTERING EACH ENVIRONMENTAL MEDIUM ONSITE

			A. Total Release (pounds/year) (Enter range code or estimate*)	B. Basis of Estimate (enter code)	C. % From Stormwater
5.1	Fugitive or non-point air emissions	NA [X]	NA		
5.2	Stack or point air emissions	NA [X]	NA		
5.3	Discharges to receiving streams or water bodies (enter one name per box)				
	Stream or Water Body Name				
5.3.1	NA				
5.3.2					
5.3.3					
5.4.1	Underground Injection onsite to Class I Wells	NA [X]	NA		
5.4.2	Underground Injection onsite to Class II-V Wells	NA [X]	NA		

If additional pages of Part II, Section 5.3 are attached, indicate the total number of pages in this box [1]
and indicate the Part II, Section 5.3 page number in this box. [1] (example: 1,2,3, etc.)

* Range Codes: A= 1 - 10 pounds; B= 11- 499 pounds; C= 500 - 999 pounds.

EPA FORM R

PART II. CHEMICAL - SPECIFIC INFORMATION (CONTINUED)

TRI Facility ID Number
97210-KPPRS-7540N
Toxic Chemical, Category or Generic Name
CREOSOTE

SECTION 5. QUANTITY OF THE TOXIC CHEMICAL ENTERING EACH ENVIRONMENTAL MEDIUM ONSITE (Continued)

		NA	A. Total Release (pounds/year) (enter range code* or estimate)	B. Basis of Estimate (enter code)
5.5	Disposal to land onsite			
5.5.1A	RCRA Subtitle C landfills	X	NA	
5.5.1B	Other landfills	X	NA	
5.5.2	Land treatment/application farming	X	NA	
5.5.3	Surface Impoundment	X	NA	
5.5.4	Other disposal	X	NA	

SECTION 6. TRANSFERS OF THE TOXIC CHEMICAL IN WASTES TO OFF-SITE LOCATIONS

6.1 DISCHARGES TO PUBLICLY OWNED TREATMENT WORKS (POTWs)

6.1.A Total Quantity Transferred to POTWs and Basis of Estimate

6.1.A.1. Total Transfers (pounds/year) (enter range code* or estimate)	6.1.A.2 Basis of Estimate (enter code)
NA	

6.1.B.1	POTW Name	NA					
POTW Address							
City		State		County		Zip	-
6.1.B.2	POTW Name						
POTW Address							
City		State		County		Zip	

If additional pages of Part II, Section 6.1 are attached, indicate the total number of pages in this box [1] and indicate the Part II, Section 6.1 page number in this box [1] (example: 1,2,3, etc.)

SECTION 6.2 TRANSFERS TO OTHER OFF-SITE LOCATIONS

6.2.1 Off-Site EPA Identification Number (RCRA ID No.)					UTD981552177		
Off-Site Location Name	SAFETY-KLEEN, ARAGONITE						
Off-Site Address	11600 NORTH APTUS ROAD						
City	ARAGONITE	State	UT	County		Zip	84029-

Is location under control of reporting facility or parent company? [ ] Yes [X] No

* Range Codes: A = 1 - 10 pounds; B = 11 - 499 pounds; C = 500 - 999 pounds.

EPA FORM R

PART II. CHEMICAL-SPECIFIC INFORMATION (CONTINUED)

TRI Facility ID Number
97210-KPPRS-7540N
Toxic Chemical, Category or Generic Name
CREOSOTE

SECTION 6.2 TRANSFERS TO OTHER OFF-SITE LOCATIONS (Continued)

A. Total Transfers (pounds/year) (enter range code* or estimate)	B. Basis of Estimate (enter code)	C. Type of Waste Treatment/Disposal/ Recycling/Energy Recovery (enter code)
1. 168	1. C	1. M50
2.	2.	2.
3.	3.	3.
4.	4.	4.

6.2.2 Off-Site EPA Identification Number (RCRA ID No.)

Off-Site location Name

Off-Site Address

City | State | County | Zip -

Is location under control of reporting facility or parent company? [ ] Yes [ ] No

A. Total Transfers (pounds/year) (enter range code* or estimate)	B. Basis of Estimate (enter code)	C. Type of Waste Treatment/Disposal/ Recycling/Energy Recovery (enter code)
1.	1.	1.
2.	2.	2.
3.	3.	3.
4.	4.	4.

SECTION 7A. ON-SITE WASTE TREATMENT METHODS AND EFFICIENCY

[X] Not Applicable (NA) - Check here if no on-site waste treatment is applied to any waste stream containing the toxic chemical or chemical category.

a. General Waste Stream (enter code)	b. Waste Treatment Method(s) Sequence [enter 3-character code(s)]	c. Range of Influent Concentration	d. Waste Treatment Efficiency Estimate	e. Based on Operating Data ?
7A.1a	7A.1b: 1 2 3 4 5 6 7 8	7A.1c	7A.1d	7A.1e
NA			0 %	Yes [ ] No [ ]
7A.2a	7A.2b: 1 2 3 4 5 6 7 8	7A.2c	7A.2d	7A.2e
			%	Yes [ ] No [ ]
7A.3a	7A.3b: 1 2 3 4 5 6 7 8	7A.3c	7A.3d	7A.3e
			%	Yes [ ] No [ ]
7A.4a	7A.4b: 1 2 3 4 5 6 7 8	7A.4c	7A.4d	7A.4e
			%	Yes [ ] No [ ]
7A.5a	7A.5b: 1 2 3 4 5 6 7 8	7A.5c	7A.5d	7A.5e
			%	Yes [ ] No [ ]

Additional pages of Part II, Section 6.2/7A are attached, indicate the total number of pages in this box [1]
and indicate the Part II, Section 6.2/7A page number in this box : [1] (example: 1,2,3, etc)

* Range Codes: A = 1 - 10 pounds; B = 11 - 499 pounds; C = 500 - 999 pounds.

Koppers016146

EPA FORM R

PART II. CHEMICAL-SPECIFIC INFORMATION (CONTINUED)

TRI Facility ID Number
97210-KPPRS-7540N
Toxic Chemical, Category or Generic Name
CREOSOTE

SECTION 7B. ON-SITE ENERGY RECOVERY PROCESSES

[X] Not Applicable (NA) - Check here if no on-site energy recovery is applied to any waste stream containing the toxic chemical or chemical category.

Energy Recovery Methods [enter 3-character code(s)]

1 NA 2 [ ] 3 [ ] 4 [ ]

SECTION 7C. ON-SITE RECYCLING PROCESSES

[X] Not Applicable (NA) - Check here if no on-site recycling is applied to any waste stream containing the toxic chemical or chemical category.

Recycling Methods [enter 3-character code(s)]

1. NA 2. [ ] 3. [ ] 4. [ ] 5. [ ]

6. [ ] 7. [ ] 8. [ ] 9. [ ] 10. [ ]

SECTION 8. SOURCE REDUCTION AND RECYCLING ACTIVITIES

		Column A Prior Year (pounds/year)	Column B Current Reporting Year (pounds/year)	Column C Following Year (pounds/year)	Column D Second Following Year (pounds/year)
8.1	Quantity released **	230	0	0	0
8.2	Quantity used for energy recovery onsite	0	0	0	0
8.3	Quantity used for energy recovery offsite	0	0	0	0
8.4	Quantity recycled onsite	25000	0	0	0
8.5	Quantity recycled offsite	0	0	0	0
8.6	Quantity treated onsite	0	0	0	0
8.7	Quantity treated offsite	0	170	110	140
8.8	Quantity released to the environment as a result of remedial actions, catastrophic events, or one-time events not associated with production processes (pounds/year)			0	
8.9	Production ratio or activity index			0001.24	

8.10 Did your facility engage in any source reduction activities for this chemical during the reporting year? If not, enter "NA" in Section 8.10.1 and answer Section 8.11.

	Source Reduction Activities [enter code(s)]	Methods to Identify Activity (enter codes)		
8.10.1	NA	a.	b.	c.
8.10.2		a.	b.	c.
8.10.3		a.	b.	c.
8.10.4		a.	b.	c.

8.11 Is additional information on source reduction, recycling, or pollution control activities included with this report ? (Check one box) YES [ ] NO [X]

**port releases pursuant to EPCRA Section 329(8) including "any spilling, leaking, pumping, pouring, emitting, emptying, discharging, jecting, escaping, leaching, dumping, or disposing into the environment." Do not include any quantity treated onsite or offsite.

EPA
United States Environmental Protection Agency

FORM R

TOXIC CHEMICAL RELEASE INVENTORY REPORTING FORM

Section 313 of the Emergency Planning and Community Right-to-Know Act of 1986, also known as Title III of the Superfund Amendments and Reauthorization Act

WHERE TO SEND COMPLETED FORMS: 1. EPCRA Reporting Center, P.O Box 3348, Merrifield, VA 22116-3348, ATTN: TOXIC CHEMICAL RELEASE INVENTORY
2. APPROPRIATE STATE OFFICE (See instructions in Appendix F)

Enter "X" here if this is a revision: [ ]

For EPA use only

Important: See instructions to determine when "Not Applicable (NA)" boxes should be checked.

PART I. FACILITY IDENTIFICATION INFORMATION

SECTION 1. REPORTING YEAR 1999

SECTION 2. TRADE SECRET INFORMATION

2.1 Are you claiming the toxic chemical identified on page 2 trade secret?
[ ] Yes (Answer question 2.2; Attach substantiation forms) [X] No (Do not answer 2.2; Go to Section 3)

2.2 Is this copy [ ] Sanitized [ ] Unsanitized
(Answer only if "YES" in 2.1)

SECTION 3. CERTIFICATION (Important: Read and sign after completing all form sections.)

I hereby certify that I have reviewed the attached documents and that, to the best of my knowledge and belief, the submitted information is true and complete and that the amounts and values in this report are accurate based on reasonable estimates using data available to the preparers of this report.

Name and official title of owner/operator or senior management official:	Signature:	Date Signed:
MR. AMOS KAMERER PLANT MANAGER		06/30/1999

SECTION 4. FACILITY IDENTIFICATION

4.1

Facility or Establishment Name	TRI Facility ID Number	Facility or Establishment Name or Mailing Address(if different from street address)
KOPPERS INDUSTRIES, INC. PORTLAND TAR PLANT	97210-KPPRS-7540N	

Street	Mailing Address
7540 N.W. ST. HELENS ROAD	

City/County/State/Zip Code	City/County/State/Zip Code
PORTLAND MULTNOMAH OR 97210-3663	

4.2 This report contains information for: (Important : check a or b; check c if applicable)
a. [X] An entire facility b. [ ] Part of a facility c. [ ] A Federal facility

4.3 Technical Contact Name: MR. AMOS KAMERER — Telephone Number (include area code): (503) 286 - 3681

4.4 Public Contact Name: MR. AMOS KAMERER — Telephone Number (include area code): (503) 286 - 3681

4.5 SIC Code (s) (4 digits)

Primary					
a. 2865	b.	c.	d.	e.	f.

4.6

Latitude	Degrees	Minutes	Seconds	Longitude	Degrees	Minutes	Seconds
	045	34	52		122	45	28

4.7 Dun & Bradstreet Number(s) (9 digits)	4.8 EPA Identification Number (RCRA I.D. No.) (12 characters)	4.9 Facility NPDES Permit Number(s) (9 characters)	4.10 Underground Injection Well Code (UIC) I.D. Number(s) (12 digits)
a. 027734359	a. ORD027734359	a. OR0101003	a. NA
b. NA	b. NA	b. NA	b.

SECTION 5. PARENT COMPANY INFORMATION

5.1	Name of Parent Company	NA [ ]	KOPPERS INDUSTRIES, INC.
	Parent Company's Dun & Bradstreet Number	NA [ ]	196991582

EPA FORM R
PART II. CHEMICAL-SPECIFIC INFORMATION

TRI Facility ID Number
97210-KPPRS-7540N
Toxic Chemical, Category or Generic Name
NAPHTHALENE

SECTION 1. TOXIC CHEMICAL IDENTITY (Important: DO NOT complete this section if you completed Section 2 below.)

1.1	CAS Number (Important: Enter only one number exactly as it appears on the Section 313 list. Enter category code if reporting a chemical category.)
	000091203
1.2	Toxic Chemical or Chemical Category Name (Important: Enter only one name exactly as it appears on the Section 313 list.)
	NAPHTHALENE
1.3	Generic Chemical Name (Important: Complete only if Part 1, Section 2.1 is checked "yes". Generic Name must be structurally descriptive.)
	NA

SECTION 2. MIXTURE COMPONENT IDENTITY (Important: DO NOT complete this section if you completed Section 1 above.)

2.1	Generic Chemical Name Provided by Supplier (Important: Maximum of 70 characters, including numbers, letters, spaces, and punctuation.)
	NA

SECTION 3. ACTIVITIES AND USES OF THE TOXIC CHEMICAL AT THE FACILITY
(Important: Check all that apply.)

3.1 Manufacture the toxic chemical:	3.2 Process the toxic chemical:	3.3 Otherwise use the toxic chemical:
a. [X] Produce b. [ ] Import		
If produce or import:		
c. [ ] For on-site use/processing	a. [ ] As a reactant	a. [ ] As a chemical processing aid
d. [ ] For sale/distribution	b. [ ] As a formulation component	b. [ ] As a manufacturing aid
e. [ ] As a byproduct	c. [X] As an article component	c. [ ] Ancillary or other use
f. [X] As an impurity	d. [ ] Repackaging	

SECTION 4. MAXIMUM AMOUNT OF THE TOXIC CHEMICAL ONSITE AT ANY TIME DURING THE CALENDAR YEAR

4.1	03 (Enter two-digit code from instruction package.)	

SECTION 5. QUANTITY OF THE TOXIC CHEMICAL ENTERING EACH ENVIRONMENTAL MEDIUM ONSITE

			A. Total Release (pounds/year) (Enter range code or estimate*)	B. Basis of Estimate (enter code)	C. % From Stormwater
5.1	Fugitive or non-point air emissions	NA [X]	NA		
5.2	Stack or point air emissions	NA [ ]	2530	E	
5.3	Discharges to receiving streams or water bodies (enter one name per box)				
	Stream or Water Body Name				
5.3.1	ST. HELENS ROAD CREEK		13	M	100.00
5.3.2					
5.3.3					
5.4.1	Underground Injection onsite to Class I Wells	NA [X]	NA		
5.4.2	Underground Injection onsite to Class II-V Wells	NA [X]	NA		

.. additional pages of Part II, Section 5.3 are attached, indicate the total number of pages in this box [1]
and indicate the Part II, Section 5.3 page number in this box. [1] (example: 1,2,3, etc.)

* Range Codes: A= 1 - 10 pounds; B= 11- 499 pounds; C= 500 - 999 pounds.

EPA FORM R
PART II. CHEMICAL - SPECIFIC INFORMATION (CONTINUED)

TRI Facility ID Number
97210-KPPRS-7540N
Toxic Chemical, Category or Generic Name
NAPHTHALENE

SECTION 5. QUANTITY OF THE TOXIC CHEMICAL ENTERING EACH ENVIRONMENTAL MEDIUM ONSITE (Continued)

		NA	A. Total Release (pounds/year) (enter range code* or estimate)	B. Basis of Estimate (enter code)
5.5	Disposal to land onsite			
5.5.1A	RCRA Subtitle C landfills	X	NA	
5.5.1B	Other landfills	X	NA	
5.5.2	Land treatment/application farming	X	NA	
5.5.3	Surface Impoundment	X	NA	
5.5.4	Other disposal	X	NA	

SECTION 6. TRANSFERS OF THE TOXIC CHEMICAL IN WASTES TO OFF-SITE LOCATIONS

6.1 DISCHARGES TO PUBLICLY OWNED TREATMENT WORKS (POTWs)

6.1.A Total Quantity Transferred to POTWs and Basis of Estimate

6.1.A.1. Total Transfers (pounds/year) (enter range code* or estimate)	6.1.A.2 Basis of Estimate (enter code)
NA	

6.1.B.1	POTW Name	NA					
POTW Address							
City		State		County		Zip	-
6.1.B.2	POTW Name						
POTW Address							
City		State		County		Zip	

If additional pages of Part II, Section 6.1 are attached, indicate the total number of pages in this box [1] and indicate the Part II, Section 6.1 page number in this box [1] (example: 1,2,3, etc.)

SECTION 6.2 TRANSFERS TO OTHER OFF-SITE LOCATIONS

6.2.1 Off-Site EPA Identification Number (RCRA ID No.)	UTD981552177						
Off-Site Location Name	SAFETY-KLEEN, ARAGONITE						
Off-Site Address	11600 NORTH APTUS ROAD						
City	ARAGONITE	State	UT	County		Zip	84029-

Is location under control of reporting facility or parent company? [ ] Yes [X] No

* Range Codes: A = 1 - 10 pounds; B = 11 - 499 pounds; C = 500 - 999 pounds.

EPA FORM R

PART II. CHEMICAL-SPECIFIC INFORMATION (CONTINUED)

TRI Facility ID Number
97210-KPPRS-7540N
Toxic Chemical, Category or Generic Name
NAPHTHALENE

SECTION 6.2 TRANSFERS TO OTHER OFF-SITE LOCATIONS (Continued)

A. Total Transfers (pounds/year) (enter range code* or estimate)	B. Basis of Estimate (enter code)	C. Type of Waste Treatment/Disposal/ Recycling/Energy Recovery (enter code)
1. 40 -	1. C	1. M50
2.	2.	2.
3.	3.	3.
4.	4.	4.

6.2.2 Off-Site EPA Identification Number (RCRA ID No.)

Off-Site location Name

Off-Site Address

City | State | County | Zip -

Is location under control of reporting facility or parent company? [ ] Yes [ ] No

A. Total Transfers (pounds/year) (enter range code* or estimate)	B. Basis of Estimate (enter code)	C. Type of Waste Treatment/Disposal/ Recycling/Energy Recovery (enter code)
1.	1.	1.
2.	2.	2.
3.	3.	3.
4.	4.	4.

SECTION 7A. ON-SITE WASTE TREATMENT METHODS AND EFFICIENCY

[X] Not Applicable (NA) - Check here if no on-site waste treatment is applied to any waste stream containing the toxic chemical or chemical category.

a. General Waste Stream (enter code)	b. Waste Treatment Method(s) Sequence [enter 3-character code(s)]								c. Range of Influent Concentration	d. Waste Treatment Efficiency Estimate	e. Based on Operating Data ?
7A.1a	7A.1b	1		2		3		4	7A.1c	7A.1d	7A.1e
NA	5		6		7		8			0 %	Yes [ ] No [ ]
7A.2a	7A.2b	1		2		3		4	7A.2c	7A.2d	7A.2e
	5		6		7		8			%	Yes [ ] No [ ]
7A.3a	7A.3b	1		2		3		4	7A.3c	7A.3d	7A.3e
	5		6		7		8			%	Yes [ ] No [ ]
7A.4a	7A.4b	1		2		3		4	7A.4c	7A.4d	7A.4e
	5		6		7		8			%	Yes [ ] No [ ]
7A.5a	7A.5b	1		2		3		4	7A.5c	7A.5d	7A.5e
	5		6		7		8			%	Yes [ ] No [ ]

dditional pages of Part II, Section 6.2/7A are attached, indicate the total number of pages in this box [1]
and indicate the Part II, Section 6.2/7A page number in this box : [1] (example: 1,2,3, etc)

* Range Codes: A = 1 - 10 pounds; B = 11 - 499 pounds; C = 500 - 999 pounds.

EPA FORM R
PART II. CHEMICAL-SPECIFIC INFORMATION (CONTINUED)

TRI Facility ID Number
97210-KPPRS-7540N
Toxic Chemical, Category or Generic Name
NAPHTHALENE

SECTION 7B. ON-SITE ENERGY RECOVERY PROCESSES

[X] Not Applicable (NA) - Check here if no on-site energy recovery is applied to any waste stream containing the toxic chemical or chemical category.

Energy Recovery Methods [enter 3-character code(s)]

1 NA | 2 | 3 | 4

SECTION 7C. ON-SITE RECYCLING PROCESSES

[ ] Not Applicable (NA) - Check here if no on-site recycling is applied to any waste stream containing the toxic chemical or chemical category.

Recycling Methods [enter 3-character code(s)]

1. R14 | 2. | 3. | 4. | 5.

6. | 7. | 8. | 9. | 10.

SECTION 8. SOURCE REDUCTION AND RECYCLING ACTIVITIES

		Column A Prior Year (pounds/year)	Column B Current Reporting Year (pounds/year)	Column C Following Year (pounds/year)	Column D Second Following Year (pounds/year)
8.1	Quantity released **	22000	2500	1700	2100
8.2	Quantity used for energy recovery onsite	0	0	0	0
.3	Quantity used for energy recovery offsite	0	0	0	0
8.4	Quantity recycled onsite	6300	48000	32000	39000
8.5	Quantity recycled offsite	0	0	0	0
8.6	Quantity treated onsite	0	0	0	0
8.7	Quantity treated offsite	0	40	27	33

8.8	Quantity released to the environment as a result of remedial actions, catastrophic events, or one-time events not associated with production processes (pounds/year)	0
8.9	Production ratio or activity index	0001.24

8.10 Did your facility engage in any source reduction activities for this chemical during the reporting year? If not, enter "NA" in Section 8.10.1 and answer Section 8.11.

	Source Reduction Activities [enter code(s)]	Methods to Identify Activity (enter codes)		
8.10.1	NA	a.	b.	c.
8.10.2		a.	b.	c.
8.10.3		a.	b.	c.
8.10.4		a.	b.	c.

		YES	NO
8.11	Is additional information on source reduction, recycling, or pollution control activities included with this report ? (Check one box)	[ ]	[X]

**eport releases pursuant to EPCRA Section 329(8) including "any spilling, leaking, pumping, pouring, emitting, emptying, discharging, jecting, escaping, leaching, dumping, or disposing into the environment." Do not include any quantity treated onsite or offsite.

EPA
United States Environmental Protection Agency

FORM R

TOXIC CHEMICAL RELEASE INVENTORY REPORTING FORM

Section 313 of the Emergency Planning and Community Right-to-Know Act of 1986, also known as Title III of the Superfund Amendments and Reauthorization Act

WHERE TO SEND COMPLETED FORMS: 1. EPCRA Reporting Center, P.O Box 3348, Merrifield, VA 22116-3348, ATTN: TOXIC CHEMICAL RELEASE INVENTORY
2. APPROPRIATE STATE OFFICE (See instructions in Appendix F)

Enter "X" here if this is a revision [ ]
For EPA use only

Important: See instructions to determine when "Not Applicable (NA)" boxes should be checked.

PART I. FACILITY IDENTIFICATION INFORMATION

SECTION 1. REPORTING YEAR 1999

SECTION 2. TRADE SECRET INFORMATION

2.1 Are you claiming the toxic chemical identified on page 2 trade secret? [ ] Yes (Answer question 2.2; Attach substantiation forms) [X] No (Do not answer 2.2; Go to Section 3)

2.2 Is this copy [ ] Sanitized [ ] Unsanitized (Answer only if "YES" in 2.1)

SECTION 3. CERTIFICATION (Important: Read and sign after completing all form sections.)

I hereby certify that I have reviewed the attached documents and that, to the best of my knowledge and belief, the submitted information is true and complete and that the amounts and values in this report are accurate based on reasonable estimates using data available to the preparers of this report.

Name and official title of owner/operator or senior management official:	Signature:	Date Signed:
MR. AMOS KAMERER PLANT MANAGER		06/30/1999

SECTION 4. FACILITY IDENTIFICATION

4.1 TRI Facility ID Number: 97210-KPPRS-7540N

Facility or Establishment Name	Facility or Establishment Name or Mailing Address(if different from street address)
KOPPERS INDUSTRIES, INC. PORTLAND TAR PLANT	
Street: 7540 N.W. ST. HELENS ROAD	Mailing Address:
City/County/State/Zip Code: PORTLAND MULTNOMAH OR 97210-3663	City/County/State/Zip Code:

4.2 This report contains information for: (Important : check a or b; check c if applicable) a. [X] An entire facility b. [ ] Part of a facility c. [ ] A Federal facility

4.3	Technical Contact Name	MR. AMOS KAMERER	Telephone Number (include area code): (503) 286 - 3681
4.4	Public Contact Name	MR. AMOS KAMERER	Telephone Number (include area code): (503) 286 - 3681

4.5 SIC Code (s) (4 digits)

Primary					
a. 2865	b.	c.	d.	e.	f.

4.6 Latitude / Longitude

Latitude Degrees	Minutes	Seconds	Longitude Degrees	Minutes	Seconds
045	34	52	122	45	28

4.7 Dun & Bradstreet Number(s) (9 digits)	4.8 EPA Identification Number (RCRA I.D. No.) (12 characters)	4.9 Facility NPDES Permit Number(s) (9 characters)	4.10 Underground Injection Well Code (UIC) I.D. Number(s) (12 digits)
a. 027734359	a. ORD027734359	a. OR0101003	a. NA
b. NA	b. NA	b. NA	b.

SECTION 5. PARENT COMPANY INFORMATION

5.1	Name of Parent Company	NA [ ]	KOPPERS INDUSTRIES, INC.
.2	Parent Company's Dun & Bradstreet Number	NA [ ]	196991582

EPA FORM R
PART II. CHEMICAL-SPECIFIC INFORMATION

TRI Facility ID Number
97210-KPPRS-7540N
Toxic Chemical, Category or Generic Name
POLYCYCLIC AROMATIC COMPOUNDS

SECTION 1. TOXIC CHEMICAL IDENTITY (Important: DO NOT complete this section if you completed Section 2 below.)

1.1	CAS Number (Important: Enter only one number exactly as it appears on the Section 313 list. Enter category code if reporting a chemical category.)
	N590
1.2	Toxic Chemical or Chemical Category Name (Important: Enter only one name exactly as it appears on the Section 313 list.)
	POLYCYCLIC AROMATIC COMPOUNDS
1.3	Generic Chemical Name (Important: Complete **only** if Part 1, Section 2.1 is checked "yes". Generic Name must be structurally descriptive.)
	NA

SECTION 2. MIXTURE COMPONENT IDENTITY (Important: DO NOT complete this section if you completed Section 1 above.)

2.1	Generic Chemical Name Provided by Supplier (Important: Maximum of 70 characters, including numbers, letters, spaces, and punctuation.)
	NA

SECTION 3. ACTIVITIES AND USES OF THE TOXIC CHEMICAL AT THE FACILITY
(Important: Check all that apply.)

3.1 Manufacture the toxic chemical:	3.2 Process the toxic chemical:	3.3 Otherwise use the toxic chemical:
a. [X] Produce b. [ ] Import		
If produce or import:		
c. [ ] For on-site use/processing	a. [ ] As a reactant	a. [ ] As a chemical processing aid
d. [ ] For sale/distribution	b. [ ] As a formulation component	b. [ ] As a manufacturing aid
e. [ ] As a byproduct	c. [X] As an article component	c. [ ] Ancillary or other use
f. [X] As an impurity	d. [ ] Repackaging	

SECTION 4. MAXIMUM AMOUNT OF THE TOXIC CHEMICAL ONSITE AT ANY TIME DURING THE CALENDAR YEAR

4.1	05 (Enter two-digit code from instruction package.)	

SECTION 5. QUANTITY OF THE TOXIC CHEMICAL ENTERING EACH ENVIRONMENTAL MEDIUM ONSITE

			A. Total Release (pounds/year) (Enter range code or estimate*)	B. Basis of Estimate (enter code)	C. % From Stormwater
5.1	Fugitive or non-point air emissions	NA [ ]	42	E	
5.2	Stack or point air emissions	NA [X]	NA		
5.3	Discharges to receiving streams or water bodies (enter one name per box)				
	Stream or Water Body Name				
5.3.1	ST. HELENS ROAD CREEK		5	M	100.00
5.3.2					
5.3.3					
5.4.1	Underground Injection onsite to Class I Wells	NA [X]	NA		
5.4.2	Underground Injection onsite to Class II-V Wells	NA [X]	NA		

If additional pages of Part II, Section 5.3 are attached, indicate the total number of pages in this box [1]
and indicate the Part II, Section 5.3 page number in this box. [1] (example: 1,2,3, etc.)

* Range Codes: A= 1 - 10 pounds; B= 11- 499 pounds; C= 500 - 999 pounds.

EPA FORM R

PART II. CHEMICAL - SPECIFIC INFORMATION (CONTINUED)

TRI Facility ID Number
97210-KPPRS-7540N
Toxic Chemical, Category or Generic Name
POLYCYCLIC AROMATIC COMPOUNDS

SECTION 5. QUANTITY OF THE TOXIC CHEMICAL ENTERING EACH ENVIRONMENTAL MEDIUM ONSITE (Continued)

		NA	A. Total Release (pounds/year) (enter range code* or estimate)	B. Basis of Estimate (enter code)
5.5	Disposal to land onsite			
5.5.1A	RCRA Subtitle C landfills	X	NA	
5.5.1B	Other landfills	X	NA	
5.5.2	Land treatment/application farming	X	NA	
5.5.3	Surface Impoundment	X	NA	
5.5.4	Other disposal	X	NA	

SECTION 6. TRANSFERS OF THE TOXIC CHEMICAL IN WASTES TO OFF-SITE LOCATIONS

6.1 DISCHARGES TO PUBLICLY OWNED TREATMENT WORKS (POTWs)

6.1.A Total Quantity Transferred to POTWs and Basis of Estimate

6.1.A.1. Total Transfers (pounds/year) (enter range code* or estimate)	6.1.A.2 Basis of Estimate (enter code)
NA	

6.1.B.1	POTW Name	NA					
POTW Address							
City		State		County		Zip	-
6.1.B.2	POTW Name						
POTW Address							
City		State		County		Zip	

If additional pages of Part II, Section 6.1 are attached, indicate the total number of pages in this box [1] and indicate the Part II, Section 6.1 page number in this box [1] (example: 1,2,3, etc.)

SECTION 6.2 TRANSFERS TO OTHER OFF-SITE LOCATIONS

6.2.1	Off-Site EPA Identification Number (RCRA ID No.)	NA					
Off-Site Location Name		NA					
Off-Site Address							
City		State		County		Zip	

Is location under control of reporting facility or parent company? [ ] Yes [ ] No

* Range Codes: A = 1 - 10 pounds; B = 11 - 499 pounds; C = 500 - 999 pounds.

EPA FORM R

PART II. CHEMICAL-SPECIFIC INFORMATION (CONTINUED)

TRI Facility ID Number
97210-KPPRS-7540N
Toxic Chemical, Category or Generic Name
POLYCYCLIC AROMATIC COMPOUNDS

SECTION 6.2 TRANSFERS TO OTHER OFF-SITE LOCATIONS (Continued)

A. Total Transfers (pounds/year) (enter range code* or estimate)	B. Basis of Estimate (enter code)	C. Type of Waste Treatment/Disposal/ Recycling/Energy Recovery (enter code)
1.	1.	1.
2.	2.	2.
3.	3.	3.
4.	4.	4.

6.2.2 Off-Site EPA Identification Number (RCRA ID No.)

Off-Site location Name

Off-Site Address

City | State | County | Zip -

Is location under control of reporting facility or parent company? ☐ Yes ☐ No

A. Total Transfers (pounds/year) (enter range code* or estimate)	B. Basis of Estimate (enter code)	C. Type of Waste Treatment/Disposal/ Recycling/Energy Recovery (enter code)
1.	1.	1.
2.	2.	2.
3.	3.	3.
4.	4.	4.

SECTION 7A. ON-SITE WASTE TREATMENT METHODS AND EFFICIENCY

☒ Not Applicable (NA) - Check here if no on-site waste treatment is applied to any waste stream containing the toxic chemical or chemical category.

a. General Waste Stream (enter code)	b. Waste Treatment Method(s) Sequence [enter 3-character code(s)]	c. Range of Influent Concentration	d. Waste Treatment Efficiency Estimate	e. Based on Operating Data ?
7A.1a	7A.1b: 1 2 3 4 5 6 7 8	7A.1c	7A.1d	7A.1e
NA			0 %	Yes ☐ No ☐
7A.2a	7A.2b: 1 2 3 4 5 6 7 8	7A.2c	7A.2d	7A.2e
			%	Yes ☐ No ☐
7A.3a	7A.3b: 1 2 3 4 5 6 7 8	7A.3c	7A.3d	7A.3e
			%	Yes ☐ No ☐
7A.4a	7A.4b: 1 2 3 4 5 6 7 8	7A.4c	7A.4d	7A.4e
			%	Yes ☐ No ☐
7A.5a	7A.5b: 1 2 3 4 5 6 7 8	7A.5c	7A.5d	7A.5e
			%	Yes ☐ No ☐

additional pages of Part II, Section 6.2/7A are attached, indicate the total number of pages in this box [1]
and indicate the Part II, Section 6.2/7A page number in this box : [1] (example: 1,2,3, etc)

* Range Codes: A = 1 - 10 pounds; B = 11 - 499 pounds; C = 500 - 999 pounds.

EPA FORM R

PART II. CHEMICAL-SPECIFIC INFORMATION (CONTINUED)

TRI Facility ID Number
97210-KPPRS-7540N
Toxic Chemical, Category or Generic Name
POLYCYCLIC AROMATIC COMPOUNDS

SECTION 7B. ON-SITE ENERGY RECOVERY PROCESSES

[X] Not Applicable (NA) - Check here if no on-site energy recovery is applied to any waste stream containing the toxic chemical or chemical category.

Energy Recovery Methods [enter 3-character code(s)]

1 NA | 2 | 3 | 4

SECTION 7C. ON-SITE RECYCLING PROCESSES

[ ] Not Applicable (NA) - Check here if no on-site recycling is applied to any waste stream containing the toxic chemical or chemical category.

Recycling Methods [enter 3-character code(s)]

1. R14 | 2. | 3. | 4. | 5.

6. | 7. | 8. | 9. | 10.

SECTION 8. SOURCE REDUCTION AND RECYCLING ACTIVITIES

		Column A Prior Year (pounds/year)	Column B Current Reporting Year (pounds/year)	Column C Following Year (pounds/year)	Column D Second Following Year (pounds/year)
8.1	Quantity released **	1800	47	32	39
8.2	Quantity used for energy recovery onsite	0	0	0	0
8.3	Quantity used for energy recovery offsite	0	0	0	0
8.4	Quantity recycled onsite	53000	150000	99000	120000
8.5	Quantity recycled offsite	0	0	0	0
8.6	Quantity treated onsite	0	0	0	0
8.7	Quantity treated offsite	0	0	0	0
8.8	Quantity released to the environment as a result of remedial actions, catastrophic events, or one-time events not associated with production processes (pounds/year)			0	
8.9	Production ratio or activity index			0001.24	

8.10 Did your facility engage in any source reduction activities for this chemical during the reporting year? If not, enter "NA" in Section 8.10.1 and answer Section 8.11.

	Source Reduction Activities [enter code(s)]	Methods to Identify Activity (enter codes)		
8.10.1	NA	a.	b.	c.
8.10.2		a.	b.	c.
8.10.3		a.	b.	c.
8.10.4		a.	b.	c.

8.11 Is additional information on source reduction, recycling, or pollution control activities included with this report ? (Check one box) YES [ ] NO [X]

** Report releases pursuant to EPCRA Section 329(8) including "any spilling, leaking, pumping, pouring, emitting, emptying, discharging, injecting, escaping, leaching, dumping, or disposing into the environment." Do not include any quantity treated onsite or offsite.

ATTACHMENT 2

SUPPORTING TABLES

Table 1-a. Summary of SARA 313 Reporting Quantities, 1999 SARA 313 Report
Koppers Industries, Inc., Portland Tar Plant, Portland, Oregon

Chemical	Applicable to Reporting?	Air Releases		Water Releases	Transfers Off-site	Quantity	Recycled	Recycled	Treated	Treated	Total Annual	Applicable
		Non-Point (lbs/yr) Section 5.1	Point (lbs/yr) Section 5.2	Wastewater (lbs/yr) Section 5.3	Creosote (lbs/yr) Section 6.2	Released (lbs/yr) Section 8.1	On-site (lbs/yr) Section 8.4	Off-site (lbs/yr) Section 8.5	On-site (lbs/yr) Section 8.6	Off-site (lbs/yr) Section 8.7	Reportable Amount (lbs/yr)	Form
Anthracene	YES	4	0	0	1	4	63,201	0	0	1	63,206	FORMR
Benzene	NO	0	0	0	0	0	0	0	0	0	0	NA
Biphenyl	NO	0	237	0	1	237	0	0	0	1	238	NA
m-cresols	NO	0	0	0	0	0	0	0	0	0	0	NA
o-cresols	NO	0	0	0	0	0	0	0	0	0	0	NA
p-cresols	NO	0	0	0	0	0	0	0	0	0	0	NA
Creosote	YES	0	0	0	168	0	0	0	0	168	168	FORM A
Dibenzofuran	NO	0	1,539	0	2	1,539	1,932	0	0	2	3,473	NA
Ethylbenzene	NO	0	0	0	0	0	0	0	0	0	0	NA
Picoline	NO	0	0	0	0	0	0	0	0	0	0	NA
Naphthalene	YES	0	2,530	13	40	2,544	47,557	0	0	40	50,141	FORMR
PAC's	YES	42	0	5	0	47	146,315	0	0	0	146,362	FORMR
Phenanthrene	NO	0	0	0	3	0	7,246	0	0	3	7,249	NA
Phenol	NO	0	0	5	0	5	0	0	0	0	5	NA
Pyridine	NO	0	0	0	0	0	0	0	0	0	0	NA
Quinoline	NO	0	193	0	1	193	0	0	0	1	194	NA
Styrene	NO	0	0	0	0	0	0	0	0	0	0	NA
Toluene	NO	0	0	0	0	0	0	0	0	0	0	NA
m-xylene	NO	0	0	0	0	0	0	0	0	0	0	NA
o-xylene	NO	0	0	0	0	0	0	0	0	0	0	NA
p-xylene	NO	0	0	0	0	0	0	0	0	0	0	NA

Koppers016159

Table 1-b. Summary of Projected 2000 SARA 313 Reporting Quantities, 1999 SARA 313 Report
Koppers Industries, Inc., Portland Tar Plant, Portland, Oregon

Chemical	Quantity Released (lbs/yr) Section 8.1	Recycled On-site (lbs/yr) Section 8.4	Recycled Off-site (lbs/yr) Section 8.5	Treated On-site (lbs/yr) Section 8.6	Treated Off-site (lbs/yr) Section 8.7
Anthracene	3	42,977	0	0	1
Benzene	0	0	0	0	0
Biphenyl	161	0	0	0	1
m-cresols	0	0	0	0	0
o-cresols	0	0	0	0	0
p-cresols	0	0	0	0	0
Creosote	0	0	0	0	114
Dibenzofuran	1,047	1,314	0	0	1
Ethylbenzene	0	0	0	0	0
Picoline	0	0	0	0	0
Naphthalene	1,730	32,339	0	0	27
PAC's	32	99,494	0	0	0
Phenanthrene	0	4,927	0	0	2
Phenol	3	0	0	0	0
Pyridine	0	0	0	0	0
Quinoline	131	0	0	0	1
Styrene	0	0	0	0	0
Toluene	0	0	0	0	0
m-xylene	0	0	0	0	0
o-xylene	0	0	0	0	0
p-xylene	0	0	0	0	0

Projected Pitch Production for 2000:	8,572,727
1999 Pitch Production:	12,693,163
Factor:	0.68

Koppers016160

Table 1-c. Summary of Projected 2001 SARA 313 Reporting Quantities, 1999 SARA 313 Report
Koppers Industries, Inc., Portland Tar Plant, Portland, Oregon

Chemical	Quantity Released (lbs/yr) Section 8.1	Recycled On-site (lbs/yr) Section 8.4	Recycled Off-site (lbs/yr) Section 8.5	Treated On-site (lbs/yr) Section 8.6	Treated Off-site (lbs/yr) Section 8.7
Anthracene	4	51,825	0	0	1
Benzene	0	0	0	0	0
Biphenyl	194	0	0	0	1
m-cresols	0	0	0	0	0
o-cresols	0	0	0	0	0
p-cresols	0	0	0	0	0
Creosote	0	0	0	0	138
Dibenzofuran	1,262	1,584	0	0	2
Ethylbenzene	0	0	0	0	0
Picoline	0	0	0	0	0
Naphthalene	2,086	38,997	0	0	33
PAC's	39	119,978	0	0	0
Phenanthrene	0	5,942	0	0	2
Phenol	4	0	0	0	0
Pyridine	0	0	0	0	0
Quinoline	158	0	0	0	1
Styrene	0	0	0	0	0
Toluene	0	0	0	0	0
m-xylene	0	0	0	0	0
o-xylene	0	0	0	0	0
p-xylene	0	0	0	0	0

Projected Pitch Production for 2001:	10,363,363
1999 Pitch Production:	12,693,163
Factor:	0.82

Koppers016161

Table 2. Input Data for the 1999 SARA 313 Report
Koppers Industries, Inc., Portland Tar Plant, Portland, Oregon

Process Production/Usage Rates

Mixture	Density (lb/gal)	Yearly Total (gal)	Maximum On-site (gal)
Pitch	11.0	12,693,163	3,031,130
Heavy Oil	9.6	50,321	55,398
P1/P13 Creosote	9.0	12,935	12,935

On-Site Recycling

Waste	Total Pounds	
Scrubber Fluid	483,082	(Heavy Oil)

Tank Throughputs

Tank ID	Commodity	Throughput (gallons)	
T-33	Heavy Oil	50,321	
T-65	Liquid Pitch	12,693,163	
T-67	P1/P13 Creosote	12,935	
T-67	Heavy Oil	50,321	
T-68	Liquid Pitch	5,374,702	
T-3	Crude Methyl Naphthalene	0	Changed to Stormwater Service May 1,1998
T-23	Light Coal Tar Distillate (UCC)	0	Changed to Stormwater Service May 1,1998
T-34	Naphthalene Still Residue	0	Changed to Stormwater Service May 1,1998
T-17	P1/P13 Creosote	0	Changed to Stormwater Service May 1,1998
T-19	Priming and Refractory Oil	0	Changed to Stormwater Service January 1,1999

Koppers016162

Table 3 Reporting Inventories for Threshold Quantities and Maximum On-Site, 1999 SARA 313 Report
Koppers Industries, Inc., Portland Tar Plant, Portland, Oregon

Mixture	Yearly Total (lbs)	% By Weight																				
		Anthracene 120-12-7	Benzene 71-43-2	Biphenyl 92-52-4	m-cresol 108-39-4	o-cresol 95-48-7	p-cresol 106-44-5	Creosote 8001-58-9	Dibenzo-furan 132-64-9	Ethyl-Benzene 100-41-4	Meth-Pyridine (picoline) 109-06-8	Naphthalene 91-20-3	PAC's N590	Phenan-threne 85-01-8	Phenol 108-95-2	Pyridine 110-86-1	Quinoline 91-22-5	Styrene 100-42-5	Toluene 108-88-3	m-Xylene 108-38-3	o-xylene 95-47-6	p-xylene 106-42-3
	Deminimus (%)	1.0	0.1	1.0	1.0	1.0	1.0	0.1	1.0	1.0	1.0	1.0	0.1	1.0	1.0	1.0	1.0	0.1	1.0	1.0	1.0	1.0
Pitch	139,624,793	0.790										0.040	7.930									
Heavy Oil	483,082	10.500							0.400				11.800	1.500								
P1/P13(Clean)	116,415	0.254	0.003	0.324	0.165		0.165	70.000	0.828	0.015	0.003	16.809		1.164	0.075	0.006	0.297	0.054	0.021	0.032	0.024	0.032
Does Chemical Meet Deminimus Exemption:		NO	YES	YES	YES	YES	YES	NO	YES	YES	YES	NO	NO	NO	YES	YES	YES	YES	YES	YES	YES	YES

(Note: The deminimus exemption was only applied if the chemical in every mixture was below the deminimus threshold)

Yearly Totals

Mixture	Yearly Total (lbs)	Yearly Totals																				
		Anthracene 120-12-7	Benzene 71-43-2	Biphenyl 92-52-4	m-cresol 108-39-4	o-cresol 95-48-7	p-cresol 106-44-5	Creosote 8001-58-9	Dibenzo-furan 132-64-9	Ethyl-Benzene 100-41-4	Meth-Pyridine (picoline) 109-06-8	Naphthalene 91-20-3	PAC's N590	Phenan-threne 85-01-8	Phenol 108-95-2	Pyridine 110-86-1	Quinoline 91-22-5	Styrene 100-42-5	Toluene 108-88-3	m-Xylene 108-38-3	o-xylene 95-47-6	p-xylene 106-42-3
Pitch	139,624,793	1,103,036	NA	NA	NA	NA	NA	0	NA	NA	NA	55,850	11,072,246	0	NA	NA	NA	NA	NA	NA	NA	NA
Heavy Oil	483,082	50,724	NA	NA	NA	NA	NA	0	NA	NA	NA	0	57,004	7,246	NA	NA	NA	NA	NA	NA	NA	NA
P1/P13(Clean)	116,415	296	NA	NA	NA	NA	NA	81,491	NA	NA	NA	19,568	0	1,355	NA	NA	NA	NA	NA	NA	NA	NA
Component Total:		1,154,055	0	0	0	0	0	81,491	0	0	0	75,418	11,129,250	8,601	0	0	0	0	0	0	0	0
Applicable to Reporting (Processes >25,000 lbs):		YES	NO	NO	NO	NO	NO	YES	NO	NO	NO	YES	YES	NO	NO	NO	NO	NO	NO	NO	NO	NO

Monthly Maximum On-site

Mixture	Maximum Monthly Total (lbs)	Monthly Maximums Totals																				
		Anthracene 120-12-7	Benzene 71-43-2	Biphenyl 92-52-4	m-cresol 108-39-4	o-cresol 95-48-7	p-cresol 106-44-5	Creosote 8001-58-9	Dibenzo-furan 132-64-9	Ethyl-Benzene 100-41-4	Meth-Pyridine (picoline) 109-06-8	Naphthalene 91-20-3	PAC's N590	Phenan-threne 85-01-8	Phenol 108-95-2	Pyridine 110-86-1	Quinoline 91-22-5	Styrene 100-42-5	Toluene 108-88-3	m-Xylene 108-38-3	o-xylene 95-47-6	p-xylene 106-42-3
Pitch	3,031,130	23,946	NA	NA	NA	NA	NA	0	NA	NA	NA	1,212	240,369	NA	NA	NA	NA	NA	NA	NA	NA	NA
Heavy Oil	55,398	5,817	NA	NA	NA	NA	NA	0	NA	NA	NA	0	6,537	NA	NA	NA	NA	NA	NA	NA	NA	NA
P1/P13(Clean)	12,935	33	NA	NA	NA	NA	NA	9,055	NA	NA	NA	2,174	0	NA	NA	NA	NA	NA	NA	NA	NA	NA
		29,796	0	0	0	0	0	9,055	0	0	0	3,387	246,906	0	0	0	0	0	0	0	0	0

Koppers016163

Table 4 Storage Tank Emissions, Point Air Releases 1999 SARA 313 Report
Koppers Industries, Inc. Portland Tar Plant, Portland, Oregon

Tank ID	Contents	Throughput (gal)	Temp F	D (ft)	Hs (ft)	Ht (ft)	V (ft3)	Turn overs	Mv (lb/mol)	Pva (psia)	L_B (lb/yr)	L_W (lb/yr)	Total (lb/yr)	Control (%)	Control Total (lb/yr)	Controlled Benzene (lb/yr)	Controlled Pyridine (lb/yr)	Controlled Toluene (lb/yr)	Controlled Picoline (lb/yr)	Controlled Ethylbenzene (lb/yr)	Controlled m-Xylene (lb/yr)	Controlled p-xylene (lb/yr)	Controlled Styrene (lb/yr)	Controlled Phenol (lb/yr)	Controlled p-cresol (lb/yr)	Controlled 2,4 Dimethyl m-cresol (lb/yr)	Controlled Naphthalene (lb/yr)	Controlled (Quinaldine) Quinoline (lb/yr)	Controlled Biphenyl (lb/yr)	Controlled Dibenzofuran (lb/yr)	Controlled Phenanthrene (lb/yr)	Controlled Anthracene (lb/yr)	Controlled PACs (lb/yr)	Controlled Creosote (lb/yr)
33	Heavy Oil	50,321	250	18	24	12	45682.28	1.10	161.80	0.00	0.15	0.06	0.21		0.2																	0.019	0.014		
67	Heavy Oil	50,321	250	12	24	12	20303.23	2.48	161.80	0.00	0.05	0.06	0.11		0.1																	0.010	0.007		
67	P1/P13 Creosote	12,935	150	12	24	12	20303.23	0.64	139.38	0.05	2.58	2.04	4.62		4.6	0.030	0.009	0.076	0.005	0.024	0.042	0.043	0.057	0.010	0.011	0.011	0.121	0.030	0.002	0.000	0.000	0.000		
TOTAL																**0.030**	**0.009**	**0.076**	**0.005**	**0.024**	**0.042**	**0.043**	**0.057**	**0.010**	**0.011**	**0.011**	**0.121**	**0.030**	**0.002**	**0.000**	**0.029**	**0.020**		

Notes:

1. Tank 67 contained two commodies during 1999. The number of days that each commodity was contained in the tank was calculated by multiplying the ratio of the commodity throughputs by 365 days per year. This value was then used to calculate standing losses from Tank 67.

Days Containing Heavy Oil = (50,321 gal/(50,321 + 12,935) gal) * 365 days/yr = 290 days
Days Containing Creosote = 365 days/yr -Days Containing Heavy Oil = 75 days

TOTALS	**(lb/yr)**
Anthracene	0.020
Benzene	0.030
Biphenyl	0.002
m-cresols	0.011
o-cresols	0.011
p-cresols	0.011
Creosote	
Dibenzofuran	0.000
Ethylbenzene	0.024
Picoline	0.005
Naphthalene	0.121
PAC's	
Phenanthrene	0.029
Phenol	0.010
Pyridine	0.009
Quinoline	0.030
Styrene	0.057
Toluene	0.076
m-xylene	0.042
o-xylene	0.055
p-xylene	0.043

Koppers016164

1. Fugitive Equipment Leak Air Emissions, Non Point Air Releases, 1999 SARA 313 Report
Koppers Industries, Inc., Portland Tar Plant, Portland, Oregon

Description	Commodity	Gas/LL/HL	Throughput (gal)	Pumping Rate (spm)	Actual Hours	Number of Equipment Type					TOC Emission Factors (lb/hr/source)					TOC Potential Emissions (lb/hr)						TOC Potential Emissions (lbs/yr)					
						P	V	PRV	OEL	FL	P	V	PRV	OEL	FL	P	V	PRV	OEL	FL	TOTAL	P	V	PRV	OEL	FL	TOTAL
Tank 67	P1/P13 Creosote	HL	12,935	200	2	3	23	0	1	57	0.01899	0.00051	0.22907	0.00374	0.00403	0.057	0.012	0.000	0.004	0.230	0.303	0.12	0.03	0.00	0.01	0.50	0.66
Tank 67	Heavy Oil	HL	50,321	200	8	3	23	0	1	57	0.01899	0.00051	0.22907	0.00374	0.00403	0.057	0.012	0.000	0.004	0.230	0.303	0.48	0.10	0.00	0.03	1.93	2.54
Tank 33	Heavy Oil	HL	50,321	80	21	1	7	0	0	18	0.01899	0.00051	0.22907	0.00374	0.00403	0.019	0.004	0.000	0.000	0.073	0.096	0.40	0.08	0.00	0.00	1.53	2.01
Pitch Storage	Pitch	HL	12,693,163	400	1,058	5	31	0	5	68	0.01899	0.00051	0.22907	0.00374	0.00403	0.095	0.016	0.000	0.019	0.274	0.404	100.49	16.92	0.00	20.10	289.83	427.34
Pitch Loading	Pitch	HL	12,693,163	400	529	2	11	0	2	33	0.01899	0.00051	0.22907	0.00374	0.00403	0.038	0.006	0.000	0.007	0.133	0.184	20.10	3.17	0.00	3.70	70.34	97.31
Hot Oil System (Old)	Oil	HL	101,912	200	5,797	6	100	1	0	170	0.01899	0.00051	0.22907	0.00374	0.00403	0.114	0.051	0.229	0.000	0.685	1.079	660.86	295.65	1,327.51	0.00	3,970.95	6,254.97
Hot Oil System (New)	Oil	HL	101,912	200	360	7	159	0	0	207	0.01899	0.00051	0.22907	0.00374	0.00403	0.133	0.081	0.000	0.000	0.834	1.048	47.88	29.16	0.00	0.00	300.24	377.28
TOTAL																0.513	0.182	0.229	0.034	2.459	3.417	830.3	345.1	1,327.5	23.8	4,635.3	7,162.1

		Speciated Emissions (lbs/yr)																			
		Anthracene	Benzene	Biphenyl	m-cresols	o-cresols	p-cresols	Creosote	Dibenzo	Ethylbenz	Picoline	Naphth	PACs	Phenan	Phenol	Pyridine	Quinoline	Styrene	Toluene	m-xylene	o-xylene	p-xylene
Tank 67	P1/P13 Creosote	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Tank 67	Heavy Oil	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Tank 33	Heavy Oil	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Pitch Storage	Pitch	3	0	0	0	0	0	0	0	0	0	0	34	0	0	0	0	0	0	0	0	0
Pitch Loading	Pitch	1	0	0	0	0	0	0	0	0	0	0	8	0	0	0	0	0	0	0	0	0
Hot Oil System (Old)	Oil	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Hot Oil System (New)	Oil	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL		4	0	0	0	0	0	0	0	0	0	0	42	0	0	0	0	0	0	0	0	0

		Commodity % by weight																			
		Anthracene	Benzene	Biphenyl	m-cresols	o-cresols	p-cresols	Creosote	Dibenzo	Ethylbenz	Picoline	Naphth	PACs	Phenan	Phenol	Pyridine	Quinoline	Styrene	Toluene	m-xylene	o-xylene	p-xylene
Tank 67	P1/P13 Creosote	0.254	0.003	0.324	0.165	0.000	0.165	70.000	0.828	0.015	0.003	16.809	0.000	1.164	0.075	0.006	0.297	0.054	0.021	0.032	0.024	0.032
Tank 67	Heavy Oil	10.500	0.000	0.000	0.000	0.000	0.000	0.000	0.400	0.000	0.000	0.000	11.800	1.500	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Tank 33	Heavy Oil	10.500	0.000	0.000	0.000	0.000	0.000	0.000	0.400	0.000	0.000	0.000	11.800	1.500	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Pitch Storage	Pitch	0.790	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.040	7.930	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Pitch Loading	Pitch	0.790	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.040	7.930	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Hot Oil System (Old)	Oil	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Hot Oil System (New)	Oil	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

KEY

LL	Light Liquid
HL	Heavy Liquid
P	Pump
V	Valve
PRV	Pressure Relief Device
FL	Flanges

Emission factors contained in EPA 453/R-95-017, SOCMI average emission factors.
Actual hours calculated using the following formula (except Hot Oil Heaters, where data provided by Koppers):
Hours = 2 * [throughput/ pumping rate] / 60

Koppers016165

Table 6-a. Fume Recovery Emissions, Point Air Releases, 1999 SARA 313 Report

Koppers Industries, Inc., Portland Tar Plant, Portland, Oregon

Fume Recovery VOC Emissions:	3,018	pounds per 720 hours, per ChemCad
Fume Recovery Hourly Emissions:	4.19	lbs/hr
Fume Recovery Operating Hours:	6,231	hours
Fume Recovery Annual Emissions:	26,108	lbs/yr

Constituent	Emission Factors (lb/720 hr)	(lb/hr)	Emissions (lbs/yr)
Anthracene	0.00	0.000	0
Benzene	0.00	0.000	0
Biphenyl	27.31	0.038	237
m-cresols	0.00	0.000	0
o-cresols	0.00	0.000	0
p-cresols	0.00	0.000	0
Creosote	0.00	0.000	0
Dibenzofuran	178.01	0.247	1,539
Ethylbenzene	0.00	0.000	0
Picoline	0.00	0.000	0
Naphthalene	292.44	0.406	2,530
PAC's	0.00	0.000	0
Phenanthrene	0.00	0.000	0
Phenol	0.00	0.000	0
Pyridine	0.00	0.000	0
Quinoline	22.00	0.031	193
Styrene	0.00	0.000	0
Toluene	0.00	0.000	0
m-xylene	0.00	0.000	0
o-xylene	0.00	0.000	0
p-xylene	0.00	0.000	0

Koppers016166

Table 6-b. Fume Recovery Emissions, Operating Hours, 1999 SARA 313 Report
Koppers Industries, Inc., Portland Tar Plant, Portland, Oregon

Assumptions:

All Pitch comes in as solid pitch

Total Annual Pitch Production:	69,812	tons/yr
Pitch Charging into T-65	58	tons/hr, based on 1,200 tons per each change of 20.6 hrs
% Pitch loaded into trucks from T-68:	60	% of total pitch production
Pitch loading pumping rate into trucks from T-68:	55.5	tons/hr, based on 37 tons loaded per 40 minutes
% Pitch loaded into railcar from T-65:	40	% of total pitch production
Pitch loading pumping rate into railcars from T-65:	58.0	tons/hr, based on 87 tons loaded per 90 minutes
% Pitch transferred from T-65 to T-68	60.0	% of total pitch production
Pitch transfer pumping rate from T-65 to T-68	70.0	tons/hr
Heavy Oil pumping rate	23	tons/hr, based on 1,200 gal/15min, and a density of 9.6 lbs/gal
Heavy Oil Annual Usage	242	tons/yr

Calculations:

Transfer Description	Amount per Charge (tons)	Pumping Rate (ton/hr)	Annual Amount Transferred (tons/yr)	Annual Transfer Time (hours)	Annual Number of Transfers	T-65 fume hours	T-68 fume hours	Total hours
Dry Pitch Charging	1200	58	69,812	1,204	58	1,320		1,320
From T-68 to trucks	37	55.5	41,887	755	1,132		3,019	3,019
From T-65 to rail	87	58.0	27,925	481	321	1,123		1,123
From T-65 to T-68	1200	70.0	41,887	598	35		668	668
Heavy oil tranfer	5.4	23	242	11	45	51	51	101
TOTALS:				**3,049**	**1,591**	**2,494**	**3,738**	**6,231**

Assume all transfers (except Solid Pitch) are done independently and that the scrubbers are at high capacity (1,050 scfm). Assume it takes one hour before and after each transfer to turn the fume system off and on.

Koppers016167

Table 7. Summary of Water Releases, 1999 SARA 313 Report
Koppers Industries, Inc., Portland Tar Plant, Portland, Oregon

Sample calculation:

gal/day x mg/l x 3.785 l/gal x 1 g/1000mg x 1lb/454 g x days/mo. = lb/mo.

		Measured Concentration					Water Releases				
Sample	Flow Rate	Anthracene 120-12-7	Naphthalene 91-20-3	PAC's N590	Phenol 108-95-2	Phenanthrene 85-01-8	Anthracene 120-12-7	Naphthalene 91-20-3	PAC's N590	Phenol 108-95-2	Phenanthrene
	GPD	mg/L	mg/L	mg/L	mg/L	mg/L	lb	lb	lb	lb	lb
Jan-99	28,387	0.0079	0.4800	0.0438	0.0000	0.0120	0.06	3.52	0.32	0.00	0.09
Feb-99	49,286	0.0079	0.4800	0.0438	0.0600	0.0120	0.09	5.52	0.50	0.69	0.14
Mar-99	35,484	0.0079	0.4800	0.0438	0.0000	0.0120	0.07	4.40	0.40	0.00	0.11
Apr-99	22,000	0.0110	0.0000	0.1423	0.2600	0.0000	0.06	0.00	0.78	1.43	0.00
May-99	28,387	0.0110	0.0000	0.1423	0.0000	0.0000	0.08	0.00	1.04	0.00	0.00
Jun-99	14,667	0.0110	0.0000	0.1423	0.0000	0.0000	0.04	0.00	0.52	0.00	0.00
Jul-99	7,097	0.0005	0.0003	0.0378	0.0000	0.0014	0.00	0.00	0.07	0.00	0.00
Aug-99	7,097	0.0005	0.0003	0.0378	0.0500	0.0014	0.00	0.00	0.07	0.09	0.00
Sep-99	7,333	0.0005	0.0003	0.0378	0.0700	0.0014	0.00	0.00	0.07	0.13	0.00
Oct-99	14,194	0.0039	0.0000	0.0870	0.0600	0.0000	0.01	0.00	0.32	0.22	0.00
Nov-99	22,000	0.0039	0.0000	0.0870	0.0000	0.0000	0.02	0.00	0.48	0.00	0.00
Dec-99	21,290	0.0039	0.0000	0.0870	0.0900	0.0000	0.02	0.00	0.48	0.50	0.00
					TOTAL		0	13	5	3	0

Notes:

1. Anthracene, naphthalene, phenanthrene and PAC were measured are measured quarterly.
2. Phenol concentrations were taken from the monthly discharge report.

SUMMARY	lb/yr
Anthracene	0
Benzene	
Biphenyl	
m-cresols	
o-cresols	
p-cresols	
Creosote	
Dibenzofuran	
Ethylbenzene	
Picoline	
Naphthalene	13
PAC's	5
Phenanthrene	0
Phenol	5
Pyridine	
Quinoline	
Styrene	
Toluene	
m-xylene	
o-xylene	
p-xylene	

Koppers016168

Table 8. Calculation of Hazardous Waste Shipments, Transfer to Off-Site Locations, 1999 SARA 313 Report
Koppers Industries, Inc., Portland Tar Plant, Portland, Oregon

In 1999, 4 drums of creosote spill material was shipped off-site to be landfilled. It is assumed that the material is approximately 20% cresosote (similar to Woodward Tar Plant). The material was sent to Safety Kleen in Clive Utah, then shipped to Safety Kleen in Aragonite Utah, where it is incinerated.

Safety-Kleen Aragonite
11600 North Aptus Road
Aragonite, Utah 84029
EPA ID: UTD981552177
Total amount shipped: 1,200 pounds

Calculations

Chemical	Creosote Spill Material	
	Composition by weight (%)	Quantity Transferred (pounds)
Total Transferred:		1,200
Anthracene	0.051	1
Benzene	0.001	0
Biphenyl	0.065	1
m-cresols	0.033	0
o-cresols	0.000	0
p-cresols	0.033	0
Creosote	14.000	168
Dibenzofuran	0.166	2
Ethylbenzene	0.003	0
Picoline	0.001	0
Naphthalene	3.362	40
PAC's	0.000	0
Phenanthrene	0.233	3
Phenol	0.015	0
Pyridine	0.001	0
Quinoline	0.059	1
Styrene	0.011	0
Toluene	0.004	0
m-xylene	0.006	0
o-xylene	0.005	0
p-xylene	0.006	0

Koppers016169

Table 9. Calculation of Fume Recovery Fluid Recycling, Recycling On-Site, 1999 SARA 313 Report
Koppers Industries, Inc., Portland Tar Plant, Portland, Oregon

Scrubber Fluid: Heavy Oil

Chemical	Fume Recovery Fluid Recycling Composition by weight (%)	Fume Recovery Fluid Recycling Quantity Transferred (pounds)
Total Recycled		483,082
Anthracene	10.50	50,724
Benzene	0.00	0
Biphenyl	0.00	0
m-cresols	0.00	0
o-cresols	0.00	0
p-cresols	0.00	0
Creosote	0.00	0
Dibenzofuran	0.40	1,932
Ethylbenzene	0.00	0
Picoline	0.00	0
Naphthalene	0.00	0
PAC's	11.80	57,004
Phenanthrene	1.50	7,246
Phenol	0.00	0
Pyridine	0.00	0
Quinoline	0.00	0
Styrene	0.00	0
Toluene	0.00	0
m-xylene	0.00	0
o-xylene	0.00	0
p-xylene	0.00	0

Notes:

1. The scrubber is Tank 102.

Koppers016170

Table 10. Calculation of Pitch Fume Recycling, Recycling On-Site, 1999 SARA 313 Report
Koppers Industries, Inc. Portland, Oregon.

Pitch vapors from the pitch tanks and pitch loading racks are directed to a fume scrubber, where pitch is knocked-out into the creosote, then sold as product.

Influent Pitch Hourly Emissions:	24.7	lbs/hr, per existing ChemCAD
Fume Recovery Hours of Operation:	6,231	hours
Influent Pitch Annual Emissions:	153,906	lbs/yr
Temperature of vapors:	400	F

Component	% weight @400 F	Quantity Recycled (pounds/yr)
Anthracene	8.11	12,477
Benzene	0.00	0
Biphenyl	0.00	0
m-cresols	0.00	0
o-cresols	0.00	0
p-cresols	0.00	0
Creosote	0.00	0
Dibenzofuran	0.00	0
Ethylbenzene	0.00	0
Picoline	0.00	0
Naphthalene	30.90	47,557
PAC's	58.03	89,311
Phenanthrene	0.00	0
Phenol	0.00	0
Pyridine	0.00	0
Quinoline	0.00	0
Styrene	0.00	0
Toluene	0.00	0
m-xylene	0.00	0
o-xylene	0.00	0
p-xylene	0.00	0

Koppers016171

Table 11. Calculation of the Production Ratio, 1999 SARA 313 Report
Koppers Industries, Inc. Portland, Oregon.

1999 Pitch Production:	12,693,163	gallons
1998 Pitch Production:	10,224,364	gallons, per AK, Koppers
Production Ratio:	1.24	

Koppers016172

ATTACHMENT 3

COMPANY SUPPLIED DATA

KOPPERS INDUSTRIES

Koppers Industries, Inc.
7540 N.W. St. Helens Road
Portland, OR 97210-3663

Telephone: 503-286-3681
Fax: 503-285-2831

.mos S. Kamerer
Plant Manager

Mr. Elliot J. Zais
Sr. Environmental Engineer
Water Quality Source Control Section
Oregon DEQ
2020 SW Fourth Ave., Suite 400
Portland, Oregon 97201-4987

November 18, 1999

Reference: NPDES # 101642

Dear Elliot,

Enclosed please find a corrected copy of my DMR for last month, October 1999, the original report showed in error the monitoring period month as 09, rather than 10.

I'm sorry for any inconvenience that this may have caused.

Sincerely,

Amos S. Kamerer

CC: T. Self, KII
J. Holtrop, City of Portland

CERTIFICATE OF ANALYSIS

CLIENT: KOPPERS INDUSTRIES, INC.
7540 NW ST. HELENS ROAD
PORTLAND OR 97210-3663

PHONE: (503) 286-3681
FAX: (503) 285-2831

DATE SUBMITTED: 01/04/99

PROJECT NAME: WASTE WATER ANALYSIS

CI SAMPLE #	CLIENTS ID#	DATE	TIME	DESCRIPTION
990010-001		01/04/99	1515	WASTE WATER TANK GRAB SAMPLE
990010-001		01/04/99	1515	WASTE WATER TANK GRAB SAMPLE
990010-001		01/04/99	1515	WASTE WATER TANK GRAB SAMPLE

REPORT DATE: 01/06/99 REPORT NUMBER: 990010 PAGE: 1 OF 1

SAMPLE	ANALYSIS	PARAMETER	RESULT	UNIT	DETECTION LIMIT	ANALYST
WASTE WATER TANK GRAB SAMPLE						
990010-001	O&G, TOTAL, GRAV EPA 413.1/9070	TOTAL OIL & GREASE	4.5	PPM	2	Gordon L.
	PHENOLS, TOTAL EPA 420.1	TOTAL RECOVERABLE PHENOLICS	ND	PPM	0.05	Abigail K.
	PNAH 2 EPA 625 (SIM)	ACENAPHTHENE	33	ug/L	0.05	Jacob L.
		ACENAPHTHYLENE	41	ug/L	0.05	
		ANTHRACENE SARA	7.9	ug/L	0.05	
		BENZO(A)ANTHRACENE PAC	9.4	ug/L	0.05	
		BENZO(A)PYRENE PAC	8.4	ug/L	0.2	
		BENZO(B)FLUORANTHENE PAC	9.2	ug/L	0.2	
		BENZO(GHI)PERYLENE	4.7	ug/L	0.5	
		BENZO(K)FLUORANTHENE PAC	9.2	ug/L	0.2	
		CHRYSENE	9.4	ug/L	0.05	
		DIBENZO(AH)ANTHRACENE PAC	ND	ug/L	0.3	
		FLUORANTHENE	18	ug/L	0.05	
		FLUORENE	25	ug/L	0.05	
		INDENO(1,2,3-CD)PYRENE PAC	7.6	ug/L	0.1	
		NAPHTHALENE SARA	480	ug/L	0.05	
		PHENANTHRENE SARA	12	ug/L	0.05	
		PYRENE	16	ug/L	0.05	
			670.8			
		SURROGATE	119%	% RECOVERY	50%-150%	

REVIEWED BY: Martin Little - Laboratory Manager

NAME Koppers Industries, Inc.
ADDRESS 7540 NW Saint Helens Road
Portland, OR 97210

FACILITY NW Terminal
LOCATION Multnomah Co.

NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES)
DISCHARGE MONITORING REPORT (DMR)

PERMIT NUMBER (2-16)	DISCHARGE NUMBER (17-19)
101003	001

3077-J
47430

MONITORING PERIOD	YEAR	MO	DAY		YEAR	MO	DAY
FROM	99	02	01	TO	99	02	26
	(20-21)	(22-23)	(24-25)		(26-27)	(28-29)	(30-31)

Form Approved.
OMB No. 2040-0004
Approval expires 05-31-98

NOTE: Read Instructions before completing this form.

PARAMETER (32-37)		(3 Card Only) QUANTITY OR LOADING (46-53) AVERAGE	(54-61) MAXIMUM	UNITS	(4 Card Only) QUANTITY OR CONCENTRATION (38-45) MINIMUM	(46-53) AVERAGE	(54-61) MAXIMUM	UNITS	NO. EX (62-63)	FREQUENCY OF ANALYSIS (64-68)	SAMPLE TYPE (69-70)
FLOW	SAMPLE MEASUREMENT	49,286		GPD					0	N/A	EST.
	PERMIT REQUIREMENT										
TEMP	SAMPLE MEASUREMENT				6.9	9.7	11.5	C°	0	1/7	GRAB
	PERMIT REQUIREMENT				N/A	N/A	N/A				
pH	SAMPLE MEASUREMENT				7.0	7.2	7.4	SU.	0	1/7	GRAB
	PERMIT REQUIREMENT				6.0		9.0				
OIL & GREASE	SAMPLE MEASUREMENT				N.D.	1.3	3.1	MG/L	0	1/7	GRAB
	PERMIT REQUIREMENT				0	10	15				
PHENOLS	SAMPLE MEASUREMENT				.06	.06	.06	MG/L	0	1/30	GRAB
	PERMIT REQUIREMENT					.5	.7				
	SAMPLE MEASUREMENT										
	PERMIT REQUIREMENT										
	SAMPLE MEASUREMENT										
	PERMIT REQUIREMENT										

NAME/TITLE PRINCIPAL EXECUTIVE OFFICER			TELEPHONE	DATE		
R.D. Collins, VP	I CERTIFY UNDER PENALTY OF LAW THAT I HAVE PERSONALLY EXAMINED AND AM FAMILIAR WITH THE INFORMATION SUBMITTED HEREIN; AND BASED ON MY INQUIRY OF THOSE INDIVIDUALS IMMEDIATELY RESPONSIBLE FOR OBTAINING THE INFORMATION, I BELIEVE THE SUBMITTED INFORMATION IS TRUE, ACCURATE AND COMPLETE. I AM AWARE THAT THERE ARE SIGNIFICANT PENALTIES FOR SUBMITTING FALSE INFORMATION, INCLUDING THE POSSIBILITY OF FINE AND IMPRISONMENT. SEE 18 U.S.C. § 1001 AND 33 U.S.C. § 1319. (Penalties under these statutes may include fines up to $10,000 and or maximum imprisonment of between 6 months and 5 years.)	Amos S. Kamerer, Plt. MGR	503 286-3681	99	03	05
TYPED OR PRINTED		SIGNATURE OF PRINCIPAL EXECUTIVE OFFICER OR AUTHORIZED AGENT	AREA CODE NUMBER	YEAR	MO	DAY

COMMENTS AND EXPLANATION OF ANY VIOLATIONS (Reference all attachments here)

cc: J. Holtrop-City of Portland, T.I. Self

EPA Form 3320-1 (08-95) Previous editions may be used. (REPLACES EPA FORM T-40 WHICH MAY NOT BE USED.)

PAGE OF

Koppers016176

PERMITTEE NAME/ADDRESS (Include Facility Name/Location if Different)
NAME Koppers Industries, Inc.
ADDRESS 7540 NW Saint Helens Road
Portland, OR 97210

FACILITY NW Terminal
LOCATION Multnomah County

NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES)
DISCHARGE MONITORING REPORT (DMR)
(2-16) (17-19)

101003	001	3077-J / 47430
PERMIT NUMBER	DISCHARGE NUMBER	

Form Approved.
OMB No. 2040-0004
Approval expires 05-31-98

MONITORING PERIOD	YEAR	MO	DAY		YEAR	MO	DAY
FROM	99	03	01	TO	99	03	31
	(20-21)	(22-23)	(24-25)		(26-27)	(28-29)	(30-31)

NOTE: Read instructions before completing this form.

PARAMETER (32-37)		(3 Card Only) QUANTITY OR LOADING (46-53) AVERAGE	(54-61) MAXIMUM	UNITS	(4 Card Only) QUANTITY OR CONCENTRATION (38-45) MINIMUM	(46-53) AVERAGE	(54-61) MAXIMUM	UNITS	NO. EX (62-63)	FREQUENCY OF ANALYSIS (64-68)	SAMPLE TYPE (69-70)
FLOW	SAMPLE MEASUREMENT	35,484		GPD					0	N/A	EST.
	PERMIT REQUIREMENT										
TEMP	SAMPLE MEASUREMENT				8.4	10.0	14.8	C	0	1/7	GRAB
	PERMIT REQUIREMENT				N/A	N/A	N/A				
pH	SAMPLE MEASUREMENT				7.0	7.1	7.3	SU	0	1/7	GRAB
	PERMIT REQUIREMENT				6.0		9.0				
Oil & Grease	SAMPLE MEASUREMENT				N.D.	2.2	3.1	MG/L	0	1/7	GRAB
	PERMIT REQUIREMENT				0	10	15				
PHENOLS	SAMPLE MEASUREMENT				N.D.	N.D.	N.D.	MG/L	0	1/30	GRAB
	PERMIT REQUIREMENT					.5	.7				
	SAMPLE MEASUREMENT										
	PERMIT REQUIREMENT										
	SAMPLE MEASUREMENT										
	PERMIT REQUIREMENT										

NAME/TITLE PRINCIPAL EXECUTIVE OFFICER			TELEPHONE		DATE		
R.D. Collins, VP	I CERTIFY UNDER PENALTY OF LAW THAT I HAVE PERSONALLY EXAMINED AND AM FAMILIAR WITH THE INFORMATION SUBMITTED HEREIN; AND BASED ON MY INQUIRY OF THOSE INDIVIDUALS IMMEDIATELY RESPONSIBLE FOR OBTAINING THE INFORMATION, I BELIEVE THE SUBMITTED INFORMATION IS TRUE, ACCURATE AND COMPLETE. I AM AWARE THAT THERE ARE SIGNIFICANT PENALTIES FOR SUBMITTING FALSE INFORMATION, INCLUDING THE POSSIBILITY OF FINE AND IMPRISONMENT. SEE 18 U.S.C. § 1001 AND 33 U.S.C. § 1319. (Penalties under these statutes may include fines up to $10,000 and or maximum imprisonment of between 6 months and 5 years.)	Amos S. Kamerer, Plt. MGR	503	286-3681	99	04	08
TYPED OR PRINTED		SIGNATURE OF PRINCIPAL EXECUTIVE OFFICER OR AUTHORIZED AGENT	AREA CODE	NUMBER	YEAR	MO	DAY

COMMENTS AND EXPLANATION OF ANY VIOLATIONS (Reference all attachments here)

cc: J. Holtrop-City of Portland, T.J. Self-KTI

EPA Form 3320-1 (08-95) Previous editions may be used.

Koppers016177

PERMITTEE NAME/ADDRESS (Include Facility Name/Location if Different)
NAME Koppers Industries, Inc.
ADDRESS 7540 NW St. Helens Rd.
Portland, OR 97210

FACILITY NW Terminal
LOCATION Multnomah Co.

NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES)
DISCHARGE MONITORING REPORT (DMR)

OMB No. 2040-0004
Approval expires 05-31-98

(2-16) PERMIT NUMBER	(17-19) DISCHARGE NUMBER
101642	001

3077-J

47430

MONITORING PERIOD	YEAR	MO	DAY		YEAR	MO	DAY
FROM	99	08	01	TO	99	08	31
	(20-21)	(22-23)	(24-25)		(26-27)	(28-29)	(30-31)

NOTE: Read instructions before completing this form.

PARAMETER (32-37)		(3 Card Only) QUANTITY OR LOADING (46-53) AVERAGE	(54-61) MAXIMUM	UNITS	(4 Card Only) QUANTITY OR CONCENTRATION (38-45) MINIMUM	(46-53) AVERAGE	(54-61) MAXIMUM	UNITS	NO. EX (62-63)	FREQUENCY OF ANALYSIS (64-68)	SAMPLE TYPE (69-70)
FLOW	SAMPLE MEASUREMENT	7097		GPD					0	N/A	EST.
	PERMIT REQUIREMENT										
TEMP	SAMPLE MEASUREMENT				21.0	21.0	21.0	C	0	1/7	GRAB
	PERMIT REQUIREMENT				N/A	N/A	N/A				
PH	SAMPLE MEASUREMENT				7.2	7.2	7.2	SU	0	1/7	GRAB
	PERMIT REQUIREMENT				6.0		9.0				
OIL & GREASE	SAMPLE MEASUREMENT				N.D.	N.D.	N.D.	mg/L	0	1/7	GRAB
	PERMIT REQUIREMENT				0	10	15				
PHENOLS	SAMPLE MEASUREMENT				<.05	<.05	<.05	mg/L	0	1/30	GRAB
	PERMIT REQUIREMENT				0	.5	.7				
	SAMPLE MEASUREMENT										
	PERMIT REQUIREMENT										
	SAMPLE MEASUREMENT										
	PERMIT REQUIREMENT										

NAME/TITLE PRINCIPAL EXECUTIVE OFFICER		TELEPHONE		DATE		
R.D. COLLINS, VP	I CERTIFY UNDER PENALTY OF LAW THAT I HAVE PERSONALLY EXAMINED AND AM FAMILIAR WITH THE INFORMATION SUBMITTED HEREIN; AND BASED ON MY INQUIRY OF THOSE INDIVIDUALS IMMEDIATELY RESPONSIBLE FOR OBTAINING THE INFORMATION, I BELIEVE THE SUBMITTED INFORMATION IS TRUE, ACCURATE AND COMPLETE. I AM AWARE THAT THERE ARE SIGNIFICANT PENALTIES FOR SUBMITTING FALSE INFORMATION, INCLUDING THE POSSIBILITY OF FINE AND IMPRISONMENT. SEE 18 U.S.C. § 1001 AND 33 U.S.C. § 1319. (Penalties under these statutes may include fines up to $10,000 and/or maximum imprisonment of between 6 months and 5 years.)	Amos B. Kamerer, Plt. Mgr.	503	286-3681	99	09	02
TYPED OR PRINTED		SIGNATURE OF PRINCIPAL EXECUTIVE OFFICER OR AUTHORIZED AGENT	AREA CODE	NUMBER	YEAR	MO	DAY

COMMENTS AND EXPLANATION OF ANY VIOLATIONS (Reference all attachments here)

cc: J. Holtrop - City of Portland, T.I. Self - KII

Koppers016178

PARAMETER (32-37)		(3 Card Only) QUANTITY OR LOADING (46-53) AVERAGE	(54-61) MAXIMUM	UNITS	(4 Card Only) QUANTITY OR CONCENTRATION (38-45) MINIMUM	(46-53) AVERAGE	(54-61) MAXIMUM	UNITS	EX (62-63)	OF ANALYSIS (64-68)	TYPE (69-70)
FLOW	SAMPLE MEASUREMENT	22,000		GPD					0	N/A	EST.
	PERMIT REQUIREMENT										
TEMP	SAMPLE MEASUREMENT				10.6	12.0	14.6	C	0	1/7	GRAB
	PERMIT REQUIREMENT				N/A	N/A	N/A				
PH	SAMPLE MEASUREMENT				6.8	7.0	7.1	SU	0	1/7	GRAB
	PERMIT REQUIREMENT				6.0		9.0				
OIL & GREASE	SAMPLE MEASUREMENT				N.D.	1.8	3.0	MG/L	0	1/7	GRAB
	PERMIT REQUIREMENT				0	10	15				
PHENOLS	SAMPLE MEASUREMENT				.26	.26	.26	MG/L	0	1/30	GRAB
	PERMIT REQUIREMENT				0	.5	.7				
	SAMPLE MEASUREMENT										
	PERMIT REQUIREMENT										
	SAMPLE MEASUREMENT										
	PERMIT REQUIREMENT										

NAME/TITLE PRINCIPAL EXECUTIVE OFFICER			TELEPHONE	DATE		
R.D. Collins, Vp	I CERTIFY UNDER PENALTY OF LAW THAT I HAVE PERSONALLY EXAMINED AND AM FAMILIAR WITH THE INFORMATION SUBMITTED HEREIN; AND BASED ON MY INQUIRY OF THOSE INDIVIDUALS IMMEDIATELY RESPONSIBLE FOR OBTAINING THE INFORMATION, I BELIEVE THE SUBMITTED INFORMATION IS TRUE, ACCURATE AND COMPLETE. I AM AWARE THAT THERE ARE SIGNIFICANT PENALTIES FOR SUBMITTING FALSE INFORMATION, INCLUDING THE POSSIBILITY OF FINE AND IMPRISONMENT. SEE 18 U.S.C. § 1001 AND 33 U.S.C. § 1319. *(Penalties under these statutes may include fines up to $10,000 and or maximum imprisonment of between 6 months and 5 years.)*	Alice M. Kamerer, Plt. MGR	503 286-3681	99	05	05
TYPED OR PRINTED		SIGNATURE OF PRINCIPAL EXECUTIVE OFFICER OR AUTHORIZED AGENT	AREA CODE NUMBER	YEAR	MO	DAY

COMMENTS AND EXPLANATION OF ANY VIOLATIONS *(Reference all attachments here)*

Second Quarter PAH Results are attached

cc: J. Holtrop - City of Portland, T.I. Self - KII

(REPLACES EPA FORM T.40 WHICH MAY NOT BE USED.)

Koppers016179

PERMITTEE NAME/ ESS (Include Facility Name/ Location if Different)
NAME
Koppe_ Industries, Inc.
ADDRESS 7540 NW Saint Helens Road
Portland, OR 97210

FACILITY NW Terminal
LOCATION Multnomah County

NATIONAL POLLUTAI DISCHARG (2-16)
HARGE ELIMINATION SYSTEM (NPDES)
/NITORING REPORT (DMR) (17-19)

101642	011
PERMIT NUMBER	DISCHARGE NUMBER

3077-J
47430

Form A ed.
OMB N. 40-0004
Approval expires 05-31-98

MONITORING PERIOD

	YEAR	MO	DAY		YEAR	MO	DAY
FROM	99	11	01	TO	99	11	30
	(20-21)	(22-23)	(24-25)		(26-27)	(28-29)	(30-31)

NOTE: Read instructions before completing this form.

PARAMETER (32-37)		(3 Card Only) QUANTITY OR LOADING (46-53) AVERAGE	(54-61) MAXIMUM	UNITS	(4 Card Only) QUANTITY OR CONCENTRATION (38-45) MINIMUM	(46-53) AVERAGE	(54-61) MAXIMUM	UNITS	NO. EX (62-63)	FREQUENCY OF ANALYSIS (64-68)	SAMPLE TYPE (69-70)
FLOW	SAMPLE MEASUREMENT	22,000		GPD					0	N/A	EST.
	PERMIT REQUIREMENT										
TEMP	SAMPLE MEASUREMENT				10.9	12.1	13.5	C	0	1/7	GRAB
	PERMIT REQUIREMENT				N/A	N/A	N/A				
pH	SAMPLE MEASUREMENT				6.8	8.0	8.9	SU	0	1/7	GRAB
	PERMIT REQUIREMENT				6.0		9.0				
OIL & GREASE	SAMPLE MEASUREMENT				2.7	4.3	5.7	MG/L	0	1/7	GRAB
	PERMIT REQUIREMENT				0	10	15				
PHENOLS	SAMPLE MEASUREMENT				N D	N D	N D	MG/L	0	1/30	GRAB
	PERMIT REQUIREMENT				0	.5	.7				
	SAMPLE MEASUREMENT										
	PERMIT REQUIREMENT										
	SAMPLE MEASUREMENT										
	PERMIT REQUIREMENT										

NAME/TITLE PRINCIPAL EXECUTIVE OFFICER			TELEPHONE	DATE		
R.D. Collins, VP	I CERTIFY UNDER PENALTY OF LAW THAT I HAVE PERSONALLY EXAMINED AND AM FAMILIAR WITH THE INFORMATION SUBMITTED HEREIN; AND BASED ON MY INQUIRY OF THOSE INDIVIDUALS IMMEDIATELY RESPONSIBLE FOR OBTAINING THE INFORMATION, I BELIEVE THE SUBMITTED INFORMATION IS TRUE, ACCURATE AND COMPLETE. I AM AWARE THAT THERE ARE SIGNIFICANT PENALTIES FOR SUBMITTING FALSE INFORMATION, INCLUDING THE POSSIBILITY OF FINE AND IMPRISONMENT. SEE 18 U.S.C. § 1001 AND 33 U.S.C. § 1319. (Penalties under these statutes may include fines up to $10,000 and or maximum imprisonment of between 6 months and 5 years.)	Amos S. Kamerer, Plt. MGR	503 286-3681	99	12	08
TYPED OR PRINTED		SIGNATURE OF PRINCIPAL EXECUTIVE OFFICER OR AUTHORIZED AGENT	AREA CODE / NUMBER	YEAR	MO	DAY

COMMENTS AND EXPLANATION OF ANY VIOLATIONS (Reference all attachments here)

cc: J. Haltrop - City of Portland, T.I. Self -KII

Koppers016180

PERMITTEE NAME / ADDRESS (Include Facility Name/ Location if Different)
NAME Kopper. ndustries, Inc.
ADDRESS 7540 NW Saint Helens Road
Portland, OR 97210

FACILITY NW Terminal
LOCATION Multnomah County

NATIONAL POLLUTA DISCHAR CHARGE ELIMINATION SYSTEM (NPDES)
ONITORING REPORT (DMR)
(2-16) (17-19)

101642	012	3077-J / 47430
PERMIT NUMBER	DISCHARGE NUMBER	

Form / ved.
OMB N)40-0004
Approval expires 05-31-98

MONITORING PERIOD

	YEAR	MO	DAY		YEAR	MO	DAY
FROM	99	12	01	TO	99	12	31
	(20-21)	(22-23)	(24-25)		(26-27)	(28-29)	(30-31)

NOTE: Read instructions before completing this form.

PARAMETER (32-37)		(3 Card Only) QUANTITY OR LOADING (46-53) AVERAGE	(54-61) MAXIMUM	UNITS	(4 Card Only) QUANTITY OR CONCENTRATION (38-45) MINIMUM	(46-53) AVERAGE	(54-61) MAXIMUM	UNITS	NO. EX (62-63)	FREQUENCY OF ANALYSIS (64-68)	SAMPLE TYPE (69-70)
FLOW	SAMPLE MEASUREMENT	21,290		GPD					0	N/A	EST.
	PERMIT REQUIREMENT										
TEMP	SAMPLE MEASUREMENT				10.4	11.2	12.3	C	0	1/7	GRAB
	PERMIT REQUIREMENT				N/A	N/A	N/A				
pH	SAMPLE MEASUREMENT				7.2	7.5	8.1	SU	0	1/7	GRAB
	PERMIT REQUIREMENT				6.0		9.0				
OIL & GREASE	SAMPLE MEASUREMENT				3.4	5.1	7.5	MG/L	0	1/7	GRAB
	PERMIT REQUIREMENT				0	10	15				
PHENOLS	SAMPLE MEASUREMENT				.09	.09	.09	MG/L	0	1/30	GRAB
	PERMIT REQUIREMENT				0	.5	.7				
	SAMPLE MEASUREMENT										
	PERMIT REQUIREMENT										
	SAMPLE MEASUREMENT										
	PERMIT REQUIREMENT										

NAME/TITLE PRINCIPAL EXECUTIVE OFFICER			TELEPHONE	DATE		
R.D. Collins, VP	I CERTIFY UNDER PENALTY OF LAW THAT I HAVE PERSONALLY EXAMINED AND AM FAMILIAR WITH THE INFORMATION SUBMITTED HEREIN; AND BASED ON MY INQUIRY OF THOSE INDIVIDUALS IMMEDIATELY RESPONSIBLE FOR OBTAINING THE INFORMATION, I BELIEVE THE SUBMITTED INFORMATION IS TRUE, ACCURATE AND COMPLETE. I AM AWARE THAT THERE ARE SIGNIFICANT PENALTIES FOR SUBMITTING FALSE INFORMATION, INCLUDING THE POSSIBILITY OF FINE AND IMPRISONMENT. SEE 18 U.S.C. § 1001 AND 33 U.S.C. § 1319. (Penalties under these statutes may include fines up to $10,000 and or maximum imprisonment of between 6 months and 5 years.)	Amos S. Kamerer, Plt. Mgr.	503 286-3681	00	01	04
TYPED OR PRINTED		SIGNATURE OF PRINCIPAL EXECUTIVE OFFICER OR AUTHORIZED AGENT	AREA CODE NUMBER	YEAR	MO	DAY

COMMENTS AND EXPLANATION OF ANY VIOLATIONS (Reference all attachments here)

cc: J. Holtrop-City of Portland, T.I. Self-KII

Kopper0016181

PERMITTEE NAME/ADDRESS (Include Facility Name/Location (if Different))
NAME Koppers Industries Inc.
ADDRESS 7540 NW St Helens Rd
Portland, OR 97210

FACILITY NW Terminal
LOCATION Multnomah Co

NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES) (2-16)
MONITORING REPORT (DMR) (17-19)

101642	001	3077-J	47430
PERMIT NUMBER	DISCHARGE NUMBER		

Form approved.
OMB .040-0004
Approval expires 05-31-98

MONITORING PERIOD

	YEAR	MO	DAY		YEAR	MO	DAY
FROM	99	09	01	TO	99	09	30
	(20-21)	(22-23)	(24-25)		(26-27)	(28-29)	(30-31)

NOTE: Read instructions before completing this form.

PARAMETER (32-37)		(3 Card Only) QUANTITY OR LOADING (46-53) AVERAGE	(54-61) MAXIMUM	UNITS	(4 Card Only) QUANTITY OR CONCENTRATION (38-45) MINIMUM	(46-53) AVERAGE	(54-61) MAXIMUM	UNITS	NO. EX (62-63)	FREQUENCY OF ANALYSIS (64-68)	SAMPLE TYPE (69-70)
FLOW	SAMPLE MEASUREMENT	7,333		GPD					0	N/A	EST.
	PERMIT REQUIREMENT										
TEMP	SAMPLE MEASUREMENT				22.7	22.7	22.7	C°	0	1/7	GRAB
	PERMIT REQUIREMENT				N/A	N/A	N/A				
pH	SAMPLE MEASUREMENT				8.2	8.2	8.2	SU	0	1/7	GRAB
	PERMIT REQUIREMENT				6.0		9.0				
OIL & GREASE	SAMPLE MEASUREMENT				N.D.	N.D.	N.D.	mg/L	0	1/7	GRAB
	PERMIT REQUIREMENT				0	10	15				
PHENOLS	SAMPLE MEASUREMENT				.07	.07	.07	mg/L	0	1/30	GRAB
	PERMIT REQUIREMENT				0	.5	.7				
	SAMPLE MEASUREMENT										
	PERMIT REQUIREMENT										
	SAMPLE MEASUREMENT										
	PERMIT REQUIREMENT										

NAME/TITLE PRINCIPAL EXECUTIVE OFFICER			TELEPHONE	DATE		
R.D. COLLINS, VP	I CERTIFY UNDER PENALTY OF LAW THAT I HAVE PERSONALLY EXAMINED AND AM FAMILIAR WITH THE INFORMATION SUBMITTED HEREIN; AND BASED ON MY INQUIRY OF THOSE INDIVIDUALS IMMEDIATELY RESPONSIBLE FOR OBTAINING THE INFORMATION, I BELIEVE THE SUBMITTED INFORMATION IS TRUE, ACCURATE AND COMPLETE. I AM AWARE THAT THERE ARE SIGNIFICANT PENALTIES FOR SUBMITTING FALSE INFORMATION, INCLUDING THE POSSIBILITY OF FINE AND IMPRISONMENT. SEE 18 U.S.C. § 1001 AND 33 U.S.C. § 1319. (Penalties under these statutes may include fines up to $10,000 and/or maximum imprisonment of between 6 months and 5 years.)	Amos S. KAMERER, Plt Mgr	503 286-3681	99	10	05
TYPED OR PRINTED		SIGNATURE OF PRINCIPAL EXECUTIVE OFFICER OR AUTHORIZED AGENT	AREA CODE / NUMBER	YEAR	MO	DAY

COMMENTS AND EXPLANATION OF ANY VIOLATIONS (Reference all attachments here)

cc: JOHN HOLTROP-CITY OF PORTLAND, T.I. SELF-KII

Koppers016182

NAME Koppers Industries, Inc.

ADDRESS 7540. Saint Helens Road

FACILITY NW Terminal

LOCATION Multnomah County

NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES)
DISCHARGE MONITORING REPORT (DMR)

PERMIT NUMBER (2-16)	DISCHARGE NUMBER (17-19)
101642	001

3077-J
47430

Form App
OMB No. -0004
Approval expires 05-31-98

MONITORING PERIOD

	YEAR	MO	DAY		YEAR	MO	DAY
FROM	99	07	01	TO	99	07	31
	(20-21)	(22-23)	(24-25)		(26-27)	(28-29)	(30-31)

NOTE: Read instructions before completing this form.

PARAMETER (32-37)		(3 Card Only) QUANTITY OR LOADING (46-53) AVERAGE	(54-61) MAXIMUM	UNITS	(4 Card Only) QUANTITY OR CONCENTRATION (38-45) MINIMUM	(46-53) AVERAGE	(54-61) MAXIMUM	UNITS	NO. EX (62-63)	FREQUENCY OF ANALYSIS (64-68)	SAMPLE TYPE (69-70)
FLOW	SAMPLE MEASUREMENT	7,097		GPD					0	N/A	EST.
	PERMIT REQUIREMENT										
TEMP	SAMPLE MEASUREMENT				24.6	24.7	24.8	C	0	1/7	GRAB
	PERMIT REQUIREMENT				N/A	N/A	N/A				
pH	SAMPLE MEASUREMENT				7.3	7.3	7.3	SU	0	1/7	GRAB
	PERMIT REQUIREMENT				6.0		9.0				
OIL & GREASE	SAMPLE MEASUREMENT				N.D.	N.D.	N.D.	MG/L	0	1/7	GraB
	PERMIT REQUIREMENT				0	10	15				
PHENOLS	SAMPLE MEASUREMENT				N.D.	N.D.	N.D.	MG/L	0	1/30	GRAB
	PERMIT REQUIREMENT				0	.5	.7				
	SAMPLE MEASUREMENT										
	PERMIT REQUIREMENT										
	SAMPLE MEASUREMENT										
	PERMIT REQUIREMENT										

OFFICER I CERTIFY UNDER PENALTY OF LAW THAT I HAVE PERSONALLY EXAMINED AND AM FAMILIAR WITH THE INFORMATION SUBMITTED HEREIN; AND BASED ON MY INQUIRY OF THOSE INDIVIDUALS IMMEDIATELY RESPONSIBLE FOR OBTAINING THE INFORMATION, I BELIEVE THE SUBMITTED INFORMATION IS TRUE, ACCURATE AND COMPLETE. I AM AWARE THAT THERE ARE SIGNIFICANT PENALTIES FOR SUBMITTING FALSE INFORMATION, INCLUDING THE POSSIBILITY OF FINE AND IMPRISONMENT. SEE 18 U.S.C. § 1001 AND 33 § 1319. *(Penalties under these statutes may include fines up to $10,000 and imprisonment of between 6 months and 5 years.)*

Amos S. Kamerer, Plt. MGR

SIGNATURE OF PRINCIPAL EXECUTIVE OFFICER OR AUTHORIZED AGENT

TELEPHONE: AREA CODE 503 | NUMBER 286-3681

DATE: YEAR 99 | MO 08 | DAY 04

ence all attachments here)

cc: J. Holtrop - City of Portland, T.I. Self - KII

ACES EPA FORM T-40 WHICH MAY NOT BE USED.)

Koppers016183

NAME Koppers Industries, Inc.
ADDRESS 7540 NW St. Helens Rd.
Portland, OR 97210

FACILITY NW Terminal
LOCATION Multnomah Co.

NATIONAL POLLU... DISCHARGE ELIMINATION SYSTEM (NPDES)
DISCHARGE MONITORING REPORT (DMR)

101003 (2-16)	001 (17-19)	3077-J
PERMIT NUMBER	DISCHARGE NUMBER	47430

MONITORING PERIOD	YEAR	MO	DAY		YEAR	MO	DAY
FROM	99	01	01	TO	99	01	31
	(20-21)	(22-23)	(24-25)		(26-27)	(28-29)	(30-31)

Form Approved.
OMB No. 2040-0004
Approval expires 05-31-98

NOTE: Read instructions before completing this form.

PARAMETER (32-37)		(3 Card Only) QUANTITY OR LOADING (46-53) AVERAGE	(54-61) MAXIMUM	UNITS	(4 Card Only) QUANTITY OR CONCENTRATION (38-45) MINIMUM	(46-53) AVERAGE	(54-61) MAXIMUM	UNITS	NO. EX (62-63)	FREQUENCY OF ANALYSIS (64-68)	SAMPLE TYPE (69-70)
Flow	SAMPLE MEASUREMENT	28,387		GPD					0	N/A	EST.
	PERMIT REQUIREMENT										
Temp	SAMPLE MEASUREMENT				8.5	9.9	12.2	C°	0	1/7	GRAB
	PERMIT REQUIREMENT				N/A	N/A	N/A				
pH	SAMPLE MEASUREMENT				7.0	7.2	7.4	SU	0	1/7	GRAB
	PERMIT REQUIREMENT				6.0		9.0				
Oil & Grease	SAMPLE MEASUREMENT				3.3	4.1	4.6	Mg/L	0	1/7	GRAB
	PERMIT REQUIREMENT				0	10	15				
Phenols	SAMPLE MEASUREMENT				ND	ND	ND	Mg/L	0	1/30	GRAB
	PERMIT REQUIREMENT				0	.5	.7				
	SAMPLE MEASUREMENT										
	PERMIT REQUIREMENT										
	SAMPLE MEASUREMENT										
	PERMIT REQUIREMENT										

NAME/TITLE PRINCIPAL EXECUTIVE OFFICER			TELEPHONE	DATE		
R.D. Collins, VP	I CERTIFY UNDER PENALTY OF LAW THAT I HAVE PERSONALLY EXAMINED AND AM FAMILIAR WITH THE INFORMATION SUBMITTED HEREIN; AND BASED ON MY INQUIRY OF THOSE INDIVIDUALS IMMEDIATELY RESPONSIBLE FOR OBTAINING THE INFORMATION, I BELIEVE THE SUBMITTED INFORMATION IS TRUE, ACCURATE AND COMPLETE. I AM AWARE THAT THERE ARE SIGNIFICANT PENALTIES FOR SUBMITTING FALSE INFORMATION, INCLUDING THE POSSIBILITY OF FINE AND IMPRISONMENT. SEE 18 U.S.C. § 1001 AND 33 U.S.C. § 1319. (Penalties under these statutes may include fines up to $10,000 and or maximum imprisonment of between 6 months and 5 years.)	Amos S. Kamerer, Plt. MGR	503 286 3681	99	02	02
TYPED OR PRINTED		SIGNATURE OF PRINCIPAL EXECUTIVE OFFICER OR AUTHORIZED AGENT	AREA CODE / NUMBER	YEAR	MO	DAY

COMMENTS AND EXPLANATION OF ANY VIOLATIONS (Reference all attachments here)

PAH First Quarter Results Are Attached

cc: J. HOLTROP-CITY OF PORTLAND, T.I. SELF-KII

EPA Form 3320-1 (08-86) Previous editions may be used. (REPLACES EPA FORM T.40 WHICH ...

Koppers016184

CERTIFICATE OF ANALYSIS

CLIENT: KOPPERS INDUSTRIES, INC.
7540 NW ST. HELENS ROAD
PORTLAND OR 97210-3663

PHONE: (503) 286-3681
FAX: (503) 285-2831

DATE SUBMITTED: 10/13/99

PROJECT NAME: QUARTERLY WASTEWATER TEST

CI SAMPLE #	CLIENTS ID#	DATE	TIME	DESCRIPTION
992049-001		10/13/99	0900	WW Tanks
992049-001		10/13/99	0900	WW Tanks
992049-001		10/13/99	0900	WW Tanks

REPORT DATE: 10/14/99 | REPORT NUMBER: 992049 | PAGE: 1 OF 2

SAMPLE	TEST	PARAMETER	RESULT	UNIT	DETECTION LIMIT	ANALYST
WW Tanks						
992049-001	O & G TOTAL (HEM) EPA 1664	TOTAL OIL AND GREASE	3.0	mg/L	2	Gordon L.
992049-001	PHENOLS, TOTAL EPA 420.1	TOTAL RECOVERABLE PHENOLICS	0.06	PPM	0.05	Steve W.
992049-001	PNAH 2 EPA 625 (SIM)	ACENAPHTHENE	6.6	ug/L	0.05	Jacob F.
		ACENAPHTHYLENE	1.9	ug/L	0.05	
		ANTHRACENE	3.9	ug/L	0.05	
		BENZO(A)ANTHRACENE PAC	15.	ug/L	0.05	
		BENZO(A)PYRENE PAC	21.	ug/L	0.2	
		BENZO(B)FLUORANTHENE PAC	20.	ug/L	0.2	
		BENZO(GHI)PERYLENE	17.	ug/L	0.5	
		BENZO(K)FLUORANTHENE PAC	16.	ug/L	0.2	
		CHRYSENE	18.5	ug/L	0.05	
		DIBENZO(AH)ANTHRACENE PAC	6.3	ug/L	0.3	
		FLUORANTHENE	24.	ug/L	0.05	
		FLUORENE	5.5	ug/L	0.05	
		INDENO(1,2,3-CD)PYRENE PAC	8.7	ug/L	0.4	

DRAFT REPORT - THIS REPORT HAS NOT UNDERGONE FINAL QUALITY ASSURANCE REVIEW.

Koppers016185

PERMITTEE NAME / ADDRESS (Include Facility Name/ Location if Different)

NAME Koppers Industries, Inc.

ADDRESS 7540 NW St. Helens Rd.
Portland, OR 97210

FACILITY NW Terminal

LOCATION Multnomah Co.

NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES) DISCHARGE MONITORING REPORT (DMR)

PERMIT NUMBER (4-16)	DISCHARGE NUMBER (17-19)
101642	001

3077-J

47430

MONITORING PERIOD

	YEAR	MO	DAY		YEAR	MO	DAY
FROM	99	08	01	TO	99	08	31
	(20-21)	(22-23)	(24-25)		(26-27)	(28-29)	(30-31)

Form Approved.
OMB No. 2040-0004
Approval expires 05-31-98

NOTE: Read instructions before completing this form.

PARAMETER (32-37)		(3 Card Only) QUANTITY OR LOADING (46-53) AVERAGE	(54-61) MAXIMUM	UNITS	(4 Card Only) QUANTITY OR CONCENTRATION (38-45) MINIMUM	(46-53) AVERAGE	(54-61) MAXIMUM	UNITS	NO. EX (62-65)	FREQUENCY OF ANALYSIS (66-68)	SAMPLE TYPE (69-70)
FLOW	SAMPLE MEASUREMENT	7097		GPD					0	N/A	EST.
	PERMIT REQUIREMENT										
TEMP	SAMPLE MEASUREMENT				21.0	21.0	21.0	C	0	1/7	GRAB
	PERMIT REQUIREMENT				N/A	N/A	N/A				
PH	SAMPLE MEASUREMENT				7.2	7.2	7.2	SU	0	1/7	GRAB
	PERMIT REQUIREMENT				6.0		9.0				
OIL & GREASE	SAMPLE MEASUREMENT				N.D.	N.D.	N.D.	mg/L	0	1/7	GRAB
	PERMIT REQUIREMENT				0	10	15				
PHENOLS	SAMPLE MEASUREMENT				<.05	<.05	<.05	mg/L	0	1/30	GRAB
	PERMIT REQUIREMENT				0	.5	.7				
	SAMPLE MEASUREMENT										
	PERMIT REQUIREMENT										
	SAMPLE MEASUREMENT										
	PERMIT REQUIREMENT										

NAME/TITLE PRINCIPAL EXECUTIVE OFFICER			TELEPHONE		DATE		
R.D. COLLINS, VP	I CERTIFY UNDER PENALTY OF LAW THAT I HAVE PERSONALLY EXAMINED AND AM FAMILIAR WITH THE INFORMATION SUBMITTED HEREIN; AND BASED ON MY INQUIRY OF THOSE INDIVIDUALS IMMEDIATELY RESPONSIBLE FOR OBTAINING THE INFORMATION, I BELIEVE THE SUBMITTED INFORMATION IS TRUE, ACCURATE AND COMPLETE. I AM AWARE THAT THERE ARE SIGNIFICANT PENALTIES FOR SUBMITTING FALSE INFORMATION, INCLUDING THE POSSIBILITY OF FINE AND IMPRISONMENT. SEE 18 U.S.C. § 1001 AND 33 U.S.C. § 1319. (Penalties under these statutes may include fines up to $10,000 and or maximum imprisonment of between 6 months and 5 years.)	Amos B. Kamerer, Plt. Mgr.	503	286-3681	99	09	02
TYPED OR PRINTED		SIGNATURE OF PRINCIPAL EXECUTIVE OFFICER OR AUTHORIZED AGENT	AREA CODE	NUMBER	YEAR	MO	DAY

COMMENTS AND EXPLANATION OF ANY VIOLATIONS (Reference all attachments here)

cc: J. Holtrop - City of Portland, T.I. Self - KII

Koppers016186

PERMITTEE NAME/ADDRESS (Include Facility Name/Location if Different)
NAME Koppers Industries Inc.
ADDRESS 7540 NW St Helens Rd
Portland, OR 97210

FACILITY NW Terminal
LOCATION Multnomah Co

NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES)
DISCHARGE MONITORING REPORT (DMR)

(2-16) PERMIT NUMBER	(17-19) DISCHARGE NUMBER
101642	001

3077-J
47430

Form approved.
OMB . . . 2040-0004
Approval expires 05-31-98

MONITORING PERIOD

	YEAR	MO	DAY		YEAR	MO	DAY
FROM	99	09	01	TO	99	09	30
	(20-21)	(22-23)	(24-25)		(26-27)	(28-29)	(30-31)

NOTE: Read instructions before completing this form.

PARAMETER (32-37)		(3 Card Only) QUANTITY OR LOADING (46-53) AVERAGE	(54-61) MAXIMUM	UNITS	(4 Card Only) QUANTITY OR CONCENTRATION (38-45) MINIMUM	(46-53) AVERAGE	(54-61) MAXIMUM	UNITS	NO. EX (62-63)	FREQUENCY OF ANALYSIS (64-68)	SAMPLE TYPE (69-70)
FLOW	SAMPLE MEASUREMENT	7,333		GPD					0	N/A	EST.
	PERMIT REQUIREMENT										
TEMP	SAMPLE MEASUREMENT				22.7	22.7	22.7	C°	0	1/7	GRAB
	PERMIT REQUIREMENT				N/A	N/A	N/A				
pH	SAMPLE MEASUREMENT				8.2	8.2	8.2	SU	0	1/7	GRAB
	PERMIT REQUIREMENT				6.0		9.0				
OIL & GREASE	SAMPLE MEASUREMENT				N.D.	N.D.	N.D.	mg/L	0	1/7	GRAB
	PERMIT REQUIREMENT				0	10	15				
PHENOLS	SAMPLE MEASUREMENT				.07	.07	.07	mg/L	0	1/30	GRAB
	PERMIT REQUIREMENT				0	.5	.7				
	SAMPLE MEASUREMENT										
	PERMIT REQUIREMENT										
	SAMPLE MEASUREMENT										
	PERMIT REQUIREMENT										

NAME/TITLE PRINCIPAL EXECUTIVE OFFICER			TELEPHONE	DATE		
R.D. COLLINS, VP	I CERTIFY UNDER PENALTY OF LAW THAT I HAVE PERSONALLY EXAMINED AND AM FAMILIAR WITH THE INFORMATION SUBMITTED HEREIN; AND BASED ON MY INQUIRY OF THOSE INDIVIDUALS IMMEDIATELY RESPONSIBLE FOR OBTAINING THE INFORMATION, I BELIEVE THE SUBMITTED INFORMATION IS TRUE, ACCURATE AND COMPLETE. I AM AWARE THAT THERE ARE SIGNIFICANT PENALTIES FOR SUBMITTING FALSE INFORMATION, INCLUDING THE POSSIBILITY OF FINE AND IMPRISONMENT. SEE 18 U.S.C. § 1001 AND 33 U.S.C. § 1319. (Penalties under these statutes may include fines up to $10,000 and or maximum imprisonment of between 6 months and 5 years.)	Amos S. KAMERER, Plt Mgr.	503 286-3681	99	10	05
TYPED OR PRINTED		SIGNATURE OF PRINCIPAL EXECUTIVE OFFICER OR AUTHORIZED AGENT	AREA CODE / NUMBER	YEAR	MO	DAY

COMMENTS AND EXPLANATION OF ANY VIOLATIONS (Reference all attachments here)

cc: JOHN HOLTROP-CITY OF PORTLAND, T.I. SELF-KII

Koppers016187

PERMITTEE NAME/ADDRESS (Include Facility Name/Location if Different)
NAME Koppers Industries, Inc.
ADDRESS 7540 NW Saint Helens Road
Portland, OR 97210

FACILITY NW Terminal
LOCATION Multnomah County

NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES)
DISCHARGE MONITORING REPORT (DMR)

PERMIT NUMBER (2-16)	DISCHARGE NUMBER (17-19)
101642	011

3077-J
47430

Form Approved.
OMB No. 2040-0004
Approval expires 05-31-98

MONITORING PERIOD

	YEAR	MO	DAY		YEAR	MO	DAY
FROM	99	11	01	TO	99	11	30
	(20-21)	(22-23)	(24-25)		(26-27)	(28-29)	(30-31)

NOTE: Read instructions before completing this form.

PARAMETER (32-37)		(3 Card Only) QUANTITY OR LOADING (46-53) AVERAGE	(54-61) MAXIMUM	UNITS	(4 Card Only) QUANTITY OR CONCENTRATION (38-45) MINIMUM	(46-53) AVERAGE	(54-61) MAXIMUM	UNITS	NO. EX (62-63)	FREQUENCY OF ANALYSIS (64-68)	SAMPLE TYPE (69-70)
FLOW	SAMPLE MEASUREMENT	22,000		GPD					0	N/A	EST.
	PERMIT REQUIREMENT										
TEMP	SAMPLE MEASUREMENT				10.9	12.1	13.5	C	0	1/7	GRAB
	PERMIT REQUIREMENT				N/A	N/A	N/A				
pH	SAMPLE MEASUREMENT				6.8	8.0	8.9	SU	0	1/7	GRAB
	PERMIT REQUIREMENT				6.0		9.0				
OIL & GREASE	SAMPLE MEASUREMENT				2.7	4.3	5.7	MG/L	0	1/7	GRAB
	PERMIT REQUIREMENT				0	10	15				
PHENOLS	SAMPLE MEASUREMENT				N D	N D	N D	MG/L	0	1/30	GRAB
	PERMIT REQUIREMENT				0	.5	.7				
	SAMPLE MEASUREMENT										
	PERMIT REQUIREMENT										
	SAMPLE MEASUREMENT										
	PERMIT REQUIREMENT										

NAME/TITLE PRINCIPAL EXECUTIVE OFFICER		TELEPHONE		DATE		
R.D. Collins, VP	I CERTIFY UNDER PENALTY OF LAW THAT I HAVE PERSONALLY EXAMINED AND AM FAMILIAR WITH THE INFORMATION SUBMITTED HEREIN; AND BASED ON MY INQUIRY OF THOSE INDIVIDUALS IMMEDIATELY RESPONSIBLE FOR OBTAINING THE INFORMATION, I BELIEVE THE SUBMITTED INFORMATION IS TRUE, ACCURATE AND COMPLETE. I AM AWARE THAT THERE ARE SIGNIFICANT PENALTIES FOR SUBMITTING FALSE INFORMATION, INCLUDING THE POSSIBILITY OF FINE AND IMPRISONMENT. SEE 18 U.S.C. § 1001 AND 33 U.S.C. § 1319. (Penalties under these statutes may include fines up to $10,000 and or maximum imprisonment of between 6 months and 5 years.)	Amos S. Kamerer, Plt. MGR	503	286-3681	99	12	08
TYPED OR PRINTED		SIGNATURE OF PRINCIPAL EXECUTIVE OFFICER OR AUTHORIZED AGENT	AREA CODE	NUMBER	YEAR	MO	DAY

COMMENTS AND EXPLANATION OF ANY VIOLATIONS (Reference all attachments here)

cc: J. Haltrop - City of Portland, T.I. Self -KII

Koppers016188

PERMITTEE NAME/ADDRESS (Include Facility Name/Location if Different)
NAME Kopper[illegible]ndustries, Inc.
ADDRESS 7540 NW Saint Helens Road
Portland, OR 97210

FACILITY NW Terminal
LOCATION Multnomah County

NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES) (2-16)
DISCHARGE MONITORING REPORT (DMR) (17-19)

101642	012	3077-J
PERMIT NUMBER	DISCHARGE NUMBER	47430

Form [illegible]ved.
OMB N[illegible]2040-0004
Approval expires 05-31-98

MONITORING PERIOD

	YEAR	MO	DAY		YEAR	MO	DAY
FROM	99	12	01	TO	99	12	31
	(20-21)	(22-23)	(24-25)		(26-27)	(28-29)	(30-31)

NOTE: Read instructions before completing this form.

PARAMETER (32-37)		(3 Card Only) QUANTITY OR LOADING (46-53) AVERAGE	(54-61) MAXIMUM	UNITS	(4 Card Only) QUANTITY OR CONCENTRATION (38-45) MINIMUM	(46-53) AVERAGE	(54-61) MAXIMUM	UNITS	NO. EX (62-63)	FREQUENCY OF ANALYSIS (64-68)	SAMPLE TYPE (69-70)
FLOW	SAMPLE MEASUREMENT	21,290		GPD					0	N/A	EST.
	PERMIT REQUIREMENT										
TEMP	SAMPLE MEASUREMENT				10.4	11.2	12.3	C	0	1/7	GRAB
	PERMIT REQUIREMENT				N/A	N/A	N/A				
pH	SAMPLE MEASUREMENT				7.2	7.5	8.1	SU	0	1/7	GRAB
	PERMIT REQUIREMENT				6.0		9.0				
OIL & GREASE	SAMPLE MEASUREMENT				3.4	5.1	7.5	MG/L	0	1/7	GRAB
	PERMIT REQUIREMENT				0	10	15				
PHENOLS	SAMPLE MEASUREMENT				.09	.09	.09	MG/L	0	1/30	GRAB
	PERMIT REQUIREMENT				0	.5	.7				
	SAMPLE MEASUREMENT										
	PERMIT REQUIREMENT										
	SAMPLE MEASUREMENT										
	PERMIT REQUIREMENT										

NAME/TITLE PRINCIPAL EXECUTIVE OFFICER			TELEPHONE		DATE		
R.D. Collins, VP	I CERTIFY UNDER PENALTY OF LAW THAT I HAVE PERSONALLY EXAMINED AND AM FAMILIAR WITH THE INFORMATION SUBMITTED HEREIN; AND BASED ON MY INQUIRY OF THOSE INDIVIDUALS IMMEDIATELY RESPONSIBLE FOR OBTAINING THE INFORMATION, I BELIEVE THE SUBMITTED INFORMATION IS TRUE, ACCURATE AND COMPLETE. I AM AWARE THAT THERE ARE SIGNIFICANT PENALTIES FOR SUBMITTING FALSE INFORMATION, INCLUDING THE POSSIBILITY OF FINE AND IMPRISONMENT. SEE 18 U.S.C. § 1001 AND 33 U.S.C. § 1319. (Penalties under these statutes may include fines up to $10,000 and/or maximum imprisonment of between 6 months and 5 years.)	Amos S. Kamerer, Plt. Mgr.	503	286-3681	00	01	04
TYPED OR PRINTED		SIGNATURE OF PRINCIPAL EXECUTIVE OFFICER OR AUTHORIZED AGENT	AREA CODE	NUMBER	YEAR	MO	DAY

COMMENTS AND EXPLANATION OF ANY VIOLATIONS (Reference all attachments here)

cc: J. Holtrop-City of Portland, T.I. Self-KII

Koppers016189

HAZARDOUS AND NON-HAZARDOUS DISPOSAL LOG
KOPPERS INDUSTRIES, INC.
PORTLAND, OREGON TERMINAL

Date of Shipment	Destination	Handled By	Material Shipped	Quantity Shipped
4/24/90	Arlington, Oregon	Chem-Security Systems	creosote spill, rags & absorbents	20 drums
5/18/93	Lohern, Calif.	Laidlaw Environmental Services	creosote spill, rags & absorbents	3 drums
9/28/95	San Jose, Calif.	USPCI-Solvent Services	creosote spill, rags & absorbents	3 drums
7/02/97	Houston, Texas	Eltes Environmental Services	no longer used laboratory chemicals	4 lab packs
3/05/98	Delta, BC, Canada	Laidlaw Environmental Services	creosote spill, rags & absorbents	2 drums
3/05/98	Knolls, Ut.	Laidlaw Environmental Services	refined tar spill rags & absorbents (non-hazardous)	6 drums
1/18/99	Clive,Utah	Safety –Kleen (TG) Inc.	creosote spill, rags & absorbents	4 drums/1200 #
4/22/99	Aragonite, Utah	Safety-Kleen (TG) Inc.	paint, non RCRA and non DOT hazardous materials	5 lab packs/400 #
4/22/99	Delta, BC Canada	Safety-Kleen (TG) Inc.	same as above	3 lab packs/1800 #
9/2/99	Delta, BC Canada	Safety-Kleen (TG) Inc.	aluminum brightner, caustic prewash and acidic brightner	2 drums/600 #

Koppers016190

SWO# 3238

Please print or type. (Form designed for use on elite (12-pitch) typewriter.)

Form Approved. OMB No. 2050-0039. Expires 9-30-96

UNIFORM HAZARDOUS WASTE MANIFEST

1. Generator's US EPA ID No. ORD027734359 — Manifest Document No. 046844

2. Page 1 of 1 — Information in the shaded areas is not required by Federal law.

GENERATOR

3. Generator's Name and Mailing Address: KOPPERS INDUSTRIES, INC.
7540 NW ST. HELENS R
PORTLAND, OR 97210

A. State Manifest Document Number: 1004684

B. State Generator's ID:

4. Generator's Phone (503) 286-3681

5. Transporter 1 Company Name: SAFETY-KLEEN (TG), INC.

6. US EPA ID Number: SCD987574647

C. State Transporter's ID:

D. Transporter's Phone: (253) 288-2800

7. Transporter 2 Company Name: MP ENVIRONMENTAL (SAFETY-KLEEN (TG), INC.)

8. US EPA ID Number: CAT000624247

E. State Transporter's ID:

F. Transporter's Phone: (805) 393-1151

9. Designated Facility Name and Site Address: SAFETY-KLEEN (LONE & GRASSY MT.), INC.
3 MILES EAST, 7 MILES NORTH; EXIT 41 OFF I-80
CLIVE, UT 84083

10. US EPA ID Number: UTD991301748

G. State Facility's ID: 253 288 2800

H. Facility's Phone: (801) 323-8900

11. US DOT Description (Including Proper Shipping Name, Hazard Class and ID Number)	HM	12. Containers No.	12. Containers Type	13. Total Quantity	14. Unit Wt/Vol	I. Waste No.
a. 3 WASTE Environmentally hazardous substances, solid, n.o.s., (Contains Creosote), 9, UN3077, PG-III	X	004	DM	01200	P	U051
b.						
c.						
d.						

J. Additional Descriptions for Materials Listed Above
A: 990118-OSKOP-001-00[illegible], 4 X 55gDM, (ERG # 171) (INCIN)
B:
C:
D:

K. Handling Codes for Wastes Listed Above

15. Special Handling Instructions and Additional Information
Profile Number: a. OSKOP-99M0019d.
b.
c.
SWO# 3238
Emergency Contact:
1-800-451-8346
3E

16. GENERATOR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packed, marked, and labeled, and are in all respects in proper condition for transport by highway according to applicable international and national government regulations.
If I am a large quantity generator, I certify that I have a program in place to reduce the volume and toxicity of waste generated to the degree I have determined to be economically practicable and that I have selected the practicable method of treatment, storage, or disposal currently available to me which minimizes the present and future threat to human health and the environment; OR, if I am a small quantity generator, I have made a good faith effort to minimize my waste generation and select the best waste management method that is available to me and that I can afford.

Printed/Typed Name: T.J. THAPER — Signature: [signature] — Month Day Year: 10 11 1999

TRANSPORTER

17. Transporter 1 Acknowledgement of Receipt of Materials
Printed/Typed Name: Michael D. Rabinowitz — Signature: [signature] — Month Day Year: 10 11 1999

18. Transporter 2 Acknowledgement of Receipt of Materials
Printed/Typed Name: John W. Whitaker — Signature: [signature] — Month Day Year: 10 12 1999

FACILITY

19. Discrepancy Indication Space
1499000710 B

20. Facility Owner or Operator: Certification of receipt of hazardous materials covered by this manifest except as noted in Item 19.
Printed/Typed Name: Ricky Fields — Signature: [signature] — Month Day Year: 10 20 1999

Style CF17-6 LABELMASTER, AN AMERICAN LABELMARK CO., CHICAGO, IL 60646 (800)621-5808

EPA Form 8700-22 (Rev. 9-88) Previous editions are obsolete.

PRINTED ON RECYCLED PAPER USING SOYBEAN INK — PRINTED WITH SOY INK

ORIGINAL-RETURN TO GENERATOR

Koppers016191

3493 L2953 SWO# 3600 991647

Please print or type. (Form designed for use on elite (12-pitch) typewriter.) Form Approved. OMB No. 2050-0039

UNIFORM HAZARDOUS WASTE MANIFEST

1. Generator's US EPA ID No. / Manifest Document No.: ORD027734359 1152 6
2. Page 1 of 1
Information in the shaded areas is not required by Federal law.

3. Generator's Name and Mailing Address: KOPPERS INDUSTRIES, INC.
7540 NW ST. HELENS R
PORTLAND, OR 97210
4. Generator's Phone (503) 286-3681

A. State Manifest Document Number: 1011526
B. State Generator's ID:

5. Transporter 1 Company Name: SAFETY-KLEEN (TG), INC.
6. US EPA ID Number: SCD987574647
C. State Transporter's ID:
D. Transporter's Phone: (253) 288-2800

7. Transporter 2 Company Name: MP ENVIRONMENTAL
8. US EPA ID Number: CAT000624247
E. State Transporter's ID:
F. Transporter's Phone: (805) 393-1151

9. Designated Facility Name and Site Address: SAFETY-KLEEN (ARAGONITE), INC
11600 N. APTUS ROAD
ARAGONITE, UT 84029
10. US EPA ID Number: UTD981552177
G. State Facility's ID:
H. Facility's Phone: (801) 323-8156

	11. US DOT Description (Including Proper Shipping Name, Hazard Class and ID Number)	HM	12. Containers No.	12. Containers Type	13. Total Quantity	14. Unit Wt/Vol	I. Waste No.
a.	WASTE FLAMMABLE LIQUIDS, N.O.S. (LABPACK), 3, UN 1993, PG II	X	004	DF	00320	P	D001
b.	NON RCRA/NON DOT REGULATED WASTE (LABPACK)		001	DF	00080	P	N/R
c.							
d.							

J. Additional Descriptions for Materials Listed Above
A: 990422-12-KO-001-002, 004-005 * 4X30 gDF, (ERG # 128)
B: 990422-12-KO-003 - 1X30g DF
C:
D:
W600479
W600477

K. Handling Codes for Wastes Listed Above: T07

15. Special Handling Instructions and Additional Information
Profile Number a. 3013015-12-KO d.
b. 3013015-12-KO
c.
SWO# 3600
Emergency Contact:
1-800-451-8346
3E

16. GENERATOR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packed, marked, and labeled, and are in all respects in proper condition for transport by highway according to applicable international and national government regulations.
If I am a large quantity generator, I certify that I have a program in place to reduce the volume and toxicity of waste generated to the degree I have determined to be economically practicable and that I have selected the practicable method of treatment, storage, or disposal currently available to me which minimizes the present and future threat to human health and the environment; OR, if I am a small quantity generator, I have made a good faith effort to minimize my waste generation and select the best waste management method that is available to me and that I can afford.

Printed/Typed Name: T.J. Thurber
Signature:
Month Day Year: 04 22 99

TRANSPORTER

17. Transporter 1 Acknowledgement of Receipt of Materials
Printed/Typed Name: Michael D. Robinowitz
Signature: Michael D. Robinowitz
Month Day Year: 04 22 99

18. Transporter 2 Acknowledgement of Receipt of Materials
Printed/Typed Name: PAT MARTIN
Signature: Pat Martin
Month Day Year: 04 28 99

FACILITY

19. Discrepancy Indication Space

20. Facility Owner or Operator: Certification of receipt of hazardous materials covered by this manifest except as noted in Item 19.
Printed/Typed Name: Martin Keller
Signature:
Month Day Year: 05 04 99

Style CF 17 LABELMASTER, AN AMERICAN LABELMARK CO., CHICAGO, IL 60646 (800)621-5808

EPA Form 8700-22 (Rev. 9-88) Previous editions are obsolete.

ORIGINAL-RETURN TO GENERATOR

PRINTED ON RECYCLED PAPER USING SOYBEAN INK. PRINTED WITH SOY INK

Koppers016192

Please print or type. (Form designed for use on elite (12-pitch) typewriter.)

SWO# 3600

Form Approved OMB No. 2050-0039

UNIFORM HAZARDOUS WASTE MANIFEST

1. Generator's US EPA ID No. ORD027734359 Manifest Document No. 11524

2. Page 1 of 1

Information in the shaded areas is not required by Federal law.

3. Generator's Name and Mailing Address
KOPPERS INDUSTRIES, INC.
7540 NW ST. HELENS R
PORTLAND, OR 97210

4. Generator's Phone (503) 286-3681

A. State Manifest Document Number 1011524

B. State Generator's ID

5. Transporter 1 Company Name: SAFETY-KLEEN (TG), INC.

6. US EPA ID Number: GGD987574647

C. State Transporter's ID

D. Transporter's Phone (253)288-2800

7. Transporter 2 Company Name: MP ENVIRONMENTAL

8. US EPA ID Number: CAT000624247

E. State Transporter's ID

F. Transporter's Phone (805)393-1151

9. Designated Facility Name and Site Address
SAFETY-KLEEN LTD. (DELTA)
7842 PROGRESS WAY
DELTA, BC V4G 1A4

10. US EPA ID Number: PG8388

G. State Facility's ID

H. Facility's Phone (604) 940-0894

	11. US DOT Description (Including Proper Shipping Name, Hazard Class and ID Number)	HM	12. Containers No.	Type	13. Total Quantity	14. Unit Wt/Vol	I. Waste No.
a. 10	WASTE Paint, (OIL PAINT), 3, UN1263, PG-II	X	001	CF ~~D.M~~	01200	P	D001
b. 11	NON RCRA / NON DOT REGULATED WASTE (TAR)		002	D.M	00600	P	
c.							
d.							

J. Additional Descriptions for Materials Listed Above
A: 990422-12-KO-001, 1 X gaylord BOX, (ERG # 127)
B: 990422-12-KO-003-002, 2 X 55g DM
C:
D: 4X00477

K. Handling Codes for Wastes Listed Above
Paint Of Exit: Blaine WA.
May 6/99

15. Special Handling Instructions and Additional Information
Profile Number a. 3013010-12-KO d.
b. 3013011-12-KO
c.

SWO# 3600
Emergency Contact:
1-800-451-8346
3E

16. GENERATOR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packed, marked, and labeled, and are in all respects in proper condition for transport by highway according to applicable international and national government regulations.
If I am a large quantity generator, I certify that I have a program in place to reduce the volume and toxicity of waste generated to the degree I have determined to be economically practicable and that I have selected the practicable method of treatment, storage, or disposal currently available to me which minimizes the present and future threat to human health and the environment; OR, if I am a small quantity generator, I have made a good faith effort to minimize my waste generation and select the best waste management method that is available to me and that I can afford.

Printed/Typed Name: TJ Turner
Signature: [signature]
Month Day Year: 04 22 99

17. Transporter 1 Acknowledgement of Receipt of Materials
Printed/Typed Name: Michael D. Rabinowitz
Signature: Michael D. Rabinowitz
Month Day Year: 04 22 99

18. Transporter 2 Acknowledgement of Receipt of Materials
Printed/Typed Name: Pat Martin
Signature: Pat Martin
Month Day Year: 04 23 99

19. Discrepancy Indication Space

20. Facility Owner or Operator: Certification of receipt of hazardous materials covered by this manifest except as noted in Item 19.
Printed/Typed Name: Otis Rechord
Signature: [signature]
Month Day Year: 05 17 99

GENERATOR

TRANSPORTER

FACILITY

Style CF 17 LABELMASTER, AN AMERICAN LABELMARK CO., CHICAGO, IL 60646 (800)621-5808

EPA Form 8700-22 (Rev 9-88) Previous editions are obsolete.

ORIGINAL-RETURN TO GENERATOR

PRINTED ON RECYCLED PAPER USING SOYBEAN INK — PRINTED WITH SOY INK

Koppers016193

SWO#

Please print or type. (Form designed for use on elite (12-pitch) typewriter.)

Form Approved. OMB No. 2050-0039 Expires 9-30-96

UNIFORM HAZARDOUS WASTE MANIFEST

1. Generator's US EPA ID No.: ORD027734359 — Manifest Document No.: 99901

2. Page 1 of 1 — Information in the shaded areas is not required by Federal law.

3. Generator's Name and Mailing Address: KOPPERS INDUSTRIES, INC.
7540 NW ST. HELENS ROAD
PORTLAND, OR 97210

4. Generator's Phone (503) 286-3681

A. State Manifest Document Number: 10099901

B. State Generator's ID:

5. Transporter 1 Company Name: SAFETY-KLEEN (TG), INC.

6. US EPA ID Number: SCD987574647

C. State Transporter's ID:

D. Transporter's Phone: (253)288-2800

7. Transporter 2 Company Name: SAFETY KLEEN (TG)

8. US EPA ID Number: SCD987574647

E. State Transporter's ID:

F. Transporter's Phone: 253 288 2800

9. Designated Facility Name and Site Address: SAFETY-KLEEN LTD. (DELTA)
7842 PROGRESS WAY
DELTA, BC V4G 1A4

10. US EPA ID Number: PS8388

G. State Facility's ID:

H. Facility's Phone: (604) 940-0894

	11. US DOT Description (Including Proper Shipping Name, Hazard Class and ID Number)	HM	12. Containers No.	Type	13. Total Quantity	14. Unit Wt/Vol	I. Waste No.
a.	5	X	WASTE Corrosive liquid, basic, inorganic, n.o.s., (Contains Potassium hydroxide), 8, UN3266, PG-II	001	DF	00300	P	D002
b.	6	X	WASTE CORROSIVE LIQUID, ACIDIC, INORGANIC, n.o.s., UN3264, PG II 8 (MURIATIC ACID, HYDROFLUORIC ACID)	001	DF	00300	P	D002
c.							
d.							

J. Additional Descriptions for Materials Listed Above
A: 990901-001-002, ~~[illegible]~~, 1x85g PD (OVER PACK) (ERG# 154)
B: 990901-002, 1X 30g PD (ERG# 126)
C:
D:

K. Handling Codes for Wastes Listed Above
Sept 13 '99 P.O.E. Rich Thrower Blaine Wash
A: 103691 B: 103692

15. Special Handling Instructions and Additional Information
Profile Number a. 2201935 b. 2201936 c. d.
SWO#
Emergency Contact: 1-800-451-8346 3E
POINT OF DEPARTURE: BLAINE, WA

16. GENERATOR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packed, marked, and labeled, and are in all respects in proper condition for transport by highway according to applicable international and national government regulations.
and conforms to the terms of the attached EPA Acknowledgment of Consent.
If I am a large quantity generator, I certify that I have a program in place to reduce the volume and toxicity of waste generated to the degree I have determined to be economically practicable and that I have selected the practicable method of treatment, storage, or disposal currently available to me which minimizes the present and future threat to human health and the environment; OR, if I am a small quantity generator, I have made a good faith effort to minimize my waste generation and select the best waste management method that is available to me and that I can afford.

Printed/Typed Name: [signature] — Signature: [signature] — Date: Month 09 Day 02 Year 99

17. Transporter 1 Acknowledgement of Receipt of Materials
Printed/Typed Name: Michael D. Rabinowitz — Signature: Michael D. Rabinowitz — Date: Month 09 Day 02 Year 99

18. Transporter 2 Acknowledgement of Receipt of Materials
Printed/Typed Name: John W. Wallace — Signature: John W. Wallace — Date: Month 9 Day 9 Year 99

19. Discrepancy Indication Space

20. Facility Owner or Operator: Certification of receipt of hazardous materials covered by this manifest except as noted in item 19.
Printed/Typed Name: Wayne Mr. — Signature: [signature] — Month 9 Day 24 Year 99

GENERATOR / TRANSPORTER / FACILITY

EPA Form 8700-22 (Rev. 9-88) previous editions obsolete

SAFETY-KLEEN CORP.

90290

6

ORIGINAL-RETURN TO GENERATOR

INSTRUCTIONS FOR COMPLETION OF THIS FORM, REFER CODE OF FEDERAL REGULATIONS, 40, PART 262.20.

Koppers016194

KOPPERS INDUSTRIES

FAX TRANSMITTAL

7540 N.W. Saint Helens Rd.
Portland, Oregon 97210-3663
Phone: (503) 286-3681
Fax: (503) 285-2831
Web Page: www.koppers.com

TO: KDM, ACCI DATE: 6/15/00

FROM: Amos TOTAL # OF PAGES: 3

Re the Attached, CALL me

Thanks.

IF THIS TRANSMITTAL IS IN ERROR, PLEASE CALL 503-286-3681 FAX # 503-285-2831

AIR/COMPLIANCE CONSULTANTS, INC.

Memorandum

To:	Amos Kamerer
Company:	Koppers Industries, Inc., Portland Tar Plant
From:	Kim Coy/Jill Merrill
Date:	June 15, 2000
Subject:	1999 SARA Report

Dear Amos:

The following data is needed in order to complete the 1999 inventory:

Tanks/Loading/Production Data

1. 1999 Production and maximum on site for pitch, heavy oil, P1/P13 Creosote, P&R Oil, CMN, NSR and Refined Tar
2. Please confirm the following tank throughputs:
   - T-33 (Heavy Oil) at 55,000 gal/yr;
   - T-67 (Heavy Oil) at 88,977 gal/yr
   - T-67 (Creosote) at 12,935 gal/yr
   - T-19 (P&R Oil) – please supply
   - Railcars (Refined Tars) – please supply
   - T-68 (Liquid Pitch) – please supply
   - T-65 (Liquid Pitch) – please supply
3. Please provide the following data on the new pitch tank:
   - Identification (T-??) T-200
   - Capacity (gallons) 2,069,016
   - Height 57'0"
   - Diameter 78.87'
   - Storage temperature 390°F
   - Hours in service 6.5 days.
4. Any other changes from 1998

Scrubber Information

1. Description of scrubber fluids used and time period when used for 1999?
2. Quantity of scrubber fluids used?
3. Description of recycling/disposal/treatment activities associated with the scrubber fluids. For example, if the spent scrubber solution is combined with the heavy oil or other tank(s), how much was combined.
4. Was scrubber not operational in 1999? If yes, please supply downtime hours.

Recycling/Treatment/Disposal Information

1. Tank and tank car cleaning
   - Any cleaning activities in 1999? If yes, quantity of material removed from cleaning and description of composition
   - Where did it go and how was it treated?
2. Any waste (sludge, et cetera) incinerated on-site?

Table 2-2. Input Data for the 1998 SARA 313 Report
Koppers Industries, Inc., Portland Tar Plant, Portland, Oregon

1999

Process Production/Usage Rates

Mixture	Density (lb/gal)	Yearly Total (gal)	Maximum On-site (gal)
Pitch	11.0	11,510,937	3,031,130
Heavy Oil	9.6	50,321	55,398
P1/P13 Creosote	9.0	12,935	12,935
UCC	9.1	0	0
P&R Oil	9.1	0	0
CMN	8.5	0	0
NSR	9.0	0	0
Refined Tar	10.0	0	0

Remove as spreadsheet

On-Site Recycling

Waste	Total Pounds
Scrubber Fluid	50,321

Heavy oil (~~P1/P13 Creosote~~)

Gallons

T02 → B3 → T67

Tank Throughputs

Tank ID	Commodity	Throughput (gallons)	
T-3	Crude Methyl Naphthalene	0	Changed to Stormwater Service May 1,1998
T-33	Heavy Oil	50,321	
T-23	Light Coal Tar Distillate (UCC)	0	Changed to Stormwater Service May 1,1998
T-68	Liquid Pitch	5,374,702	scrubber
T-65	Liquid Pitch	11,510,937	
T-34	Naphthalene Still Residue	0	Changed to Stormwater Service May 1,1998
T-17	P1/P13 Creosote	0	Changed to Stormwater Service May 1,1998
T-67	P1/P13 Creosote	12,935	" " JAN. 1, 1999
T-19	Priming and Refractory Oil	0	
Railcars	Refined Tars	0	
T-67	Heavy oil	50,321	
T-102	Heavy oil	50,321	

Fresh Stuff 15,167

Not these switched

Koppers016197

Subject: **Re:Nitrate Data - SARA**
Date: Tue, 27 Jun 2000 14:38:00 -0400
From: Kamerer Amos <Amos_Kamerer@koppers.com>
To: "\"Kimberly Coy\" " <kcoy@air-comp.com>,
Huschak Heath <Heath_Huschak@koppers.com>,
Lish Steven <Steven_Lish@koppers.com>
CC: "\"Jill W Merrill\" " <jmerrill@air-comp.com>,
"\"William C Cowell\" " <wcowell@air-comp.com>, Self Traci <Traci_Self@koppers.com>

Portland has never tested for nitrates, thus, no data is available.

Amos

_____Reply Separator_____
Subject: Nitrate Data - SARA
Author: "Kimberly Coy" <SMTP:kcoy@air-comp.com>
Date: 6/27/00 11:21 PM

Traci had asked me to request analytical data on nitrates from the wastewater fro all the facilities. We need to determine if the facilities should be reporting nitrate compounds on the SARA's, so please let me know if any data is available as soon as possible so we can meet the July 1 deadline.

Best Regards,Kim

Subject: Re:Draft 1999 SARA Calcs - Portland
Date: Fri, 23 Jun 2000 14:40:00 -0400
From: Kamerer Amos <Amos_Kamerer@koppers.com>
To: "\"Kimberly Coy\" " <kcoy@air-comp.com>
CC: "\"Jill W Merrill\" " <jmerrill@air-comp.com>, Self Traci <Traci_Self@koppers.com>, Cilley Mark <Mark_Cilley@koppers.com>

Kim,

First, Safety Kleen advises that the waste sent to Clive, Ut. last year was landfilled. Also, this shipment was a total of 1,200 pounds, in 4 drums; not 1,200 pounds per drum or 4,800 pounds total.

Also, I have forwarded a copy of this to Mark Cilley at our Stickney plant for
his review, prior to the 28th, so please wait for his response before processing. Also, regarding any work for Portland in the future, please make sure to add Mark to the distribution list. Thank you.

Amos

_____Reply Separator_____
Subject: Draft 1999 SARA Calcs - Portland
Author: "Kimberly Coy" <SMTP:kcoy@air-comp.com>
Date: 6/23/00 11:26 PM

Amos:

Please review the attached file. Please have all comments by June 28 so we can ensure the deadline of July 1 is met.

Also, what is done with the waste sent to Safety Kleen in Utah (cresoste rags, et cetera)? Last year we noted it was landfilled in Utah and just wanted to make sure it was the same.

Best regards, Kim

SARA99_E.XLS	**Name:** SARA99_E.XLS **Type:** Microsoft Excel Worksheet (application/vnd.ms-excel) **Encoding:** base64

KOPPERS
7540 N.W. St. Helens Rd.
Portland, Oregon 97210
Phone: (503) 286-3681
Fax: (503) 285-2831
E-mail: amos_kamerer@koppers.com

6/16/00

Production Projection

Year	Pitch (Gallons)	Heavy oil (Gallons)
2000	8,572,727	87,670
2001	10,363,636	105,986

AMOS S. KAMERER

Air Emissions for 1999 Permit #26-2930
Portland Terminal Emissions Summary
Natural Gas Combustion, Fugitives, Scrubber, Tank Breathing and Working Losses

Unit	Comments	Commodity	NOx (lb/hr)	NOx Tons/Yr	VOC (lb/hr)	VOC Tons/Yr	CO (lb/hr)	CO Tons/Yr	SO2 (lb/hr)	SO2 Tons/Yr	PM-10 (lb/hr)	PM-10 Tons/Yr
Atlas Boiler		Gas	0.90	2.60	0.02	0.05	0.22	0.65	0.02	0.07	0.05	0.14
Hot Oil Heater		Gas	0.33	0.94	0.01	0.04	0.07	0.20	0.01	0.04	0.02	0.07
Hot Oil Heater (New)		Gas	0.26	0.05	0.01	0.01	0.19	0.04	0.01	0.00	0.03	0.00
Fume Recovery System [1,2]		NA			4.91	14.35						
Tank 33		Heavy Oil			0.01	0.045						
Tank 67		Heavy Oil			0.02	0.093						
Tank 67		P1/P13			0.31	0.111						
Fugitives		NA			1.26	3.672						
Plant Total			**1.48**	**3.60**	**6.55**	**18.37**	**0.49**	**0.88**	**0.05**	**0.11**	**0.10**	**0.22**

NOTES

[1] The fume recovery system receives emissions from the following units: T-68, T-65, railcar loading and tank car loading.

[2] Hourly and annual VOC emissions from the fume recovery system were calculated using ChemCAD. Annual VOCs were adjusted by 1999 actual operating hours.

Koppers016201

Attachment "A" Permit #26-2930
Fugitive Equipment Leaks, Potland Terminal, Koppers Portland 1999

Fugitive Equipment Leaks (Heavy Oil/P1/P13 Tank 67)

Separate

Process Description	No. # in Service	Lb/Hr/Source	Emmisions Hrs/Yr	Emmisions Lbs/Yr
Pump Seals	3	0.01899	16.9	1.0
Valves in Line	23	0.00051	16.9	0.2
Pressure Relief Valves	0	0.22907	16.9	0.0
Open Ended Valves	1	0.00374	16.9	0.1
Flanges	57	0.00403	16.9	3.9
			Total Emmisions	5.1

Pumping rate: 200 gpm
Hours = 2 * gals throughput/gals pump rate/60 = 101912/200 *2/60 = 16.9

Fugitive Equipment Leaks (Heavy Oil Tank 33)

Separate

Process Description	No. # in Service	Lb/Hr/Source	Emmisions Hrs/Yr	Emmisions Lbs/Yr
Pump Seals	1	0.01899	23.1	0.4
Valves in Line	7	0.00051	23.1	0.1
Pressure Relief Valves	0	0.22907	23.1	0.0
Open Ended Valves	0	0.00374	23.1	0.0
Flanges	18	0 00403	23.1	1.7
			Total Emmisions	2.2

Pumping rate: 80 gpm
Hours = 2 * gals throughput/gals pump rate/60 = 55527/80 *2/60 = 23.14

Koppers016202

Fugitive Equipment Leaks (Pitch Storage) specrata

Process Description	No. # in Service	Lb/Hr/Source	Emmisions Hrs/Yr	Emmisions Lbs/Yr
Pump Seals	5	0.01899	1163.5	110.5
Valves in Line	31	0.00051	1163.5	18.4
Pressure Relief Valves	0	0.22907	1163.5	0.0
Open Ended Valves	5	0.00374	1163.5	21.8
Flanges	68	0.00403	1163.5	318.9
			Total Emmisions =	1469.5

Pumping rate: 400 gpm
Hours = 2 * gals throughput/gals pump rate/60 = 13962480/400 *2/60 = 1163.53

Fugitive Equipment Leaks (Pitch Loading) specrata

Process Description	No. # in Service	Lb/Hr/Source	Emmisions Hrs/Yr	Emmisions Lbs/Yr
Pump Seals	2	0.01899	1055.3	40.1
Valves in Line	11	0.00051	1055.3	5.9
Pressure Relief Valves	0	0.22907	1055.3	0.0
Open Ended Valves	2	0.00374	1055.3	7.9
Flanges	33	0.00403	1055.3	140.3
			Total Emmisions =	194.2

Pumping rate: 400 gpm
Hours = 2 * gals throughput/gals pump rate/60 = 12663030/400 *2/60 = 1055.25

Koppers016203

Fugitive Equipment Leaks (Old Hot Oil Systems) No reportables

Process Description	No. # in Service	Lb/Hr/Source	Emmisions Hrs/Yr	Emmisions Lbs/Yr
Pump Seals	6	0.01899	5797.0	660.5
Valves in Line	100	0.00051	5797.0	295.6
Pressure Relief Valves	1	0.22907	5797.0	1327.9
Open Ended Valves	0	0.00374	5797.0	0.0
Flanges	170	0.00403	5797.0	3971.5
			Total Emmisions	6255.6

Pumping rate: 200 gpm
Hours = 2 * gals throughput/gals pump rate/60 = 101912/200 *2/60 = 16.9

Fugitive Equipment Leaks (New Hot Oil Systems) NO REPORTABLES

Process Description	No. # in Service	Lb/Hr/Source	Emmisions Hrs/Yr	Emmisions Lbs/Yr
Pump Seals	7	0.01899	360.0	47.9
Valves in Line	159	0.00051	360.0	29.2
Pressure Relief Valves	0	0.22907	360.0	0.0
Open Ended Valves	0	0.00374	360.0	0.0
Flanges	207	0.00403	360.0	300.3
			Total Emmisions	377.4

Pumping rate: 200 gpm
Hours = 2 * gals throughput/gals pump rate/60 = 101912/200 *2/60 = 16.9

Koppers016204

Fugitive Equipment Leaks (New Pitch Storage) Specialty

Process Description	No. # in Service	Lb/Hr/Source	Emmisions Hrs/Yr	Emmisions Lbs/Yr
Pump Seals	2	0.01899	86.0	3.3
Valves in Line	49	0.00051	86.0	2.1
Pressure Relief Valves	0	0.22907	86.0	0.0
Open Ended Valves	5	0.00374	86.0	1.6
Flanges	98	0.00403	86.0	34.0
			Total Emmisions	41.0

Pumping rate: 400 gpm
Hours = 2 * gals throughput/gals pump rate/60 = 1032082/400 *2/60 = 86

Total Annual Fugitive Emissions
7344.972549

Koppers016205

Attachment "B" Permit #26-2930
Scrubber Emissions, Portland Terminal, Koppers Portland 1999

Assumptions:

Total annual pitch production:	69,812	tons/yr
Pitch charging into T-65:	58	tons/hr, based on 1,200 tons per each change of 20.6 hrs.
% Pitch loaded into trucks from T-68	50	% of total pitch production
Pitch loading rate	55.5	tons/hr
% Pitch loaded into railcar from T-65	50	% of total pitch production
Pitch loading rate	58	tons/hr
% Pitch transferred fron T-65 to T-68	50	% of total pitch production
Pitch transfer pumping rate, t-65 to T-68	70	tons/hr
Heavy oil pumping rate	23	tons/hr
Heavy oil annual usage	241	tons/yr

Calculations:

Transfer Description	Amount per Charge (tons)	Pumping Rate (tons/hr)	Total Transfers (tons/yr)	Transfer Time (hours)	Total Transfers	T-65 fume (hours)	T-68 fume (hours)	Total (hours)
Dry pitch charging	1,200	58	69,812	1,204	58	1,320		1,320
From T-68 to trucks	37	56	34,906	629	943		2,516	2,516
From T-65 to railcar	87	58	34,906	602	401	1,404		1,404
From T-65 to T-68	1,200	70	34,906	499	29		557	557
Heavy oil transfer	6	23	241	10	42	47	47	47
Total				2,944	1,474	2,771	3,120	5,844

Annual Operating Hours: 66.71% annual operating hours available

Monthly Emissions (from chem cad): 3,585 lbs/month

Annual Emissions: 28,699 lbs/yr
14.35 tons/yr

Koppers016206

Attachment "C" Permit #26-2930
Tank Breathing and Working Losses, Portland Terminal, Koppers Portland 1999

TANK #	VOLUME 1000 GAL	LABEL	M	P PSIA	D FT.	H FT.	DELTA DEGREES F	F SUB P	C	K SUBC	LSUBB LB/Yr	LSUBB LB/DAY	KSUBN	TEMP F	LSUBW LB/Yr	TOTAL GAL 1000 GAL/Yr	TOTAL LB/Yr LB+LW
POR-T-33	45	Heavy Oil	143.22	0.0302	18	12	20	0.89	0.83	1	84.0108434	0.230166694	1	250	5.764027766	55.527	89.77487117
POR-T-67	90	Heavy Oil	143.22	0.0302	24.25	14.3	20	0.89	0.95	1	176.0960777	0.482455007	1	250	9.236333649	88.977	185.3324113
POR-T-67	90	Creosote P1/P13	128.34	0.0386	24.25	20	20	0.89	0.95	1	221.3378888	0.606405175	1	170	1.537896167	12.935	222.875785
															Total	157.439	497.9830675

Emissions Lbs/Yr.
497.9830675

Koppers016207

KOPPERS INDUSTRIES

INTEROFFICE CORRESPONDENCE

TO: Jim Dietz
Traci Self
Jill Merrill (APPI)

FROM: Carl Mueller

SUBJECT: HAP Calculations, Rev. 1

DATE: December 18, 1998

I have reissued the previous memo with the following notable changes.

1. Section #3 contains liquid composition of HAP's as well as vapor compositions. Jill had said that fugitive equipment emmisions are normally based on liquid compositions. Also, the pitch vapor and liquid compositions have been updated to show no HAP's. I verified this with Rachel Carlson. Please note that the spent heavy oil compositions are based on the more recent runs of T-102 scrubber system with the updated heavy oil analysis, not the original run as submitted in the permit.
2. In section 5, the HAP emissions have been updated to reflect what items are calculated with liquid and those with vapor analyses from Section 3. Which comp. was used is noted at the top of each column. Please note that the two rightmost columns in the bottom row indicate the HAP and overall emissions from the original heavy oil analysis and the undated analysis. The newer analysis calculates out about 550 lbs/month less VOC's emitted per month from T-102's stack. Traci, I don't know if you were interested to change this is the resubmittal.

Carl

Koppers016208

Modified Component Analysis

		%	
	Commodity (Sorted by BP)	Heavy Oil	Creosote
BP (oF)	Component		
176	Benzene	0	0.01
183	Thiophene	0	0
212	Water	3.2	0
231	Toluene	0	0.02
239	Pyridine	0	0
277	Ethylbenzene	0	0.02
280	p-Xylene	0	0.02
282	m-Xylene	0	0.02
349	1,2,3-trimethylbenzene	0	0.06
348	Benzofuran	0	0.03
352	Indan	0.05	0.13
359	Phenol	0	0.02
361	Indene	0.15	0.4
396	m-Cresol	0	0.03
394	p-Cresol	0	0.03
376	o-Cresol	0	0.03
424	Naphthalene	0.76	10.77
428	Benzothiophene	0.15	0.27
460	Quinoline	0.06	1.27
464	2-Methylbenzo[b]thiophene	0	0.23
466	2-Methylnaphthalene	0.51	7.27
374	1-Methylindan	0	0.01
401	3-Methylindene	0	0.02
470	Isoquinoline	0.01	0.3
473	1-Methylnaphthalene	0.16	3.11
491	Biphenyl	0.09	1.74
504	2,6-Dimethylnaphthalene	0.048	0.63
505	1,6-Dimethylnaphthalene	0.048	0.93
514	1,2-Dimethylnaphthalene	0.048	0.85
514	1,4-Dimethylnaphthalene	0.048	0.43
514	2,3-Dimethylnaphthalene	0.048	0.43
518	Acenaphthylene	0	0.38
531	Acenaphthene	1.79	8.6
532	1,2,7-Trimethylnaphthalene	0.0585	0.15
536	1,2,6-Trimethylnaphthalene	0.0585	0.16
536	1,3,6-Trimethylnaphthalene	0.0585	0.18
536	1,3,7-Trimethylnaphthalene	0.0585	0.17
545	Dibenzofuran	0.61	4.99
567	Fluorene	1.41	5.85
568	4-Methyldibenzofuran	0.2325	0.535
579	3-Methyldibenzofuran	0.2325	0.535
582	2-Methyldibenzofuran	0.2325	0.535
600	4,6-Dimethyldibenzofuran	0.2325	0.535
600	3-Methylfluorene	0.14	0.535

604	2-Methylfluorene	0.14	0.535
604	1-Methylfluorene	0.14	0.535
627	Dibenzothiophene	0.56	1.12
629	Diphenylene Sulfer	0	0.535
645	Phenanthrene	8.88	14.66
648	Anthracene	4.03	3.58
661	Benzo(c)quinoline	0.5	0.36
667	Cyclopentaphenanthrene	2.51	1.46
670	Dibenzopyrrole	3.09	2.87
671	2-Methylphenanthrene	0.58	0.55
678	1-Methylphenanthrene	0.58	0.55
689	Truxene	0.58	0.55
721	Fluoranthene	10.56	6.27
743	Pyrene	11.77	5.49
755	11H-Benzo(b)fluorene	1.79	0.74
765	11H-Benzo(a)fluorene	1.72	0.67
765	Benzo(a)fluorene	1.212	0.324
770	2-Methylpyrene	1.212	0.324
770	1-Methylpyrene	1.212	0.324
797	Triphenylene	1.212	0.324
806	Benzonaphthothiophene	1.212	0.324
809	Benzo(b)fluoranthene	0.84	0.7
815	Benzo(a)anthracene	3.25	0.95
826	Chrysene	3.24	0.91
896	Benzo(j)fluoranthene	0.84	0.7
896	Benzo(k)fluoranthene	0.84	0.7
924	Benzo(a)pyrene	1.13	0.25
932	Benzoperylene	1.06	0.2
932	Benzonaphthacene	1.06	0.15
932	Benzo(b)chrysene	1.06	0.13
964	Dibenzoanthracene	1.06	0.08
968	Picene	1.06	0.03
977	Coronene	1.06	0.04
1032	Indeno [1,2,3,c,d] pyrene	0	0.05
	Very Heavy Tar	19.516	0.78
	TOTAL	100	100

**** Red indicates component is on list of HAP components**

Actual Component Analysis

BP (oF)	Commodity (Sorted by BP)	% Heavy Oil	% Creosote
	Common Component Listing		
176	Benzene*	ND	0.01
183	Thiophene	ND	ND
212	Water	3.2	ND
231	Toluene*	ND	0.01
239	Pyridine*	ND	ND
277	Ethylbenzene*	ND	0.01
282	Xylenes*	ND	0.02
293	Styrene (Vinyl Benzene)*	ND	ND
306	Cumene*	ND	ND
336	Trimethylbenzenes	ND	0.06
348	Benzofuran	ND	0.03
352	Indan	0.05	0.13
359	Phenol*	ND	0.01
361	Indene	0.15	0.37
363	Aniline*	ND	ND
392	o-Toluidine*	ND	ND
392	Methylindans	ND	0.01
396	Cresols*	ND	0.09
410	Methylindenes	ND	0.02
424	Naphthalene*	0.76	10.75
428	Benzothiophene	0.15	0.27
460	Quinoline*	0.06	1.27
464	Methylbenzo[b]thiophene	ND	0.23
466	2-Methylnaphthalene	0.51	7.2
470	Isoquinoline	0.01	0.3
473	1-Methylnaphthalene	0.16	2.85
491	Biphenyl*	0.09	1.57
505	Dimethylnaphthalenes	0.24	1.95
510	Trimethylnaphthalenes	0.234	0.51
518	Acenaphthylene	NI	NI
520	Methylbiphenyls	0.13	NI
531	Acenaphthene	1.79	8.31
545	Dibenzofurans	0.61	4.83
567	Fluorene	1.41	5.85
579	Methyldibenzofurans	0.24	NI
600	Dimethyldibenzofurans	NI	NI
604	Methylfluorenes	0.42	NI
629	Diphenylene Sulfer	NI	NI
645	Phenanthrene	8.88	14.66
648	Anthracene	4.03	3.22
661	Benzo(c)quinoline	NI	NI
667	4H-Cyclopenta[def]phenanthrene	1.46	1.46
670	Dibenzopyrrole (Carbazole)	2.04	1.48
678	Methylphenanthrenes	NI	NI

689	Truxene	NI	NI
721	Fluoranthene	10.27	5.94
743	Pyrene	9.12	4.37
755	11H-Benzo(b)fluorene	1.79	0.73
759	Benzo(c)phenanthrene	NI	NI
765	11H-Benzo(a)fluorene	1.72	0.67
770	Methylpyrenes	NI	NI
797	Triphenylene	NI	NI
806	Benzonaphthothiophene	NI	NI
815	Benzo(a)anthracene	3.25	0.95
826	Chrysene	3.24	0.92
896	Benzofluoranthenes	2.52	0.57*
924	Benzo(a)pyrene	1.13	0.25
924	Benzo(e)pyrene	NI	NI
932	Benzoperylene	NI	NI
932	Benzonaphthacene	NI	NI
	Total % of Identified Components	59.66%	81.88%
	Total % of Unidentified Components (NI)	22.02%	18.12%
	Total % of Unquantified Components	18.32%**	0%***

Notes

ND indicates the component is below the detectable instrument limit of 100ppm or 0.01%

NI indictes the component has not been specifically identified on the analysis as a quantified component.

*** Indicates listed HAP component**

**** indicates the remaining percentage of the analysis which are components not listed in the component list.**

***** Creosote distillates are considered to be 100 quantifiable because they are a lighter-end distillate whose components are all detectable by gas chromotograph.**

HAP % Emmisions

	Tank #	T-67	T-67	Newer* T-102	Submitted T-102	based on newer case T-33	T-65, 68
	Commodity (Sorted by BP)	Heavy Oil	Creosote	Heavy Oil	Heavy Oil	Spent Heavy Oil	Liquid Pitch
	Temperature (°F)	200F	170F	200F	200F	250F	400F
BP (oF)	Applicable HAP Components				Percentage of Total VOC's Emmitted		
176	Benzene	0 00%	4 40%	0 00%	0 00%	0 00%	0 00%
231	Toluene	0 00%	3 44%	0 00%	0 00%	0 00%	0 00%
239	Pyridine	0 00%	0 00%	0 00%	0 00%	0 00%	0 00%
277	Ethylbenzene	0 00%	1 49%	0 00%	0 00%	0 00%	0 00%
280	p-Xylene	0 00%	1 39%	0 00%	0 00%	0 00%	0 00%
282	m-Xylene	0 00%	1 34%	0 00%	0 00%	0 00%	0 00%
359	Phenol	0 00%	0 18%	0 00%	0 00%	0 00%	0 00%
396	m-Cresol	0 00%	0 11%	0 00%	0 00%	0 00%	0 00%
394	p-Cresol	0 00%	0 10%	0 00%	0 00%	0 00%	0 00%
376	o-Cresol	0 00%	0 20%	0 00%	0 00%	0 00%	0 00%
424	Naphthalene	28 78%	45 42%	9 69%	8 32%	0 09%	0 00%
460	Quinoline	0 96%	2 02%	0 73%	0 62%	0 09%	0 00%
491	Biphenyl	0 71%	1 33%	0 91%	0 00%	0 35%	0 00%
545	Dibenzofuran	4 41%	3 92%	5 90%	10 45%	2 12%	0 00%
	TOTAL	34.86%	65 35%	17.22%	19.39%	2.65%	0.00%

* Diphenyl(Biphenyl) was not included in the previous run for the fume recovery system
In addition there was an error in the dibenzofuran HO concentration
In addition, the total VOC's emitted from the fume recovery system has been
recalculated to 3,018 lbs/month

Actual Liquid Composition

	Commodity (Sorted by BP)	Heavy Oil (T-67)	Creosote	110 Pitch	based on newer case Spent Heavy Oil (T-33)
BP (oF)	Applicable HAP Components		% of HAP's in Liquid Phase		
176	Benzene	0.00%	0 01%	0 00%	0 000%
231	Toluene	0 00%	0 01%	0 00%	0 000%
239	Pyridine	0 00%	0 00%	0 00%	0 000%
277	Ethylbenzene	0.00%	0 01%	0 00%	0 000%
280	p-Xylene	0.00%	0 01%	0 00%	0 000%
282	m-Xylene	0.00%	0 01%	0 00%	0 000%
359	Phenol	0.00%	0 01%	0 00%	0 000%
396	m-Cresol	0.00%	0.03%	0 00%	0 000%
394	p-Cresol	0.00%	0.03%	0 00%	0 000%
376	o-Cresol	0.00%	0.03%	0 00%	0 000%
424	Naphthalene	0.76%	10 75%	0 00%	0 001%
460	Quinoline	0.06%	1.27%	0 00%	0 002%
491	Biphenyl	0.09%	1 57%	0 00%	0 014%
545	Dibenzofuran	0.81%	4 83%	0 00%	0 107%
	TOTAL	1.52%	18 57%	0 00%	0.123%

Koppers016213

Emmission Comparison Data

I. Tank Total Losses

	APPI's Total Losses (lbs/yr)		# of Tank Turnovers	CCIII Flash Calculation (lbs)**
Tank 67 with Heavy Oil	3.3	Most Conservative	0.9	1.27
Tank 67 with P1/P13	59.4		0.5	4.243
Tank 33 with Heavy Oil	10.1		4	0.8116
Tank 33 with Heavy Oil	7	Actual	1.9	0.8116

** The CCIII numbers are determined by flashing a quantity of air with a quantity of liquid. The amounts are determined from the average conditions on the tank sheets. No unit of time can be assigned to the numbers in a straightforward fashion.

II. Vapor Pressures

	APPI's (psia)	CCIII (psia)
Tank 67 with Heavy Oil @ 200F	0.002	0.01195
Tank 67 with P1/P13 @ 170F	0.0587	0.0379
Tank 33 with Heavy Oil @ 250F	0.0079	Not Determined

Koppers016214

III. Emissions Levels

	using vapor HAP comp Tank 67 with Heavy Oil @ 200F with 0 9 turnovers	using vapor HAP comp Tank 67 with PUP13 @ 170F with 0 5 turnovers	using vapor HAP comp Tank 33 with Heavy Oil @ 250F with 1 0 turnovers	using vapor HAP comp Tank 33 with Heavy Oil @ 250F with 4 0 turnovers	using liquid HAP comp Actual Dist. Fugitive Equipment Leaks - Tank 67	using liquid HAP comp Actual Heavy Oil Fugitive Equipment Leaks - Tank 33	using liquid HAP comp Actual Pitch Storage Fugitive Equipment Leaks	using liquid HAP comp Actual Pitch Loading Fugitive Equipment Leaks
APPI's Total Loss Values (lbs/yr)	3 3	69 4	7.0	10 1	2 27	3 33	427.85	97.59
HAP Components								
Benzene	0 00	3.08	0.00	0.00	0 00	0 000	0 00	0 00
Toluene	0 00	2.39	0 00	0.00	0 00	0 000	0 00	0 00
Pyridine	0 00	0.00	0 00	0.00	0 00	0 000	0 00	0.00
Ethylbenzene	0 00	1.04	0 00	0.00	0 00	0 000	0 00	0 00
p-Xylene	0.00	0.96	0.00	0.00	0 00	0 000	0 00	0 00
m-Xylene	0.00	0.93	0 00	0.00	0 00	0 000	0 00	0 00
Phenol	0.00	0.12	0 00	0.00	0 00	0 000	0 00	0.00
m-Cresol	0 00	0.07	0.00	0 00	0 00	0 000	0 00	0.00
p-Cresol	0 00	0.07	0 00	0.00	0 00	0 000	0 00	0.00
o-Cresol	0.00	0.14	0 00	0.00	0 00	0 000	0 00	0 00
Naphthalene	0.95	31.52	0 01	0.01	0 24	0 000	0 00	0.00
Quinoline	0 03	1.40	0.01	0.01	0.03	0 000	0 00	0.00
Biphenyl	0 02	0 92	0.02	0 04	0 04	0 000	0 00	0 00
Dibenzofuran	0 15	2 72	0 15	0 21	0 11	0 004	0 00	0 00
TOTAL HAP's (lbs/yr)	1.15	45.35	0 19	0 27	0.42	0.004	0 00	0.00

	using liquid HAP comp Max Heavy Oil Fugitive Equipment Leaks - Tank 67	using liquid HAP comp Max Heavy Oil Fugitive Equipment Leaks - Tank 33	using liquid HAP comp Max Pitch Storage Fugitive Equipment Leaks	using liquid HAP comp Max Pitch Loading Fugitive Equipment Leaks	using liquid HAP comp Maximum Dist. Fugitive Equipment Leaks - Tank 67 (Existing Case Only)	using vapor HAP comp Max Totals for Existing Case i e T-67 Containing Distillate	using vapor HAP comp Max Totals for Other Cases i e T-67 Containing Heavy Oil
APPI's Total Loss Values (lbs/yr)	3 88 Max	7.13 Max	918 82 Max	209.12 Max	2 27 Max	1135 34	1136 96
HAP Components							
Benzene	0 00	0 000	0 00	0 00	0.00	45 98	0 00
Toluene	0 00	0 000	0 00	0 00	0.00	39 30	0 00
Pyridine	0 00	0.000	0 00	0 00	0 00	0.00	0 00
Ethylbenzene	0 00	0 000	0 00	0 00	0 00	16 96	0 00
p-Xylene	0 00	0.000	0 00	0 00	0 00	15.71	0 00
m-Xylene	0 00	0.000	0 00	0 00	0 00	15.23	0 00
Phenol	0 00	0 000	0 00	0 00	0 00	2.00	0 00
m-Cresol	0 00	0.000	0 00	0 00	0 00	1.21	0 00
p-Cresol	0 00	0 000	0 00	0 00	0 00	1.16	0 00
o-Cresol	0 00	0 000	0 00	0 00	0 00	2.27	0.00
Naphthalene	0.03	0.000	0 00	0 00	0 24	515.66	327 21
Quinoline	0 00	0.000	0 00	0 00	0.03	22 96	10.88
Biphenyl	0.00	0.001	0 00	0 00	0.04	15 11	8 09
Dibenzofuran	0 02	0 008	0 00	0 00	0 11	44 50	50 14
TOTAL HAP's (lbs/yr)	0.06	0.009	0 00	0 00	0.42	741.90	396.32

na

	using vapor HAP comp Actual Hourly VOC Loading Emissions from Uncontrolled Tanks - T33 with Heavy Oil	using vapor HAP comp Actual Hourly VOC Loading Emissions from Uncontrolled Tanks - T67 with PUP13	using vapor HAP comp Max Hourly VOC Loading Emissions from Uncontrolled Tanks - T67 with Heavy Oil	using vapor HAP comp Max Hourly VOC Loading Emissions from Uncontrolled Tanks - T33 with Heavy Oil	using vapor HAP comp Max Hourly VOC Loading Emissions from Uncontrolled Tanks - T67 with PUP13
APPI's Total Loss Values (lbs/hr)	0.12	1.71	0 04	0.12	0.85
HAP Components					
Benzene	0 000	0.075	0 000	0.000	0 037
Toluene	0 000	0 059	0 000	0.000	0.029
Pyridine	0 000	0.000	0 000	0.000	0.000
Ethylbenzene	0 000	0.026	0.000	0 000	0.013
p-Xylene	0 000	0.024	0 000	0 000	0 012
m-Xylene	0 000	0 023	0 000	0 000	0.011
Phenol	0 000	0.003	0 000	0 000	0.002
m-Cresol	0 000	0.002	0 000	0 000	0 001
p-Cresol	0 000	0 002	0 000	0 000	0 001
o-Cresol	0.000	0 003	0 000	0 000	0 002
Naphthalene	0 000	0 777	0 012	0 000	0.386
Quinoline	0 000	0 035	0 000	0 000	0 017
Biphenyl	0 000	0 023	0 000	0 000	0 011
Dibenzofuran	0 003	0 067	0 002	0 003	0 033
TOTAL HAP's (lbs/hr)	0 003	1.117	0 014	0 003	0.555

YEAR

UPDATED - 2000

T-102 Fume Recovery System Submitted Case	
lbs/yr 43,032	36,218 lbs/yr = 3,018 lbs/mo.
	4.13 lb/hr.
0.00	
0.00	
0.00	
0.00	
0.00	
0.00	
0.00	
0.00	
0.00	
0.00	
3581.23	3509.37 → 0.40 lb/hr
266.77	284.02 → 0.030 lb/hr
0.00	327.00 → 0.037
4495.81	4136.39 → 0.244 lb/hr
8343.81	8237.22

EF = #/8760

* submitted case

Koppers016215

Air/Compliance Consultants, Inc.

TELEPHONE CONVERSATION LOG

Date: 6-29-00 Project Number: 00-063e

To: Amos Kanerer Company: KK Portland

Telephone: — From: Kim Cay

RE: Sara 99

Mark Cilky reviewed A.
Wants to change pitch throughput to
12,693,163 gallons.

Also the waste sent to Clive Utah
is not landfilled, but shipped to
Aragonite Utah.

Safety-Kleen Aragonite
11600 North Aptus Road
Aragonite UT 84029
EPA: UTD 981552177

ACC\CONVERS.DOC

1998 SARA REPORT
PORTLAND TAR PLANT
KOPPERS INDUSTRIES, INC.
PORTLAND, OREGON

June 1999

Prepared for:

Mr. Amos Kamerer
Koppers Industries, Inc.
Portland Tar Plant
7540 N.W. St. Helens Road
Portland, Oregon 97210-3663

Prepared by:

Air/Compliance Consultants, Inc.
1050 William Pitt Way
Pittsburgh, Pennsylvania 15238
(412) 826-3636

Project Number 99-029e

Air/Compliance Consultants, Inc.

June 29, 1999

Mr. Bob Albers
Oregon Emergency Response Commission
Office of State Fire Marshall
4760 Portland Road, Northeast
Salem, Oregon 97305-1760

Koppers Industries, Inc.
Portland Tar Plant
7540 N.W. St. Helens Road
Portland, OR 97210-3663
TRI ID: 97210KPPRS7540N

RE: 1998 Toxic Release Inventory

Dear Mr. Albers:

Enclosed please find one (1) microcomputer diskette containing toxic chemical release reporting information for:

KOPPERS INDUSTRIES, INC., PORTLAND TAR PLANT

This information is submitted as required under Section 313, Title III of the Superfund Amendments and Reauthorization Act of 1986 and the Pollution Prevention Act of 1990.

We are submitting a total of 5 Chemical Reports for our facility. These chemical reports are described as follows:

Chemical Name	Report Year	CAS Number	Report Type
Anthacene	1998	000120127	5-page Form R
Creosote	1998	008001589	5-page Form R
Dibenzofurans	1998	000132649	5-page Form R
Naphthalene	1998	000091203	5-page Form R
Polycyclic Aromatic Compounds	1998	N590	5-page Form R

Our technical point of contact is **Amos Kamerer** and can be reached at **503-286-3681** should any questions or problems arise in your processing of this diskette.

I hereby certify that I have reviewed the attached documents and that, to the best of my knowledge and belief, the submitted information is true and complete and that the amounts and values in this report are accurate based on reasonable estimates using data available to the preparers of this report.

Sincerely,

Amos Kamerer
Plant Manager

June 29, 1999

EPCRA Reporting Center
P.O. Box 3348
Merrifield, VA 22116-3348
Attn: Toxic Chemical Release Inventory
Magnetic Media Submission

Koppers Industries, Inc.
Portland Tar Plant
7540 N.W. St. Helens Road
Portland, OR 97210-3663
TRI ID: 97210KPPRS7540N

To Whom It May Concern:

Enclosed please find one (1) microcomputer diskette containing toxic chemical release reporting information for:

KOPPERS INDUSTRIES, INC., PORTLAND TAR PLANT

This information is submitted as required under Section 313, Title III of the Superfund Amendments and Reauthorization Act of 1986 and the Pollution Prevention Act of 1990.

We are submitting a total of 5 Chemical Reports for our facility. These chemical reports are described as follows:

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Polycyclic Aromatic Compounds	1998	N590	5-page Form R

Our technical point of contact is **Amos Kamerer** and can be reached at **503-286-3681** should any questions or problems arise in your processing of this diskette.

I hereby certify that I have reviewed the attached documents and that, to the best of my knowledge and belief, the submitted information is true and complete and that the amounts and values in this report are accurate based on reasonable estimates using data available to the preparers of this report.

Sincerely,

Amos Kamerer
Plant Manager

Air/Compliance Consultants, Inc.

June 28, 1999 *Project No: 99-029e*

Mr. Amos Kamerer
Koppers Industries, Inc.
Portland Tar Plant
7540 N.W. St. Helens Road
Portland, OR 97210-3663

RE: 1998 SARA Report

Dear Mr. Kamerer:

Please find enclosed the following:

1. one (1) diskette containing the toxic release inventory for submittal to the EPCRA Reporting Center, with cover letter;
2. one (1) diskette containing the toxic release inventory for submittal to the Oregon Emergency Response Commission, with cover letter;
3. one (1) copy of the SARA 313 Report for your files

Please sign the cover letters and send it, along with the appropriate diskette to the EPCRA Reporting Center and Oregon Emergency Response Commission.

It is a pleasure doing business with you. Should you have any questions or desire further clarification on the report and submittal, please do not hesitate to call me at (412) 826-3636.

Sincerely,

AIR/COMPLIANCE CONSULTANTS, INC.

Kimberly D. Coy
Project Engineer

CC: Traci Self

1050 William Pitt Way
Pittsburgh, PA 15238
412-826-3636
412-826-3640 fax

Attachment 1. 1997/1998 Comparison of SARA 313 Reports
Koppers Industries, Inc., Portland Tar Plant, Portland, Oregon

Chemical	Air Releases Non-Point (lbs/yr) Section 5.1	Air Releases Point (lbs/yr) Section 5.2	Water Releases Wastewater (lbs/yr) Section 5.3	Transfers Off-Site Cresoste (lbs/yr) Section 6.2	Transfers Off-Site RT (lbs/yr) Section 6.2	Quantity Released (lbs/yr) Section 8.1	Recycled On-site (lbs/yr) Section 8.4	Recycled Off-site (lbs/yr) Section 8.5	Treated On-site (lbs/yr) Section 8.6
Anthracene									
1997	25	49	0	NA	NA	75	12,433		
1998	2	203	0	0	4	209	373	0	0
Biphenyl									
1997	0	24		NA	NA	24	0		
1998	EXEMPT FROM REPORTING, <25,000 lbs								
Creosote									
1997	SPECIATED INTO INDIVIDUAL CONSTITUENTS								
1998	11	16	0	206	0	233	25,200	0	0
Dibenzofuran									
1997	0	28	0	NA	NA	28	0		
1998	0	2,741	0	3	0	2,744	346	0	0
Naphthalene									
1997	3	1,737	0	NA	NA	1,740	11,951		
1998	3	22,096	0	51	1	22,151	6,276	0	0
PAC's									
1997	245	0	2	NA	NA	247	70,998		
1998	14	1,764	20	0	16	1,814	52,776	0	0

Koppers016221

List of Changes for the 1998 SARA 313 Report
Koppers Industries, Inc., Portland Tar Plant, Portland, Oregon

* In 1997, creosote production was speciated into individual constituents, and for 1998, it was not.
* Increased production of pitch in 1998 by 48%.
* For fume recovery emissions, ChemCAD predictions for 1998 were higher than the manual prediction used in 1997.
* For point emissions, added creosote loading in 1998.
* For fugitive equipment leaks, used lower emission factor in 1998.
* For water releases, increased water flow in 1998, hence increasing PAC emissions.

Koppers016222

1998 SARA REPORT
PORTLAND TAR PLANT
KOPPERS INDUSTRIES, INC.
PORTLAND, OREGON

June 1999

Prepared for:

Mr. Amos Kamerer
Koppers Industries, Inc.
Portland Tar Plant
7540 N.W. St. Helens Road
Portland, Oregon 97210-3663

Prepared by:

Air/Compliance Consultants, Inc.
1050 William Pitt Way
Pittsburgh, Pennsylvania 15238
(412) 826-3636

Project Number 99-029e

TABLE OF CONTENTS

ATTACHMENT	DESCRIPTION
1	**SARA 313 Form R Reports** Anthracene Creosote Dibenzofuran Naphthalene Polycyclic Aromatic Compounds
2	**Supporting Tables** Table 2-1-a. Summary of SARA 313 Reporting Quantities Table 2-1-b. Summary of Projected 1999 and 2000 SARA 313 Reporting Quantities Table 2-2. Input Data for the 1998 SARA 313 Report Table 2-3. Reporting Inventories for Threshold Quantities and Maximum On-Site Table 2-4. Summary of Storage Tank Emissions, Point Air Releases Table 2-5. Uncontrolled Product Loading Rack Working Losses, Point Air Releases Table 2-6. Fugitive Equipment Leak Air Emissions, Nonpoint Air Releases Table 2-7-a. Fume Recovery Emissions, Point Air Releases Table 2-7-b. Fume Recovery Emissions, Operating Hours Table 2-8. Summary of Water Releases Table 2-9. Calculation of Hazardous Waste Shipments, Transfer to Off-Site Locations Table 2-10. Calculation of Fume Recovery Fluid Recycling, Recycling On-Site Table 2-11. Calculation of Pitch Fume Recycling, Recycling On-Site Table 2-12. Calculation of Production Ratio
3	**AP-42 Tank Emission Spreadsheets and Supporting Documentation** Table 3-1. Storage Tank Working and Standing Losses from Clean Creosote Storage Tanks, Point Air Releases Table 3-2. Storage Tank Working and Standing Losses from Crude Methyl Naphthalene Storage Tanks, Point Air Releases Table 3-3. Storage Tank Working and Standing Losses from Heavy Oil Storage Tanks, Point Air Releases Table 3-4. Storage Tank Working and Standing Losses from NSR Storage Tanks, Point Air Releases Table 3-5. Storage Tank Working and Standing Losses from UCC Storage Tanks, Point Air Releases Table 3-6. Storage Tank Working and Standing Losses from Refined Tar Storage Tanks, Point Air Releases
4	**Company Supplied Data**

Koppers016224

EPA United States Environmental Protection Agency

FORM R

TOXIC CHEMICAL RELEASE INVENTORY REPORTING FORM

Section 313 of the Emergency Planning and Community Right-to-Know Act of 1986, also known as Title III of the Superfund Amendments and Reauthorization Act

WHERE TO SEND COMPLETED FORMS: 1. EPCRA Reporting Center, P.O Box 3348, Merrifield, VA 22116-3348, ATTN: TOXIC CHEMICAL RELEASE INVENTORY 2. APPROPRIATE STATE OFFICE (See instructions in Appendix F)

Enter "X" here if this is a revision:

For EPA use only:

Important: See instructions to determine when "Not Applicable (NA)" boxes should be checked.

PART I. FACILITY IDENTIFICATION INFORMATION

SECTION 1. REPORTING YEAR 1998

SECTION 2. TRADE SECRET INFORMATION

2.1 Are you claiming the toxic chemical identified on page 3 trade secret? [ ] Yes (Answer question 2.2; Attach substantiation forms) [X] No (Do not answer 2.2; Go to Section 3)

2.2 Is this copy [ ] Sanitized [ ] Unsanitized (Answer only if "YES" in 2.1)

SECTION 3. CERTIFICATION (Important: Read and sign after completing all form sections.)

I hereby certify that I have reviewed the attached documents and that, to the best of my knowledge and belief, the submitted information is true and complete and that the amounts and values in this report are accurate based on reasonable estimates using data available to the preparers of this report.

Name and official title of owner/operator or senior management official:	Signature:	Date Signed:
MR. AMOS KAMERER PLANT MANAGER		06/30/1999

SECTION 4. FACILITY IDENTIFICATION

	TRI Facility ID Number: 97210-KPPRS-7540N
Facility or Establishment Name: KOPPERS INDUSTRIES, INC. PORTLAND TAR PLANT	Facility or Establishment Name or Mailing Address(if different from street address):
Street: 7540 N.W. ST. HELENS ROAD	Mailing Address:
City/County/State/Zip Code: PORTLAND MULTNOMAH OR 97210-3663	City/County/State/Zip Code:

4.2 This report contains information for: (Important : check a or b; check c if applicable) a. [X] An entire facility b. [ ] Part of a facility c. [ ] A Federal facility

4.3 Technical Contact Name: MR. AMOS KAMERER — Telephone Number (include area code): (503) 286 - 3681

4.4 Public Contact Name: MR. AMOS KAMERER — Telephone Number (include area code): (503) 286 - 3681

4.5 SIC Code (s) (4 digits): a. 2865 b. c. d. e. f.

4.6

Latitude	Degrees	Minutes	Seconds	Longitude	Degrees	Minutes	Seconds
	045	34	52		122	45	28

4.7 Dun & Bradstreet Number(s) (9 digits)	4.8 EPA identification Number (RCRA I.D. No.) (12 characters)	4.9 Facility NPDES Permit Number(s) (9 characters)	4.10 Underground Injection Well Code (UIC) I.D. Number(s) (12 digits)
a. 027734359	a. ORD027734359	a. OR0101003	a. NA
b. NA	b. NA	b. NA	b.

SECTION 5. PARENT COMPANY INFORMATION

	Name of Parent Company	NA [ ]	KOPPERS INDUSTRIES, INC.
5.2	Parent Company's Dun & Bradstreet Number	NA [ ]	196991582

EPA FORM R
PART II. CHEMICAL-SPECIFIC INFORMATION

TRI Facility ID Number
97210-KPPRS-7540N
Toxic Chemical, Category or Generic Name
ANTHRACENE

SECTION 1. TOXIC CHEMICAL IDENTITY (Important: DO NOT complete this section if you completed Section 2 below.)

1.1	CAS Number (Important: Enter only one number exactly as it appears on the Section 313 list. Enter category code if reporting a chemical category.)
	000120127
1.2	Toxic Chemical or Chemical Category Name (Important: Enter only one name exactly as it appears on the Section 313 list.)
	ANTHRACENE
1.3	Generic Chemical Name (Important: Complete only if Part 1, Section 2.1 is checked "yes". Generic Name must be structurally descriptive)
	NA

SECTION 2. MIXTURE COMPONENT IDENTITY (Important: DO NOT complete this section if you completed Section 1 above.)

2.1	Generic Chemical Name Provided by Supplier (Important: Maximum of 70 characters, including numbers, letters, spaces, and punctuation.)
	NA

SECTION 3. ACTIVITIES AND USES OF THE TOXIC CHEMICAL AT THE FACILITY
(Important: Check all that apply.)

3.1 Manufacture the toxic chemical:	3.2 Process the toxic chemical:	3.3 Otherwise use the toxic chemical:
a. [X] Produce b. [ ] Import		
If produce or import:		
c. [ ] For on-site use/processing	a. [ ] As a reactant	a. [ ] As a chemical processing aid
d. [ ] For sale/distribution	b. [ ] As a formulation component	b. [ ] As a manufacturing aid
e. [ ] As a byproduct	c. [X] As an article component	c. [ ] Ancillary or other use
f. [X] As an impurity	d. [ ] Repackaging	

SECTION 4. MAXIMUM AMOUNT OF THE TOXIC CHEMICAL ONSITE AT ANY TIME DURING THE CALENDAR YEAR

4.1	05 (Enter two-digit code from instruction package.)	

SECTION 5. QUANTITY OF THE TOXIC CHEMICAL ENTERING EACH ENVIRONMENTAL MEDIUM ONSITE

			A. Total Release (pounds/year) (Enter range code or estimate*)	B. Basis of estimate (enter code)	C. % From Stormwater
5.1	Fugitive or non-point air emissions	NA [ ]	2	E	
5.2	Stack or point air emissions	NA [ ]	203	E	
5.3	Discharges to receiving streams or water bodies (enter one name per box)				
	Stream or Water Body Name				
5.3.1	NA				
5.3.2					
5.3.3					
5.4.1	Underground Injection onsite to Class I Wells	NA [X]	NA		
5.4.2	Underground injection onsite to Class II-V Wells	NA [X]	NA		

If additional pages of Part II, Section 5.3 are attached, indicate the total number of pages in this box [1]
and indicate the Part II, Section 5.3 page number in this box. [1] (example: 1,2,3, etc)

* Range Codes: A= 1 - 10 pounds; B= 11- 499 pounds; C= 500 - 999 pounds.

EPA FORM R

PART II. CHEMICAL - SPECIFIC INFORMATION (CONTINUED)

TRI Facility ID Number
97210-KPPRS-7540N
Toxic Chemical, Category, or Generic Name
ANTHRACENE

SECTION 5. QUANTITY OF THE TOXIC CHEMICAL ENTERING EACH ENVIRONMENTAL MEDIUM ONSITE (Continued)

		NA	A. Total Release (pounds/year) (enter range code* or estimate)	B. Basis of Estimate (enter code)
5.5	Disposal to land onsite			
5.5.1A	RCRA Subtitle C landfills	X	NA	
5.5.1B	Other landfills	X	NA	
5.5.2	Land treatment/application farming	X	NA	
5.5.3	Surface Impoundment	X	NA	
5.5.4	Other disposal	X	NA	

SECTION 6. TRANSFERS OF THE TOXIC CHEMICAL IN WASTES TO OFF-SITE LOCATIONS

6.1 DISCHARGES TO PUBLICLY OWNED TREATMENT WORKS (POTWs)

6.1.A Total Quantity Transferred to POTWs and Basis of Estimate

6.1.A.1. Total Transfers (pounds/year) (enter range code* or estimate)	6.1.A.2 Basis of Estimate (enter code)
NA	

6.1.B. 1	POTW Name	NA					
POTW Address							
City		State		County		Zip	-
6.1.B. 2	POTW Name						
POTW Address							
City		State		County		Zip	

If additional pages of Part II, Section 6.1 are attached, indicate the total number of pages in this box [1] and indicate the Part II, Section 6.1 page number in this box [1] (example: 1,2,3, etc.)

SECTION 6.2 TRANSFERS TO OTHER OFF-SITE LOCATIONS

6.2. 1	Off-Site EPA Identification Number (RCRA ID No.)	UTD991301748					
Off-Site Location Name	LAIDLAW ENVIRONMENTAL SERVICES						
Off-Site Address	EXIT 11 OFF I-80						
City	KNOLLS	State	UT	County		Zip	84029-

cation under control of reporting facility or parent company? [ ] Yes [X] No

* Range Codes: A = 1 - 10 pounds; B = 11 - 499 pounds; C = 500 - 999 pounds.

EPA FORM R

PART II CHEMICAL-SPECIFIC INFORMATION (CONTINUED)

TRI Facility ID Number
97210-KPPRS-7540N
Toxic Chemical, Category or Generic Name
ANTHRACENE

SECTION 6.2 TRANSFERS TO OTHER OFF-SITE LOCATIONS (Continued)

A. Total Transfers (pounds/year) (enter range code* or estimate)	B. Basis of Estimate (enter code)	C. Type of Waste Treatment/Disposal/ Recycling/Energy Recovery (enter code)
1. 4	1. C	1. M72
2.	2.	2.
3.	3.	3.
4.	4.	4.

6.2 2 Off-Site EPA Identification Number (RCRA ID No.)

Off-Site location Name

Off-Site Address

City | State | County | Zip -

Is location under control of reporting facility or parent company? ☐ Yes ☐ No

A. Total Transfers (pounds/year) (enter range code* or estimate)	B. Basis of Estimate (enter code)	C. Type of Waste Treatment/Disposal/ Recycling/Energy Recovery (enter code)
1.	1.	1.
2.	2.	2.
3.	3.	3.
	4.	4.

SECTION 7A. ON-SITE WASTE TREATMENT METHODS AND EFFICIENCY

☒ Not Applicable (NA) - Check here if no on-site waste treatment is applied to any waste stream containing the toxic chemical or chemical category.

a. General Waste Stream (enter code)	b. Waste Treatment Method(s) Sequence [enter 3-character code(s)]	c. Range of Influent Concentration	d. Waste Treatment Efficiency Estimate	e. Based on Operating Data ?
7A.1a	7A.1b 1 2 3 4 5 6 7 8	7A.1c	7A.1d	7A.1e
NA			0 %	Yes ☐ No ☐
7A.2a	7A.2b 1 2 3 4 5 6 7 8	7A.2c	7A.2d	7A.2e
			%	Yes ☐ No ☐
7A.3a	7A.3b 1 2 3 4 5 6 7 8	7A.3c	7A.3d	7A.3e
			%	Yes ☐ No ☐
7A.4a	7A.4b 1 2 3 4 5 6 7 8	7A.4c	7A.4d	7A.4e
			%	Yes ☐ No ☐
7A.5a	7A.5b 1 2 3 4 5 6 7 8	7A.5c	7A.5d	7A.5e
			%	Yes ☐ No ☐

If additional pages of Part II, Section 6.2/7A are attached, indicate the total number of pages in this box 1

and indicate the Part II, Section 6.2/7A page number in this box : 1 **(example: 1,2,3, etc)**

* Range Codes: A = 1 - 10 pounds; B = 11 - 499 pounds; C = 500 - 999 pounds.

EPA FORM R
PART II. CHEMICAL-SPECIFIC INFORMATION (CONTINUED)

TRI Facility ID Number
97210-KPPRS-7540N
Toxic Chemical, Category or Generic Name
ANTHRACENE

SECTION 7B. ON-SITE ENERGY RECOVERY PROCESSES

[X] Not Applicable (NA) - Check here if no on-site energy recovery is applied to any waste stream containing the toxic chemical or chemical category.

Energy Recovery Methods [enter 3-character code(s)]

1 NA | 2 | 3 | 4

SECTION 7C. ON-SITE RECYCLING PROCESSES

[ ] Not Applicable (NA) - Check here if no on-site recycling is applied to any waste stream containing the toxic chemical or chemical category.

Recycling Methods [enter 3-character code(s)]

1. R14 | 2. | 3. | 4. | 5.

6. | 7. | 8. | 9. | 10.

SECTION 8. SOURCE REDUCTION AND RECYCLING ACTIVITIES

		Column A Prior Year (pounds/year)	Column B Current Reporting Year (pounds/year)	Column C Following Year (pounds/year)	Column D Second Following Year (pounds/year)
8.1	Quantity released **	75	210	260	260
	Quantity used for energy recovery onsite	0	0	0	0
8.3	Quantity used for energy recovery offsite	0	0	0	0
8.4	Quantity recycled onsite	12000	370	470	470
8.5	Quantity recycled offsite	0	0	0	0
8.6	Quantity treated onsite	0	0	0	0
8.7	Quantity treated offsite	0	0	0	0
8.8	Quantity released to the environment as a result of remedial actions, catastrophic events, or one-time events not associated with production processes (pounds/year)			0	
8.9	Production ratio or activity index			0001.47	

8.10 Did your facility engage in any source reduction activities for this chemical during the reporting year ? If not, enter "NA" in Section 8.10.1 and answer Section 8.11.

	Source Reduction Activities [enter code(s)]	Methods to Identify Activity (enter codes)		
8.10.1	NA	a.	b.	c.
8.10.2		a.	b.	c.
8.10.3		a.	b.	c.
8.10.4		a.	b.	c.

Is additional information on source reduction, recycling, or pollution control activities included with this report ? (Check one box) — YES [ ] NO [X]

** Report releases pursuant to EPCRA Section 329(8) including "any spilling, leaking, pumping, pouring, emitting, emptying, discharging, injecting, escaping, leaching, dumping, or disposing into the environment." Do not include any quantity treated onsite or offsite.

EPA
United States Environmental Protection Agency

FORM R

TOXIC CHEMICAL RELEASE INVENTORY REPORTING FORM

Section 313 of the Emergency Planning and Community Right-to-Know Act of 1986, also known as Title III of the Superfund Amendments and Reauthorization Act

WHERE TO SEND COMPLETED FORMS: 1. EPCRA Reporting Center, P.O Box 3348, Merrifield, VA 22116-3348, ATTN: TOXIC CHEMICAL RELEASE INVENTORY
2. APPROPRIATE STATE OFFICE (See instructions in Appendix F)

Enter "X" here if this is a revision: [ ]
For EPA use only

Important: See instructions to determine when "Not Applicable (NA)" boxes should be checked.

PART I. FACILITY IDENTIFICATION INFORMATION

SECTION 1. REPORTING YEAR 1998

SECTION 2. TRADE SECRET INFORMATION

2.1	Are you claiming the toxic chemical identified on page 3 trade secret? [ ] Yes (Answer question 2.2; Attach substantiation forms) [X] No (Do not answer 2.2; Go to Section 3)	2.2	Is this copy [ ] Sanitized [ ] Unsanitized (Answer only if "YES" in 2.1)

SECTION 3. CERTIFICATION (Important: Read and sign after completing all form sections.)

I hereby certify that I have reviewed the attached documents and that, to the best of my knowledge and belief, the submitted information is true and complete and that the amounts and values in this report are accurate based on reasonable estimates using data available to the preparers of this report.

Name and official title of owner/operator or senior management official:	Signature:	Date Signed:
MR. AMOS KAMERER PLANT MANAGER		06/30/1999

SECTION 4. FACILITY IDENTIFICATION

TRI Facility ID Number: 97210-KPPRS-7540N

Facility or Establishment Name	Facility or Establishment Name or Mailing Address(if different from street address)
KOPPERS INDUSTRIES, INC. PORTLAND TAR PLANT	
Street	**Mailing Address**
7540 N.W. ST. HELENS ROAD	
City/County/State/Zip Code	**City/County/State/Zip Code**
PORTLAND MULTNOMAH OR 97210-3663	

4.2	This report contains information for: (Important : check a or b; check c if applicable)	a. [X] An entire facility	b. [ ] Part of a facility	c. [ ] A Federal facility				
4.3	Technical Contact Name	MR. AMOS KAMERER				Telephone Number (include area code) (503) 286 - 3681		
4.4	Public Contact Name	MR. AMOS KAMERER				Telephone Number (include area code) (503) 286 - 3681		
4.5	SIC Code (s) (4 digits)	a. 2865	b.	c.	d.	e.	f.	

4.6	Latitude	Degrees	Minutes	Seconds	Longitude	Degrees	Minutes	Seconds
		045	34	52		122	45	28

4.7 Dun & Bradstreet Number(s) (9 digits)	4.8 EPA identification Number (RCRA I.D. No.) (12 characters)	4.9 Facility NPDES Permit Number(s) (9 characters)	4.10 Underground Injection Well Code (UIC) I.D. Number(s) (12 digits)
a. 027734359	a. ORD027734359	a. OR0101003	a. NA
b. NA	b. NA	b. NA	b.

SECTION 5. PARENT COMPANY INFORMATION

	Name of Parent Company	NA [ ]	KOPPERS INDUSTRIES, INC.
5.2	Parent Company's Dun & Bradstreet Number	NA [ ]	196991582

EPA FORM R
PART II. CHEMICAL-SPECIFIC INFORMATION

TRI Facility ID Number
97210-KPPRS-7540N
Toxic Chemical, Category or Generic Name
CREOSOTE

SECTION 1. TOXIC CHEMICAL IDENTITY (Important: DO NOT complete this section if you completed Section 2 below.)

1.1	CAS Number (Important: Enter only one number exactly as it appears on the Section 313 list. Enter category code if reporting a chemical category.)
	008001589
1.2	Toxic Chemical or Chemical Category Name (Important: Enter only one name exactly as it appears on the Section 313 list.)
	CREOSOTE
1.3	Generic Chemical Name (Important: Complete only if Part 1, Section 2.1 is checked "yes". Generic Name must be structurally descriptive)
	NA

SECTION 2. MIXTURE COMPONENT IDENTITY (Important: DO NOT complete this section if you completed Section 1 above.)

2.1	Generic Chemical Name Provided by Supplier (Important: Maximum of 70 characters, including numbers, letters, spaces, and punctuation.)
	NA

SECTION 3. ACTIVITIES AND USES OF THE TOXIC CHEMICAL AT THE FACILITY
(Important: Check all that apply.)

3.1 Manufacture the toxic chemical:	3.2 Process the toxic chemical:	3.3 Otherwise use the toxic chemical:
a. [X] Produce b. [ ] Import		
If produce or import:		
c. [ ] For on-site use/processing	a. [ ] As a reactant	a. [ ] As a chemical processing aid
d. [ ] For sale/distribution	b. [ ] As a formulation component	b. [ ] As a manufacturing aid
e. [ ] As a byproduct	c. [X] As an article component	c. [ ] Ancillary or other use
f. [X] As an impurity	d. [ ] Repackaging	

SECTION 4. MAXIMUM AMOUNT OF THE TOXIC CHEMICAL ONSITE AT ANY TIME DURING THE CALENDAR YEAR

4.1	05 (Enter two-digit code from instruction package.)	

SECTION 5. QUANTITY OF THE TOXIC CHEMICAL ENTERING EACH ENVIRONMENTAL MEDIUM ONSITE

			A. Total Release (pounds/year) (Enter range code or estimate*)	B. Basis of estimate (enter code)	C. % From Stormwater
5.1	Fugitive or non-point air emissions	NA [ ]	11	E	
5.2	Stack or point air emissions	NA [ ]	16	E	
5.3	Discharges to receiving streams or water bodies (enter one name per box)				
	Stream or Water Body Name				
5.3.1	NA				
5.3.2					
5.3.3					
5.4.1	Underground injection onsite to Class I Wells	NA [X]	NA		
5.4.2	Underground injection onsite to Class II-V Wells	NA [X]	NA		

If additional pages of Part II, Section 5.3 are attached, indicate the total number of pages in this box [1]
and indicate the Part II, Section 5.3 page number in this box. [1] (example: 1,2,3, etc)

* Range Codes: A= 1 - 10 pounds; B= 11- 499 pounds; C= 500 - 999 pounds.

EPA FORM R

PART II. CHEMICAL - SPECIFIC INFORMATION (CONTINUED)

TRI Facility ID Number
97210-KPPRS-7540N
Toxic Chemical, Category, or Generic Name
CREOSOTE

SECTION 5. QUANTITY OF THE TOXIC CHEMICAL ENTERING EACH ENVIRONMENTAL MEDIUM ONSITE(Continued)

		NA	A. Total Release (pounds/year) (enter range code* or estimate)	B. Basis of Estimate (enter code)
5.5	Disposal to land onsite			
5.5.1A	RCRA Subtitle C landfills	X	NA	
5.5.1B	Other landfills	X	NA	
5.5.2	Land treatment/application farming	X	NA	
5.5.3	Surface Impoundment	X	NA	
5.5.4	Other disposal	X	NA	

SECTION 6. TRANSFERS OF THE TOXIC CHEMICAL IN WASTES TO OFF-SITE LOCATIONS

6.1 DISCHARGES TO PUBLICLY OWNED TREATMENT WORKS (POTWs)

6.1.A Total Quantity Transferred to POTWs and Basis of Estimate

6.1.A.1. Total Transfers (pounds/year) (enter range code* or estimate)	6.1.A.2 Basis of Estimate (enter code)
NA	

6.1.B. 1	POTW Name	NA					
POTW Address							
City		State		County		Zip	-
6.1.B. 2	POTW Name						
POTW Address							
City		State		County		Zip	

If additional pages of Part II, Section 6.1 are attached, indicate the total number of pages in this box [1] and indicate the Part II, Section 6.1 page number in this box [1] (example: 1,2,3, etc.)

SECTION 6.2 TRANSFERS TO OTHER OFF-SITE LOCATIONS

6.2. 1	Off-Site EPA Identification Number (RCRA ID No.)	PS8388					
Off-Site Location Name	LAIDLAW ENVIRONMENTAL SERVICES						
Off-Site Address	7842 PROGRESS WAY						
City	DELTA, BRITISH COLUMBIA	State		County	CA	Zip	-

ocation under control of reporting facility or parent company? [ ] Yes [X] No

* Range Codes: A = 1 - 10 pounds; B = 11 - 499 pounds; C = 500 - 999 pounds.

EPA FORM R

PART II CHEMICAL-SPECIFIC INFORMATION (CONTINUED)

TRI Facility ID Number
97210-KPPRS-7540N
Toxic Chemical, Category or Generic Name
CREOSOTE

SECTION 6.2 TRANSFERS TO OTHER OFF-SITE LOCATIONS (Continued)

A. Total Transfers (pounds/year) (enter range code* or estimate)	B. Basis of Estimate (enter code)	C. Type of Waste Treatment/Disposal/ Recycling/Energy Recovery (enter code)
1. 206	1. C	1. M72
2.	2.	2.
3.	3.	3.
4.	4.	4.

6.2 2 Off-Site EPA Identification Number (RCRA ID No.)

Off-Site location Name

Off-Site Address

City | State | County | Zip -

Is location under control of reporting facility or parent company? ☐ Yes ☐ No

A. Total Transfers (pounds/year) (enter range code* or estimate)	B. Basis of Estimate (enter code)	C. Type of Waste Treatment/Disposal/ Recycling/Energy Recovery (enter code)
1.	1.	1.
2.	2.	2.
3.	3.	3.
	4.	4.

SECTION 7A. ON-SITE WASTE TREATMENT METHODS AND EFFICIENCY

☒ Not Applicable (NA) - Check here if no on-site waste treatment is applied to any waste stream containing the toxic chemical or chemical category.

a. General Waste Stream (enter code)	b. Waste Treatment Method(s) Sequence [enter 3-character code(s)]								c. Range of Influent Concentration	d. Waste Treatment Efficiency Estimate	e. Based on Operating Data ?
7A.1a	7A.1b	1		2		3		4	7A.1c	7A.1d	7A.1e
NA	5		6		7		8			0 %	Yes ☐ No ☐
7A.2a	7A.2b	1		2		3		4	7A.2c	7A.2d	7A.2e
	5		6		7		8			%	Yes ☐ No ☐
7A.3a	7A.3b	1		2		3		4	7A.3c	7A.3d	7A.3e
	5		6		7		8			%	Yes ☐ No ☐
7A.4a	7A.4b	1		2		3		4	7A.4c	7A.4d	7A.4e
	5		6		7		8			%	Yes ☐ No ☐
7A.5a	7A.5b	1		2		3		4	7A.5c	7A.5d	7A.5e
	5		6		7		8			%	Yes ☐ No ☐

If additional pages of Part II, Section 6.2/7A are attached, indicate the total number of pages in this box 1

and indicate the Part II, Section 6.2/7A page number in this box : 1 **(example: 1,2,3, etc)**

* Range Codes: A = 1 - 10 pounds; B = 11 - 499 pounds; C = 500 - 999 pounds.

EPA FORM R
PART II. CHEMICAL-SPECIFIC INFORMATION (CONTINUED)

TRI Facility ID Number
97210-KPPRS-7540N
Toxic Chemical, Category or Generic Name
CREOSOTE

SECTION 7B. ON-SITE ENERGY RECOVERY PROCESSES

[X] Not Applicable (NA) - Check here if no on-site energy recovery is applied to any waste stream containing the toxic chemical or chemical category.

Energy Recovery Methods [enter 3-character code(s)]

1 NA | 2 | 3 | 4

SECTION 7C. ON-SITE RECYCLING PROCESSES

[ ] Not Applicable (NA) - Check here if no on-site recycling is applied to any waste stream containing the toxic chemical or chemical category.

Recycling Methods [enter 3-character code(s)]

1. R14 | 2. | 3. | 4. | 5.

6. | 7. | 8. | 9. | 10.

SECTION 8. SOURCE REDUCTION AND RECYCLING ACTIVITIES

		Column A Prior Year (pounds/year)	Column B Current Reporting Year (pounds/year)	Column C Following Year (pounds/year)	Column D Second Following Year (pounds/year)
8.1	Quantity released **	0	230	290	290
	Quantity used for energy recovery onsite	0	0	0	0
8.3	Quantity used for energy recovery offsite	0	0	0	0
8.4	Quantity recycled onsite	0	25000	32000	32000
8.5	Quantity recycled offsite	0	0	0	0
8.6	Quantity treated onsite	0	0	0	0
8.7	Quantity treated offsite	0	0	0	0
8.8	Quantity released to the environment as a result of remedial actions, catastrophic events, or one-time events not associated with production processes (pounds/year)			0	
8.9	Production ratio or activity index			0001.47	

8.10 Did your facility engage in any source reduction activities for this chemical during the reporting year ? If not, enter "NA" in Section 8.10.1 and answer Section 8.11.

	Source Reduction Activities [enter code(s)]	Methods to Identify Activity (enter codes)		
8.10.1	NA	a.	b.	c.
8.10.2		a.	b.	c.
8.10.3		a.	b.	c.
8.10.4		a.	b.	c.

Is additional information on source reduction, recycling, or pollution control activities included with this report ? (Check one box) — YES [ ] NO [X]

** Report releases pursuant to EPCRA Section 329(8) including "any spilling, leaking, pumping, pouring, emitting, emptying, discharging, injecting, escaping, leaching, dumping, or disposing into the environment." Do not include any quantity treated onsite or offsite.

EPA United States Environmental Protection Agency

FORM R

TOXIC CHEMICAL RELEASE INVENTORY REPORTING FORM

Section 313 of the Emergency Planning and Community Right-to-Know Act of 1986, also known as Title III of the Superfund Amendments and Reauthorization Act

WHERE TO SEND COMPLETED FORMS: 1. EPCRA Reporting Center, P.O Box 3348, Merrifield, VA 22116-3348, ATTN: TOXIC CHEMICAL RELEASE INVENTORY
2. APPROPRIATE STATE OFFICE (See instructions in Appendix F)

Enter "X" here if this is a revision [ ]
For EPA use only

Important: See instructions to determine when "Not Applicable (NA)" boxes should be checked.

PART I. FACILITY IDENTIFICATION INFORMATION

SECTION 1. REPORTING YEAR 1998

SECTION 2. TRADE SECRET INFORMATION

2.1 Are you claiming the toxic chemical identified on page 3 trade secret? [ ] Yes (Answer question 2.2; Attach substantiation forms) [X] No (Do not answer 2.2; Go to Section 3)

2.2 Is this copy [ ] Sanitized [ ] Unsanitized (Answer only if "YES" in 2.1)

SECTION 3. CERTIFICATION (Important: Read and sign after completing all form sections.)

I hereby certify that I have reviewed the attached documents and that, to the best of my knowledge and belief, the submitted information is true and complete and that the amounts and values in this report are accurate based on reasonable estimates using data available to the preparers of this report.

Name and official title of owner/operator or senior management official:	Signature:	Date Signed:
MR. AMOS KAMERER PLANT MANAGER		06/30/1999

SECTION 4. FACILITY IDENTIFICATION

TRI Facility ID Number: 97210-KPPRS-7540N

Facility or Establishment Name: KOPPERS INDUSTRIES, INC. PORTLAND TAR PLANT

Facility or Establishment Name or Mailing Address(if different from street address):

Street: 7540 N.W. ST. HELENS ROAD

Mailing Address:

City/County/State/Zip Code: PORTLAND MULTNOMAH OR 97210-3663

City/County/State/Zip Code:

4.2 This report contains information for: (Important : check a or b; check c if applicable) a. [X] An entire facility b. [ ] Part of a facility c. [ ] A Federal facility

4.3 Technical Contact Name: MR. AMOS KAMERER — Telephone Number (include area code): (503) 286 - 3681

4.4 Public Contact Name: MR. AMOS KAMERER — Telephone Number (include area code): (503) 286 - 3681

4.5 SIC Code (s) (4 digits): a. 2865 b. c. d. e. f.

4.6

Latitude	Degrees	Minutes	Seconds	Longitude	Degrees	Minutes	Seconds
	045	34	52		122	45	28

4.7 Dun & Bradstreet Number(s) (9 digits)	4.8 EPA identification Number (RCRA I.D. No.) (12 characters)	4.9 Facility NPDES Permit Number(s) (9 characters)	4.10 Underground Injection Well Code (UIC) I.D. Number(s) (12 digits)
a. 027734359	a. ORD027734359	a. OR0101003	a. NA
b. NA	b. NA	b. NA	b.

SECTION 5. PARENT COMPANY INFORMATION

Name of Parent Company: NA [ ] KOPPERS INDUSTRIES, INC.

5.2 Parent Company's Dun & Bradstreet Number: NA [ ] 196991582

EPA FORM R
PART II. CHEMICAL-SPECIFIC INFORMATION

TRI Facility ID Number
97210-KPPRS-7540N
Toxic Chemical, Category or Generic Name
DIBENZOFURAN

SECTION 1. TOXIC CHEMICAL IDENTITY (Important: DO NOT complete this section if you completed Section 2 below.)

1.1	CAS Number (Important: Enter only one number exactly as it appears on the Section 313 list. Enter category code if reporting a chemical category.)
	000132649
1.2	Toxic Chemical or Chemical Category Name (Important: Enter only one name exactly as it appears on the Section 313 list.)
	DIBENZOFURAN
1.3	Generic Chemical Name (Important: Complete only if Part 1, Section 2.1 is checked "yes". Generic Name must be structurally descriptive)
	NA

SECTION 2. MIXTURE COMPONENT IDENTITY (Important: DO NOT complete this section if you completed Section 1 above.)

2.1	Generic Chemical Name Provided by Supplier (Important: Maximum of 70 characters, including numbers, letters, spaces, and punctuation.)
	NA

SECTION 3. ACTIVITIES AND USES OF THE TOXIC CHEMICAL AT THE FACILITY
(Important: Check all that apply.)

3.1 Manufacture the toxic chemical:	3.2 Process the toxic chemical:	3.3 Otherwise use the toxic chemical:
a. [X] Produce b. [ ] Import		
If produce or import:		
c. [ ] For on-site use/processing	a. [ ] As a reactant	a. [ ] As a chemical processing aid
d. [ ] For sale/distribution	b. [ ] As a formulation component	b. [ ] As a manufacturing aid
e. [ ] As a byproduct	c. [X] As an article component	c. [ ] Ancillary or other use
f. [X] As an impurity	d. [ ] Repackaging	

SECTION 4. MAXIMUM AMOUNT OF THE TOXIC CHEMICAL ONSITE AT ANY TIME DURING THE CALENDAR YEAR

4.1	04 (Enter two-digit code from instruction package.)	

SECTION 5. QUANTITY OF THE TOXIC CHEMICAL ENTERING EACH ENVIRONMENTAL MEDIUM ONSITE

			A. Total Release (pounds/year) (Enter range code or estimate*)	B. Basis of estimate (enter code)	C. % From Stormwater
5.1	Fugitive or non-point air emissions	NA [X]	NA		
5.2	Stack or point air emissions	NA [ ]	2741	E	
5.3	Discharges to receiving streams or water bodies (enter one name per box)				
	Stream or Water Body Name				
5.3.1	NA				
5.3.2					
5.3.3					
5.4.1	Underground injection onsite to Class I Wells	NA [X]	NA		
5.4.2	Underground injection onsite to Class II-V Wells	NA [X]	NA		

If additional pages of Part II, Section 5.3 are attached, indicate the total number of pages in this box [1]
and indicate the Part II, Section 5.3 page number in this box. [1] (example: 1,2,3, etc)

* Range Codes: A= 1 - 10 pounds; B= 11 - 499 pounds; C= 500 - 999 pounds.

EPA FORM R
PART II. CHEMICAL - SPECIFIC INFORMATION (CONTINUED)

TRI Facility ID Number
97210-KPPRS-7540N
Toxic Chemical, Category, or Generic Name
DIBENZOFURAN

SECTION 5. QUANTITY OF THE TOXIC CHEMICAL ENTERING EACH ENVIRONMENTAL MEDIUM ONSITE (Continued)

		NA	A. Total Release (pounds/year) (enter range code* or estimate)	B. Basis of Estimate (enter code)
5.5	Disposal to land onsite			
5.5.1A	RCRA Subtitle C landfills	X	NA	
5.5.1B	Other landfills	X	NA	
5.5.2	Land treatment/application farming	X	NA	
5.5.3	Surface Impoundment	X	NA	
5.5.4	Other disposal	X	NA	

SECTION 6. TRANSFERS OF THE TOXIC CHEMICAL IN WASTES TO OFF-SITE LOCATIONS

6.1 DISCHARGES TO PUBLICLY OWNED TREATMENT WORKS (POTWs)

6.1.A Total Quantity Transferred to POTWs and Basis of Estimate

6.1.A.1. Total Transfers (pounds/year) (enter range code* or estimate)	6.1.A.2 Basis of Estimate (enter code)
NA	

6.1.B. 1	POTW Name	NA					
POTW Address							
City		State		County		Zip	-
6.1.B. 2	POTW Name						
POTW Address							
City		State		County		Zip	

If additional pages of Part II, Section 6.1 are attached, indicate the total number of pages in this box [1] **and indicate the Part II, Section 6.1 page number in this box** [1] **(example: 1,2,3, etc.)**

SECTION 6.2 TRANSFERS TO OTHER OFF-SITE LOCATIONS

6.2. 1	Off-Site EPA Identification Number (RCRA ID No.)	PS8388					
Off-Site Location Name	LAIDLAW ENVIRONMENTAL SERVICES						
Off-Site Address	7842 PROGRESS WAY						
City	DELTA, BRITISH COLUMBIA	State		County	CA	Zip	-

location under control of reporting facility or parent company? [ ] Yes [X] No

* Range Codes: A = 1 - 10 pounds; B = 11 - 499 pounds; C = 500 - 999 pounds.

EPA FORM R

PART II CHEMICAL-SPECIFIC INFORMATION (CONTINUED)

TRI Facility ID Number
97210-KPPRS-7540N
Toxic Chemical, Category or Generic Name
DIBENZOFURAN

SECTION 6.2 TRANSFERS TO OTHER OFF-SITE LOCATIONS (Continued)

A. Total Transfers (pounds/year) (enter range code* or estimate)	B. Basis of Estimate (enter code)	C. Type of Waste Treatment/Disposal/ Recycling/Energy Recovery (enter code)
1. 3	1. C	1. M72
2.	2.	2.
3.	3.	3.
4.	4.	4.

6.2 2 Off-Site EPA Identification Number (RCRA ID No.)

Off-Site location Name

Off-Site Address

City | State | County | Zip -

Is location under control of reporting facility or parent company? ☐ Yes ☐ No

A. Total Transfers (pounds/year) (enter range code* or estimate)	B. Basis of Estimate (enter code)	C. Type of Waste Treatment/Disposal/ Recycling/Energy Recovery (enter code)
1.	1.	1.
2.	2.	2.
3.	3.	3.
4.	4.	4.

SECTION 7A. ON-SITE WASTE TREATMENT METHODS AND EFFICIENCY

☒ Not Applicable (NA) - Check here if no on-site waste treatment is applied to any waste stream containing the toxic chemical or chemical category.

a. General Waste Stream (enter code)	b. Waste Treatment Method(s) Sequence [enter 3-character code(s)]	c. Range of Influent Concentration	d. Waste Treatment Efficiency Estimate	e. Based on Operating Data ?
7A.1a	7A.1b: 1 2 3 4 5 6 7 8	7A.1c	7A.1d	7A.1e
NA			0 %	Yes ☐ No ☐
7A.2a	7A.2b: 1 2 3 4 5 6 7 8	7A.2c	7A.2d	7A.2e
			%	Yes ☐ No ☐
7A.3a	7A.3b: 1 2 3 4 5 6 7 8	7A.3c	7A.3d	7A.3e
			%	Yes ☐ No ☐
7A.4a	7A.4b: 1 2 3 4 5 6 7 8	7A.4c	7A.4d	7A.4e
			%	Yes ☐ No ☐
7A.5a	7A.5b: 1 2 3 4 5 6 7 8	7A.5c	7A.5d	7A.5e
			%	Yes ☐ No ☐

If additional pages of Part II, Section 6.2/7A are attached, indicate the total number of pages in this box: 1

and indicate the Part II, Section 6.2/7A page number in this box: 1 (example: 1,2,3, etc)

* Range Codes: A = 1 - 10 pounds; B = 11 - 499 pounds; C = 500 - 999 pounds.

EPA FORM R

PART II. CHEMICAL-SPECIFIC INFORMATION (CONTINUED)

TRI Facility ID Number
97210-KPPRS-7540N
Toxic Chemical, Category or Generic Name
DIBENZOFURAN

SECTION 7B. ON-SITE ENERGY RECOVERY PROCESSES

[X] Not Applicable (NA) - Check here if no on-site energy recovery is applied to any waste stream containing the toxic chemical or chemical category.

Energy Recovery Methods [enter 3-character code(s)]

1 NA | 2 | 3 | 4

SECTION 7C. ON-SITE RECYCLING PROCESSES

[ ] Not Applicable (NA) - Check here if no on-site recycling is applied to any waste stream containing the toxic chemical or chemical category.

Recycling Methods [enter 3-character code(s)]

1. R14 | 2. | 3. | 4. | 5.

6. | 7. | 8. | 9. | 10.

SECTION 8. SOURCE REDUCTION AND RECYCLING ACTIVITIES

		Column A Prior Year (pounds/year)	Column B Current Reporting Year (pounds/year)	Column C Following Year (pounds/year)	Column D Second Following Year (pounds/year)
8.1	Quantity released **	0	2700	3500	3500
	Quantity used for energy recovery onsite	0	0	0	0
8.3	Quantity used for energy recovery offsite	0	0	0	0
8.4	Quantity recycled onsite	0	350	440	440
8.5	Quantity recycled offsite	0	0	0	0
8.6	Quantity treated onsite	0	0	0	0
8.7	Quantity treated offsite	0	0	0	0
8.8	Quantity released to the environment as a result of remedial actions, catastrophic events, or one-time events not associated with production processes (pounds/year)			0	
8.9	Production ratio or activity index			0001.47	

8.10 Did your facility engage in any source reduction activities for this chemical during the reporting year ? If not, enter "NA" in Section 8.10.1 and answer Section 8.11.

	Source Reduction Activities [enter code(s)]	Methods to Identify Activity (enter codes)		
8.10.1	NA	a.	b.	c.
8.10.2		a.	b.	c.
8.10.3		a.	b.	c.
8.10.4		a.	b.	c.

Is additional information on source reduction, recycling, or pollution control activities included with this report ? (Check one box) YES [ ] NO [X]

** Report releases pursuant to EPCRA Section 329(8) including "any spilling, leaking, pumping, pouring, emitting, emptying, discharging, injecting, escaping, leaching, dumping, or disposing into the environment." Do not include any quantity treated onsite or offsite.

EPA
United States Environmental Protection Agency

FORM R

TOXIC CHEMICAL RELEASE INVENTORY REPORTING FORM

Section 313 of the Emergency Planning and Community Right-to-Know Act of 1986, also known as Title III of the Superfund Amendments and Reauthorization Act

WHERE TO SEND COMPLETED FORMS: 1. EPCRA Reporting Center, P.O Box 3348, Merrifield, VA 22116-3348, ATTN: TOXIC CHEMICAL RELEASE INVENTORY
2. APPROPRIATE STATE OFFICE (See instructions in Appendix F)

Enter "X" here if this is a revision: [ ]

For EPA use only

Important: See instructions to determine when "Not Applicable (NA)" boxes should be checked.

PART I. FACILITY IDENTIFICATION INFORMATION

SECTION 1. REPORTING YEAR 1998

SECTION 2. TRADE SECRET INFORMATION

2.1 Are you claiming the toxic chemical identified on page 3 trade secret?
[ ] Yes (Answer question 2.2; Attach substantiation forms) [X] No (Do not answer 2.2; Go to Section 3)

2.2 Is this copy [ ] Sanitized [ ] Unsanitized
(Answer only if "YES" in 2.1)

SECTION 3. CERTIFICATION (Important: Read and sign after completing all form sections.)

I hereby certify that I have reviewed the attached documents and that, to the best of my knowledge and belief, the submitted information is true and complete and that the amounts and values in this report are accurate based on reasonable estimates using data available to the preparers of this report.

Name and official title of owner/operator or senior management official:	Signature:	Date Signed:
MR. AMOS KAMERER PLANT MANAGER		06/30/1999

SECTION 4. FACILITY IDENTIFICATION

TRI Facility ID Number: 97210-KPPRS-7540N

Facility or Establishment Name	Facility or Establishment Name or Mailing Address(if different from street address)
KOPPERS INDUSTRIES, INC. PORTLAND TAR PLANT	
Street	**Mailing Address**
7540 N.W. ST. HELENS ROAD	
City/County/State/Zip Code	**City/County/State/Zip Code**
PORTLAND MULTNOMAH OR 97210-3663	

4.2 This report contains information for: (Important : check a or b; check c if applicable) a. [X] An entire facility b. [ ] Part of a facility c. [ ] A Federal facility

4.3	Technical Contact Name	MR. AMOS KAMERER	Telephone Number (include area code): (503) 286 - 3681
4.4	Public Contact Name	MR. AMOS KAMERER	Telephone Number (include area code): (503) 286 - 3681

4.5 SIC Code (s) (4 digits)	a. 2865	b.	c.	d.	e.	f.

4.6	Latitude	Degrees	Minutes	Seconds	Longitude	Degrees	Minutes	Seconds
		045	34	52		122	45	28

4.7 Dun & Bradstreet Number(s) (9 digits)	**4.8** EPA identification Number (RCRA I.D. No.) (12 characters)	**4.9** Facility NPDES Permit Number(s) (9 characters)	**4.10** Underground Injection Well Code (UIC) I.D. Number(s) (12 digits)
a. 027734359	a. ORD027734359	a. OR0101003	a. NA
b. NA	b. NA	b. NA	b.

SECTION 5. PARENT COMPANY INFORMATION

	Name of Parent Company	NA [ ]	KOPPERS INDUSTRIES, INC.
5.2	Parent Company's Dun & Bradstreet Number	NA [ ]	196991582

EPA FORM R
PART II. CHEMICAL-SPECIFIC INFORMATION

TRI Facility ID Number
97210-KPPRS-7540N
Toxic Chemical, Category or Generic Name
NAPHTHALENE

SECTION 1. TOXIC CHEMICAL IDENTITY (Important: DO NOT complete this section if you completed Section 2 below.)

1.1	CAS Number (Important: Enter only one number exactly as it appears on the Section 313 list. Enter category code if reporting a chemical category.)
	000091203
1.2	Toxic Chemical or Chemical Category Name (Important: Enter only one name exactly as it appears on the Section 313 list.)
	NAPHTHALENE
1.3	Generic Chemical Name (Important: Complete **only** if Part 1, Section 2.1 is checked "yes". Generic Name must be structurally descriptive)
	NA

SECTION 2. MIXTURE COMPONENT IDENTITY (Important: DO NOT complete this section if you completed Section 1 above.)

2.1	Generic Chemical Name Provided by Supplier (Important: Maximum of 70 characters, including numbers, letters, spaces, and punctuation.)
	NA

SECTION 3. ACTIVITIES AND USES OF THE TOXIC CHEMICAL AT THE FACILITY
(Important: Check all that apply.)

3.1 Manufacture the toxic chemical:	3.2 Process the toxic chemical:	3.3 Otherwise use the toxic chemical:
a. [X] Produce b. [ ] Import		
If produce or import:		
c. [ ] For on-site use/processing	a. [ ] As a reactant	a. [ ] As a chemical processing aid
d. [ ] For sale/distribution	b. [ ] As a formulation component	b. [ ] As a manufacturing aid
e. [ ] As a byproduct	c. [X] As an article component	c. [ ] Ancillary or other use
f. [X] As an impurity	d. [ ] Repackaging	

SECTION 4. MAXIMUM AMOUNT OF THE TOXIC CHEMICAL ONSITE AT ANY TIME DURING THE CALENDAR YEAR

4.1	05 (Enter two-digit code from instruction package.)	

SECTION 5. QUANTITY OF THE TOXIC CHEMICAL ENTERING EACH ENVIRONMENTAL MEDIUM ONSITE

			A. Total Release (pounds/year) (Enter range code or estimate*)	B. Basis of estimate (enter code)	C. % From Stormwater
5.1	Fugitive or non-point air emissions	NA [ ]	3	E	
5.2	Stack or point air emissions	NA [ ]	22096	E	
5.3	Discharges to receiving streams or water bodies (enter one name per box)				
	Stream or Water Body Name				
5.3.1	NA				
5.3.2					
5.3.3					
5.4.1	Underground Injection onsite to Class I Wells	NA [X]	NA		
5.4.2	Underground injection onsite to Class II-V Wells	NA [X]	NA		

If additional pages of Part II, Section 5.3 are attached, indicate the total number of pages in this box: 1
and indicate the Part II, Section 5.3 page number in this box: 1 (example: 1,2,3, etc)

* Range Codes: A= 1 - 10 pounds; B= 11 - 499 pounds; C= 500 - 999 pounds.

EPA FORM R

PART II. CHEMICAL - SPECIFIC INFORMATION (CONTINUED)

TRI Facility ID Number
97210-KPPRS-7540N
Toxic Chemical, Category, or Generic Name
NAPHTHALENE

SECTION 5. QUANTITY OF THE TOXIC CHEMICAL ENTERING EACH ENVIRONMENTAL MEDIUM ONSITE(Continued)

		NA	A. Total Release (pounds/year) (enter range code* or estimate)	B. Basis of Estimate (enter code)
5.5	Disposal to land onsite			
5.5.1A	RCRA Subtitle C landfills	X	NA	
5.5.1B	Other landfills	X	NA	
5.5.2	Land treatment/application farming	X	NA	
5.5.3	Surface Impoundment	X	NA	
5.5.4	Other disposal	X	NA	

SECTION 6. TRANSFERS OF THE TOXIC CHEMICAL IN WASTES TO OFF-SITE LOCATIONS

6.1 DISCHARGES TO PUBLICLY OWNED TREATMENT WORKS (POTWs)

6.1.A Total Quantity Transferred to POTWs and Basis of Estimate

6.1.A.1. Total Transfers (pounds/year) (enter range code* or estimate)	6.1.A.2 Basis of Estimate (enter code)
NA	

6.1.B. 1	POTW Name	NA					
POTW Address							
City		State		County		Zip	-
6.1.B. 2	POTW Name						
POTW Address							
City		State		County		Zip	

If additional pages of Part II, Section 6.1 are attached, indicate the total number of pages in this box [1] and indicate the Part II, Section 6.1 page number in this box [1] (example: 1,2,3, etc.)

SECTION 6.2 TRANSFERS TO OTHER OFF-SITE LOCATIONS

6.2. 1	Off-Site EPA Identification Number (RCRA ID No.)	UTD991301748					
Off-Site Location Name	LAIDLAW ENVIRONMENTAL SERVICES						
Off-Site Address	EXIT 11 OFF I-80						
City	KNOLLS	State	UT	County		Zip	84029-

location under control of reporting facility or parent company? [ ] Yes [X] No

* Range Codes: A = 1 - 10 pounds; B = 11 - 499 pounds; C = 500 - 999 pounds.

EPA FORM R

PART II CHEMICAL-SPECIFIC INFORMATION (CONTINUED)

TRI Facility ID Number
97210-KPPRS-7540N
Toxic Chemical, Category or Generic Name
NAPHTHALENE

SECTION 6.2 TRANSFERS TO OTHER OFF-SITE LOCATIONS (Continued)

A. Total Transfers (pounds/year) (enter range code* or estimate)	B. Basis of Estimate (enter code)	C. Type of Waste Treatment/Disposal/ Recycling/Energy Recovery (enter code)
1. 1	1. C	1. M72
2.	2.	2.
3.	3.	3.
4.	4.	4.

6.2 2 Off-Site EPA Identification Number (RCRA ID No.) PS8388

Off-Site location Name: LAIDLAW ENVIRONMENTAL SERVICES

Off-Site Address: 7842 PROGRESS WAY

City: DELTA, BRITISH COLUMBIA | State: | County: CA | Zip: -

Is location under control of reporting facility or parent company? [ ] Yes [X] No

A. Total Transfers (pounds/year) (enter range code* or estimate)	B. Basis of Estimate (enter code)	C. Type of Waste Treatment/Disposal/ Recycling/Energy Recovery (enter code)
1. 51	1. C	1. M72
2.	2.	2.
3.	3.	3.
4.	4.	4.

SECTION 7A. ON-SITE WASTE TREATMENT METHODS AND EFFICIENCY

[X] Not Applicable (NA) - Check here if no on-site waste treatment is applied to any waste stream containing the toxic chemical or chemical category.

a. General Waste Stream (enter code)	b. Waste Treatment Method(s) Sequence [enter 3-character code(s)]	c. Range of Influent Concentration	d. Waste Treatment Efficiency Estimate	e. Based on Operating Data ?
7A.1a	7A.1b: 1 2 3 4 5 6 7 8	7A.1c	7A.1d	7A.1e
NA			0 %	Yes [ ] No [ ]
7A.2a	7A.2b: 1 2 3 4 5 6 7 8	7A.2c	7A.2d	7A.2e
			%	Yes [ ] No [ ]
7A.3a	7A.3b: 1 2 3 4 5 6 7 8	7A.3c	7A.3d	7A.3e
			%	Yes [ ] No [ ]
7A.4a	7A.4b: 1 2 3 4 5 6 7 8	7A.4c	7A.4d	7A.4e
			%	Yes [ ] No [ ]
7A.5a	7A.5b: 1 2 3 4 5 6 7 8	7A.5c	7A.5d	7A.5e
			%	Yes [ ] No [ ]

If additional pages of Part II, Section 6.2/7A are attached, indicate the total number of pages in this box [1]
and indicate the Part II, Section 6.2/7A page number in this box : [1] **(example: 1,2,3, etc)**

* Range Codes: A = 1 - 10 pounds; B = 11 - 499 pounds; C = 500 - 999 pounds.

EPA FORM R
PART II. CHEMICAL-SPECIFIC INFORMATION (CONTINUED)

TRI Facility ID Number
97210-KPPRS-7540N
Toxic Chemical, Category or Generic Name
NAPHTHALENE

SECTION 7B. ON-SITE ENERGY RECOVERY PROCESSES

[X] Not Applicable (NA) - Check here if no on-site energy recovery is applied to any waste stream containing the toxic chemical or chemical category.

Energy Recovery Methods [enter 3-character code(s)]

1 NA 2 3 4

SECTION 7C. ON-SITE RECYCLING PROCESSES

[ ] Not Applicable (NA) - Check here if no on-site recycling is applied to any waste stream containing the toxic chemical or chemical category.

Recycling Methods [enter 3-character code(s)]

1. R14 2. 3. 4. 5.

6. 7. 8. 9. 10.

SECTION 8. SOURCE REDUCTION AND RECYCLING ACTIVITIES

		Column A Prior Year (pounds/year)	Column B Current Reporting Year (pounds/year)	Column C Following Year (pounds/year)	Column D Second Following Year (pounds/year)
8.1	Quantity released **	1700	22000	28000	28000
8.2	Quantity used for energy recovery onsite	0	0	0	0
8.3	Quantity used for energy recovery offsite	0	0	0	0
8.4	Quantity recycled onsite	12000	6300	7900	7900
8.5	Quantity recycled offsite	0	0	0	0
8.6	Quantity treated onsite	0	0	0	0
8.7	Quantity treated offsite	0	0	0	0

8.8	Quantity released to the environment as a result of remedial actions, catastrophic events, or one-time events not associated with production processes (pounds/year)	0
8.9	Production ratio or activity index	0001.47

8.10 Did your facility engage in any source reduction activities for this chemical during the reporting year ? If not, enter "NA" in Section 8.10.1 and answer Section 8.11.

	Source Reduction Activities [enter code(s)]	Methods to Identify Activity (enter codes)		
8.10.1	NA	a.	b.	c.
8.10.2		a.	b.	c.
8.10.3		a.	b.	c.
8.10.4		a.	b.	c.

8.11 Is additional information on source reduction, recycling, or pollution control activities included with this report ? (Check one box) YES [ ] NO [X]

** Report releases pursuant to EPCRA Section 329(8) including "any spilling, leaking, pumping, pouring, emitting, emptying, discharging, injecting, escaping, leaching, dumping, or disposing into the environment." Do not include any quantity treated onsite or offsite.

EPA United States Environmental Protection Agency

FORM R

TOXIC CHEMICAL RELEASE INVENTORY REPORTING FORM

Section 313 of the Emergency Planning and Community Right-to-Know Act of 1986, also known as Title III of the Superfund Amendments and Reauthorization Act

WHERE TO SEND COMPLETED FORMS: 1. EPCRA Reporting Center, P.O Box 3348, Merrifield, VA 22116-3348, ATTN: TOXIC CHEMICAL RELEASE INVENTORY
2. APPROPRIATE STATE OFFICE (See instructions in Appendix F)

Enter "X" here if this is a revision: [ ]
For EPA use only

Important: See instructions to determine when "Not Applicable (NA)" boxes should be checked.

PART I. FACILITY IDENTIFICATION INFORMATION

SECTION 1. REPORTING YEAR 1998

SECTION 2. TRADE SECRET INFORMATION

2.1 Are you claiming the toxic chemical identified on page 3 trade secret?
[ ] Yes (Answer question 2.2; Attach substantiation forms) [X] No (Do not answer 2.2; Go to Section 3)

2.2 Is this copy [ ] Sanitized [ ] Unsanitized (Answer only if "YES" in 2.1)

SECTION 3. CERTIFICATION (Important: Read and sign after completing all form sections.)

I hereby certify that I have reviewed the attached documents and that, to the best of my knowledge and belief, the submitted information is true and complete and that the amounts and values in this report are accurate based on reasonable estimates using data available to the preparers of this report.

Name and official title of owner/operator or senior management official:	Signature:	Date Signed:
MR. AMOS KAMERER PLANT MANAGER		06/30/1999

SECTION 4. FACILITY IDENTIFICATION

	TRI Facility ID Number: 97210-KPPRS-7540N
Facility or Establishment Name: KOPPERS INDUSTRIES, INC. PORTLAND TAR PLANT	Facility or Establishment Name or Mailing Address(if different from street address):
Street: 7540 N.W. ST. HELENS ROAD	Mailing Address:
City/County/State/Zip Code: PORTLAND MULTNOMAH OR 97210-3663	City/County/State/Zip Code:

4.2 This report contains information for: (Important : check a or b; check c if applicable) a. [X] An entire facility b. [ ] Part of a facility c. [ ] A Federal facility

4.3	Technical Contact Name: MR. AMOS KAMERER	Telephone Number (include area code): (503) 286 - 3681
4.4	Public Contact Name: MR. AMOS KAMERER	Telephone Number (include area code): (503) 286 - 3681

4.5 SIC Code (s) (4 digits): a. 2865 b. c. d. e. f.

4.6	Latitude	Degrees	Minutes	Seconds	Longitude	Degrees	Minutes	Seconds
		045	34	52		122	45	28

4.7 Dun & Bradstreet Number(s) (9 digits)	**4.8** EPA identification Number (RCRA I.D. No.) (12 characters)	**4.9** Facility NPDES Permit Number(s) (9 characters)	**4.10** Underground Injection Well Code (UIC) I.D. Number(s) (12 digits)
a. 027734359	a. ORD027734359	a. OR0101003	a. NA
b. NA	b. NA	b. NA	b.

SECTION 5. PARENT COMPANY INFORMATION

	Name of Parent Company	NA [ ]	KOPPERS INDUSTRIES, INC.
5.2	Parent Company's Dun & Bradstreet Number	NA [ ]	196991582

EPA FORM R
PART II. CHEMICAL-SPECIFIC INFORMATION

TRI Facility ID Number
97210-KPPRS-7540N
Toxic Chemical, Category or Generic Name
POLYCYCLIC AROMATIC COMPOUNDS

SECTION 1. TOXIC CHEMICAL IDENTITY (Important: DO NOT complete this section if you completed Section 2 below.)

1.1	CAS Number (Important: Enter only one number exactly as it appears on the Section 313 list. Enter category code if reporting a chemical category.)
	N590
1.2	Toxic Chemical or Chemical Category Name (Important: Enter only one name exactly as it appears on the Section 313 list.)
	POLYCYCLIC AROMATIC COMPOUNDS
1.3	Generic Chemical Name (Important: Complete only if Part 1, Section 2.1 is checked "yes". Generic Name must be structurally descriptive)
	NA

SECTION 2. MIXTURE COMPONENT IDENTITY (Important: DO NOT complete this section if you completed Section 1 above.)

2.1	Generic Chemical Name Provided by Supplier (Important: Maximum of 70 characters, including numbers, letters, spaces, and punctuation.)
	NA

SECTION 3. ACTIVITIES AND USES OF THE TOXIC CHEMICAL AT THE FACILITY
(Important: Check all that apply.)

3.1 Manufacture the toxic chemical:	3.2 Process the toxic chemical:	3.3 Otherwise use the toxic chemical:
a. [X] Produce b. [ ] Import		
If produce or import:		
c. [ ] For on-site use/processing	a. [ ] As a reactant	a. [ ] As a chemical processing aid
d. [ ] For sale/distribution	b. [ ] As a formulation component	b. [ ] As a manufacturing aid
e. [ ] As a byproduct	c. [X] As an article component	c. [ ] Ancillary or other use
f. [X] As an impurity	d. [ ] Repackaging	

SECTION 4. MAXIMUM AMOUNT OF THE TOXIC CHEMICAL ONSITE AT ANY TIME DURING THE CALENDAR YEAR

4.1	05 (Enter two-digit code from instruction package.)	

SECTION 5. QUANTITY OF THE TOXIC CHEMICAL ENTERING EACH ENVIRONMENTAL MEDIUM ONSITE

			A. Total Release (pounds/year) (Enter range code or estimate*)	B. Basis of estimate (enter code)	C. % From Stormwater
5.1	Fugitive or non-point air emissions	NA [ ]	14	E	
5.2	Stack or point air emissions	NA [ ]	1764	E	
5.3	Discharges to receiving streams or water bodies (enter one name per box)				
	Stream or Water Body Name				
5.3.1	ST. HELENS ROAD CREEK		20	M	100.00
5.3.2					
5.3.3					
5.4.1	Underground Injection onsite to Class I Wells	NA [X]	NA		
5.4.2	Underground injection onsite to Class II-V Wells	NA [X]	NA		

If additional pages of Part II, Section 5.3 are attached, indicate the total number of pages in this box [1]
and indicate the Part II, Section 5.3 page number in this box. [1] (example: 1,2,3, etc)

* Range Codes: A= 1 - 10 pounds; B= 11 - 499 pounds; C= 500 - 999 pounds.

EPA FORM R

PART II. CHEMICAL - SPECIFIC INFORMATION (CONTINUED)

TRI Facility ID Number
97210-KPPRS-7540N
Toxic Chemical, Category, or Generic Name
POLYCYCLIC AROMATIC COMPOUNDS

SECTION 5. QUANTITY OF THE TOXIC CHEMICAL ENTERING EACH ENVIRONMENTAL MEDIUM ONSITE (Continued)

		NA	A. Total Release (pounds/year) (enter range code* or estimate)	B. Basis of Estimate (enter code)
5.5	Disposal to land onsite			
5.5.1A	RCRA Subtitle C landfills	X	NA	
5.5.1B	Other landfills	X	NA	
5.5.2	Land treatment/application farming	X	NA	
5.5.3	Surface Impoundment	X	NA	
5.5.4	Other disposal	X	NA	

SECTION 6. TRANSFERS OF THE TOXIC CHEMICAL IN WASTES TO OFF-SITE LOCATIONS

6.1 DISCHARGES TO PUBLICLY OWNED TREATMENT WORKS (POTWs)

6.1.A Total Quantity Transferred to POTWs and Basis of Estimate

6.1.A.1. Total Transfers (pounds/year) (enter range code* or estimate)	6.1.A.2 Basis of Estimate (enter code)
NA	

6.1.B. 1	POTW Name	NA					
POTW Address							
City		State		County		Zip	-
6.1.B. 2	POTW Name						
POTW Address							
City		State		County		Zip	

If additional pages of Part II, Section 6.1 are attached, indicate the total number of pages in this box 1 **and indicate the Part II, Section 6.1 page number in this box** 1 **(example: 1,2,3, etc.)**

SECTION 6.2 TRANSFERS TO OTHER OFF-SITE LOCATIONS

6.2. 1	Off-Site EPA Identification Number (RCRA ID No.)	UTD991301748					
Off-Site Location Name	LAIDLAW ENVIRONMENTAL SERVICES						
Off-Site Address	EXIT 11 OFF I-80						
City	KNOLLS	State	UT	County		Zip	84029-

location under control of reporting facility or parent company? [ ] Yes [X] No

* Range Codes: A = 1 - 10 pounds; B = 11 - 499 pounds; C = 500 - 999 pounds.

EPA FORM R

PART II CHEMICAL-SPECIFIC INFORMATION (CONTINUED)

TRI Facility ID Number
97210-KPPRS-7540N
Toxic Chemical, Category or Generic Name
POLYCYCLIC AROMATIC COMPOUNDS

SECTION 6.2 TRANSFERS TO OTHER OFF-SITE LOCATIONS (Continued)

A. Total Transfers (pounds/year) (enter range code* or estimate)	B. Basis of Estimate (enter code)	C. Type of Waste Treatment/Disposal/ Recycling/Energy Recovery (enter code)
1. 16	1. C	1. M72
2.	2.	2.
3.	3.	3.
4.	4.	4.

6.2 2 Off-Site EPA Identification Number (RCRA ID No.)

Off-Site location Name

Off-Site Address

City | State | County | Zip -

Is location under control of reporting facility or parent company? ☐ Yes ☐ No

A. Total Transfers (pounds/year) (enter range code* or estimate)	B. Basis of Estimate (enter code)	C. Type of Waste Treatment/Disposal/ Recycling/Energy Recovery (enter code)
1.	1.	1.
2.	2.	2.
3.	3.	3.
4.	4.	4.

SECTION 7A. ON-SITE WASTE TREATMENT METHODS AND EFFICIENCY

☒ Not Applicable (NA) - Check here if no on-site waste treatment is applied to any waste stream containing the toxic chemical or chemical category.

a. General Waste Stream (enter code)	b. Waste Treatment Method(s) Sequence [enter 3-character code(s)]	c. Range of Influent Concentration	d. Waste Treatment Efficiency Estimate	e. Based on Operating Data ?
7A.1a	7A.1b: 1 2 3 4 5 6 7 8	7A.1c	7A.1d	7A.1e
NA			0 %	Yes ☐ No ☐
7A.2a	7A.2b: 1 2 3 4 5 6 7 8	7A.2c	7A.2d	7A.2e
			%	Yes ☐ No ☐
7A.3a	7A.3b: 1 2 3 4 5 6 7 8	7A.3c	7A.3d	7A.3e
			%	Yes ☐ No ☐
7A.4a	7A.4b: 1 2 3 4 5 6 7 8	7A.4c	7A.4d	7A.4e
			%	Yes ☐ No ☐
7A.5a	7A.5b: 1 2 3 4 5 6 7 8	7A.5c	7A.5d	7A.5e
			%	Yes ☐ No ☐

If additional pages of Part II, Section 6.2/7A are attached, indicate the total number of pages in this box 1

and indicate the Part II, Section 6.2/7A page number in this box : 1 (example: 1,2,3, etc)

* Range Codes: A = 1 - 10 pounds; B = 11 - 499 pounds; C = 500 - 999 pounds.

EPA FORM R

PART II. CHEMICAL-SPECIFIC INFORMATION (CONTINUED)

TRI Facility ID Number
97210-KPPRS-7540N
Toxic Chemical, Category or Generic Name
POLYCYCLIC AROMATIC COMPOUNDS

SECTION 7B. ON-SITE ENERGY RECOVERY PROCESSES

[X] Not Applicable (NA) - Check here if no on-site energy recovery is applied to any waste stream containing the toxic chemical or chemical category.

Energy Recovery Methods [enter 3-character code(s)]

1 NA 2 3 4

SECTION 7C. ON-SITE RECYCLING PROCESSES

[ ] Not Applicable (NA) - Check here if no on-site recycling is applied to any waste stream containing the toxic chemical or chemical category.

Recycling Methods [enter 3-character code(s)]

1. R14 2. 3. 4. 5.

6. 7. 8. 9. 10.

SECTION 8. SOURCE REDUCTION AND RECYCLING ACTIVITIES

		Column A Prior Year (pounds/year)	Column B Current Reporting Year (pounds/year)	Column C Following Year (pounds/year)	Column D Second Following Year (pounds/year)
8.1	Quantity released **	250	1800	2300	2300
	Quantity used for energy recovery onsite	0	0	0	0
8.3	Quantity used for energy recovery offsite	0	0	0	0
8.4	Quantity recycled onsite	71000	53000	66000	66000
8.5	Quantity recycled offsite	0	0	0	0
8.6	Quantity treated onsite	2	0	0	0
8.7	Quantity treated offsite	0	0	0	0
8.8	Quantity released to the environment as a result of remedial actions, catastrophic events, or one-time events not associated with production processes (pounds/year)			0	
8.9	Production ratio or activity index			0001.47	

8.10 Did your facility engage in any source reduction activities for this chemical during the reporting year ? If not, enter "NA" in Section 8.10.1 and answer Section 8.11.

	Source Reduction Activities [enter code(s)]	Methods to Identify Activity (enter codes)		
8.10.1	NA	a.	b.	c.
8.10.2		a.	b.	c.
8.10.3		a.	b.	c.
8.10.4		a.	b.	c.

		YES	NO
11	Is additional information on source reduction, recycling, or pollution control activities included with this report ? (Check one box)	[ ]	[X]

** Report releases pursuant to EPCRA Section 329(8) including "any spilling, leaking, pumping, pouring, emitting, emptying, discharging, injecting, escaping, leaching, dumping, or disposing into the environment." Do not include any quantity treated onsite or offsite.

Table 2-1-a. Summary of SARA 313 Reporting Quantities, 1998 SARA 313 Report
Koppers Industries, Inc., Portland Tar Plant, Portland, Oregon

Chemical	Air Releases		Water Releases	Transfers Off-Site		Quantity Released	Recycled On-site	Recycled Off-site	Treated On-site	Total Annual Reportable Amount	Applicable Form
	Non-Point (lbs/yr) Section 5.1	Point (lbs/yr) Section 5.2	Wastewater (lbs/yr) Section 5.3	Creosote (lbs/yr) Section 6.2	RT (lbs/yr) Section 6.2	(lbs/yr) Section 8.1	(lbs/yr) Section 8.4	(lbs/yr) Section 8.5	(lbs/yr) Section 8.6	(lbs/yr)	
Anthracene	2	203	0	0	4	209	373	0	0	582	FORMR
Creosote	11	16	0	206	0	233	25,200	0	0	25,433	FORMR
Dibenzofuran	0	2,741	0	3	0	2,744	346	0	0	3,090	FORMR
Naphthalene	3	22,096	0	51	1	22,151	6,276	0	0	28,427	FORMR
PAC's	14	1,764	20	0	16	1,814	52,776	0	0	54,590	FORMR

1. Non point air emissions include equipment leak emissions.
2. Point air emissions include tank emissions, loading emissions and fume recovery emissions.
3. Quantity released includes air releases, water releases and land releases from the transfers off-site of creosote and refined tar.
4. Recycled on-site includes fume recovery fluid recycling, and pitch fume recycling.

Koppers016250

Table 2-1-b. Summary of Projected 1999 and 2000 SARA 313 Reporting Quantities, 1998 SARA 313 Report
Koppers Industries, Inc., Portland Tar Plant, Portland, Oregon

Chemical	Quantity Released (lbs/yr) Section 8.1	Recycled On-site (lbs/yr) Section 8.4	Recycled Off-site (lbs/yr) Section 8.5	Treated On-site (lbs/yr) Section 8.6
Anthracene	264	470	0	0
Creosote	294	31,752	0	0
Dibenzofuran	3,457	436	0	0
Naphthalene	27,910	7,908	0	0
PAC's	2,285	66,498	0	0

Projected Pitch Production for 1999 and 2000:	142,000,000
1998 Pitch Production:	112,468,004
Scale Up Factor:	1.26

Koppers016251

Table 2-2. Input Data for the 1998 SARA 313 Report
Koppers Industries, Inc., Portland Tar Plant, Portland, Oregon

Process Production/Usage Rates

Mixture	Density (lb/gal)	Yearly Total (gal)	Maximum On-site (gal)
Pitch	11.0	10,224,364	890,909
Heavy Oil	9.6	65,417	38,004
P1/P13 Creosote	9.0	250,719	82,185
UCC	9.1	0	0
P&R Oil	9.1	715	715
CMN	8.5	2,687	2,687
NSR	9.0	1,111	1,111
Refined Tar	10.0	95,409	28,036

On-Site Recycling

Waste	Total Pounds	
Scrubber Fluid	36,000	(P1/P13 Creosote)

Tank Throughputs

Tank ID	Commodity	Throughput (gallons)	
T-3	Crude Methyl Naphthalene	2,687	Changed to Stormwater Service May 1,1998
T-33	Heavy Oil	65,417	
T-23	Light Coal Tar Distillate (UCC)	0	Changed to Stormwater Service May 1,1998
T-68	Liquid Pitch	6,073,933	
T-65	Liquid Pitch	4,150,431	
T-34	Naphthalene Still Residue	1,111	Changed to Stormwater Service May 1,1998
T-17	P1/P13 Creosote	36,000	Changed to Stormwater Service May 1,1998
T-67	P1/P13 Creosote	250,719	
T-19	Priming and Refractory Oil	715	
Railcars	Refined Tars	95,408	

Koppers016252

Table 2-3. Reporting Inventories for Threshold Quantities and Maximum On-Site, 1998 SARA 313 Report
Koppers Industries, Inc., Portland Tar Plant, Portland, Oregon

Mixture	Yearly Total (lbs)	% by weight											
	Deminimus (%)	Anthracene 120-12-7 1.0	Benzene 71-43-2 0.1	Biphenyl 92-52-4 1.0	Cresols 1319-77-3 1.0	Creosote 8001-58-9 0.1	Di-benzo-furan 132-64-9 1.0	Naphthalene 91-20-3 1.0	PAC's N590 0.1	Phenol 108-95-2 1.0	Quinoline 91-22-5 1.0	Toluene 108-88-3 1.0	Xylene 1330-20-7 1.0
Pitch	112,468,004	0.79						0.04	7.93				
Heavy Oil	628,003	10.50					0.40		11.80				
P1/P13 Creosote	2,256,471		0.15	0.39	0.33	70.00	0.96	17.40		0.30	0.33		
UCC	0	14.00					5.10	0.10	5.41				
P&R Oil	6,507	14.00					5.10	0.10	5.41				
CMN	22,840	0.40					3.20	1.40					
NSR	9,999	6.90		3.30			5.70	0.10	0.67		3.00		
Refined Tar	954,090	1.62						0.58	7.08				
Does Chemical Meet Deminimus Exemption:		NO	NO	NO	YES	NO	NO	NO	NO	YES	NO	YES	YES

(Note: The deminimus exemption was only applied if the chemical in every mixture was below the deminimus threshold)

Yearly Totals

Mixture	Yearly Total (lbs)	Yearly Totals (lbs)											
		Anthracene 120-12-7	Benzene 71-43-2	Biphenyl 92-52-4	Cresols 1319-77-3	Creosote 8001-58-9	Di-benzo-furan 132-64-9	Naphthalene 91-20-3	PAC's N590	Phenol 108-95-2	Quinoline 91-22-5	Toluene 108-88-3	Xylene 1330-20-7
Pitch	112,468,004	888,497	0	0	NA	0	0	44,987	8,918,713	NA	0	NA	NA
Heavy Oil	628,003	65,940	0	0	NA	0	2,512	0	74,104	NA	0	NA	NA
P1/P13 Creosote	2,256,471	0	3,385	8,800	NA	1,579,530	21,662	392,626	0	NA	7,446	NA	NA
UCC	0	0	0	0	NA	0	0	0	0	NA	0	NA	NA
P&R Oil	6,507	911	0	0	NA	0	332	7	352	NA	0	NA	NA
CMN	22,840	91	0	0	NA	0	731	320	0	NA	0	NA	NA
NSR	9,999	690	0	330	NA	0	570	10	67	NA	300	NA	NA
Refined Tar	954,090	15,456	0	0	NA	0	0	5,534	67,550	NA	0	NA	NA
Component Total:		971,585	3,385	9,130	0	1,579,530	25,807	443,484	9,060,786	0	7,746	0	0
Applicable to Reporting (Produces >25,000 lbs):		YES	NO	NO	NO	YES	YES	YES	YES	NO	NO	NO	NO

Monthly Maximum On-site

Mixture	Maximum Monthly Total (lbs)	Monthly Maximums Totals (lbs)											
		Anthracene 120-12-7	Benzene 71-43-2	Biphenyl 92-52-4	Cresols 1319-77-3	Creosote 8001-58-9	Di-benzo-furan 132-64-9	Naphthalene 91-20-3	PAC's N590	Phenol 108-95-2	Quinoline 91-22-5	Toluene 108-88-3	Xylene 1330-20-7
Pitch	9,799,999	77,420	0	0	NA	0	0	3,920	777,140	NA	0	NA	NA
Heavy Oil	364,838	38,308	0	0	NA	0	1,459	0	43,051	NA	0	NA	NA
P1/P13 Creosote	739,665	0	1,109	2,885	NA	517,766	7,101	128,702	0	NA	2,441	NA	NA
UCC	0	0	0	0	NA	0	0	0	0	NA	0	NA	NA
P&R Oil	6,507	911	0	0	NA	0	332	7	352	NA	0	NA	NA
CMN	22,840	91	0	0	NA	0	731	320	0	NA	0	NA	NA
NSR	9,999	690	0	330	NA	0	570	10	67	NA	300	NA	NA
Refined Tar	280,360	4,542	0	0	NA	0	0	1,626	19,849	NA	0	NA	NA
		121,962	1,109	3,215	0	517,766	10,193	134,585	840,459	0	2,741		

Koppers016253

Table 2-4. Summary of Storage Tank Emissions, Point Air Releases, 1998 SARA 313 Report
Koppers Industries, Inc., Portland Tar Plant, Portland, Oregon

Tank ID	Contents	Temp °F	Uncontrolled VOCs (lb/yr)	Control Efficiency	Controlled VOCs (lb/yr)	Anthracene (lb/yr)	Dibenzofuran (lb/yr)	Naphthalene (lb/yr)	PACs (lb/yr)	Creosote (lb/yr)
T-17	P1/P13 Creosote	170	11.3	0.0	11.3	0.0	0.0	4.6	0.0	1.8
T-67	P1/P13 Creosote	150	41.5	0.0	41.5	0.0	0.1	13.7	0.0	9.8
T-3	Crude Methyl Naphthalene	150	6.6	0.0	6.6	0.0	0.1	0.4	0.0	0.0
T-33	Heavy Oil	250	4.3	0.0	4.3	0.5	0.4	0.0	0.0	0.0
T-34	Naphthalene Still Residue	160	2.2	0.0	2.2	0.0	0.1	0.0	0.0	0.0
T-19	P&R Oil	60	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Railcar	Refined Tar	190	4.3	0.0	4.3	0.0	0.0	1.4	0.0	0.0
Total			70.2		70.2	0.5	0.6	20.1	0.0	11.6

Anthracene	0.5
Creosote	11.6
Dibenzofuran	0.6
Naphthalene	20.1
PACs	0.0

Koppers016254

Table 2-5. Uncontrolled Product Loading Rack Working Losses, Point Air Releases, 1998 SARA 313 Report
Koppers Industries, Inc., Portland Tar Plant, Portland, Oregon

Process Description	Temp. °F	Label	Component	MW lb/lb-mole	V_p psia	P_p psia	L_W lb/1000gal	Throughput 1000gal/yr	lb/yr	Control Efficiency (%)	Controlled VOCs (lb/yr)
Tank 67 to Rail	170	P1/P13	Anthracene	178	0.0003	0.0000	0.00000	250.7	0.0	0	0.0
			Creosote	168	0.0112	0.0075	0.01709	250.7	4.3	0	4.3
			Dibenzofuran	168	0.0100	0.0001	0.00021	250.7	0.1	0	0.1
			Naphthalene	128	0.1149	0.0251	0.04352	250.7	10.9	0	10.9
			PAC's	268	0.0000	0.0000	0.00000	250.7	0.0	0	0.0

From AP-42 section 5.4 Transportation and Marketing of Petroleum Liquids. (1/95) using the following equation:

$$Lw = 12.46\ SMPp/T$$

Where: Lw = Loading loass (lb/1000 gal)
S = Saturation Factor (0.50)
M = Molecular weight
Pp = Partial vapor pressure, psia
T = temperature R

Koppers016255

Creosote Fugitive Equipment Leaks
Tanks 17,67,102,

Process Description	Number In service	Emission Factor (lb/hr/source)	Hours (year)	Emission (lb/yr)
Pump seals	3	0.01899	54	3.06
Valves (in line)	23	0.00051	54	0.63
Pressure relief valves	0	0.22907	54	0.00
Open ended valves	1	0.00374	54	0.20
Flanges	57	0.00403	54	12.36
		Total emissions		16.25

Assume pumping rate 200 gpm
Hours = 2 * gals throughput/gpm pump rate/60= $\frac{322,719}{200}$ *2 /60 = 53.8

Fugitive Equipment Leaks Compound Emissions	Compound Weight %	lb/yr
Benzene	0.15	0.02
Biphenyl	0.39	0.06
Creosote	70.00	11.38
Cresols	0.33	0.05
Dibenzofuran	0.96	0.16
Naphthalene	17.40	2.83
Phenol	0.30	0.05
Quinoline	0.33	0.05

NSR Naphthalene Still Residue Fugitive Equipment Leaks

Process Description	Number In service	Emissions lb/hr/source	Hours year	Emission (lb/yr)
Pump seals	1	0.01899	0	0.00
Valves (in line)	2	0.00051	0	0.00
Pressure relief valves	0	0.22907	0	0.00
Open ended valves	0	0.00374	0	0.00
Flanges	4	0.00403	0	0.00
		Total Emissions		0.01

Assume pumping rate 200 gpm
Hours = 2 * gals throughput/gpm pump rate/60= $\frac{1,111}{200}$ *2 /60 = 0.2

Fugitive Equipment Leaks Compound Emissions	Compound Weight %	Emission (lb/yr)
Anthracene	6.90	0.00
Biphenyl	3.30	0.00
Dibenzofuran	5.70	0.00
Naphthalene	0.10	0.00
Quinoline	3.00	0.00
PAC's	0.67	0.00

Koppers016256

Pitch: Storage Fugitive Equipment Leak

Process Description	Number In service	Emissions (lb/hr/source)	Hours year	Emission (lb/yr)
Pump seals	5	0.01899	346	32.83
Valves (in line)	31	0.00051	346	5.43
Pressure relief valves	0	0.22907	346	0.00
Open ended valves	5	0.00374	346	6.48
Flanges	68	0.00403	346	94.78
		Total emissions		139.52

Assume pumping rate 400 gpm

Hours = 2 * gals throughput/gpm pump rate/60= $\frac{4,150,431}{400}$ /60 *2= 345.9

Fugitive Eqpt leaks Compound emissions	Compound Weight %	lb/yr
Anthracene	0.79	1.10
Naphthalene	0.04	0.06
PAC's	7.93	11.06

Pitch: Loading Fugitive Equipment Leak

Process Description	Number In service	Emissions (lb/hr/source)	Hours year	Emission (lb/yr)
Pump seals	2	0.01899	173	6.57
Valves (in line)	11	0.00051	173	0.96
Pressure relief valves	0	0.22907	173	0.00
Open ended valves	2	0.00374	173	1.30
Flanges	33	0.00403	173	23.00
		Total emissions		31.82

Assume pumping rate 400 gpm

Hours = gals throughput/gpm pump rate/60= $\frac{4,150,431}{400}$ /60 = 172.9

Fugitive Eqpt leaks Compound emissions	Compound Weight %	lb/yr	Total Pitch lb/yr
Anthracene	0.79	0.25	1.35
Naphthalene	0.04	0.01	0.07
PAC's	7.93	2.52	13.59

Koppers016257

Heavy Oil: Storage Fugitive Equipment Leak

Process Description	Number In service	Emissions (lb/hr/source)	Hours year	Emission (lb/yr)
Pump seals	1	0.01899	22	0.41
Valves (in line)	7	0.00051	22	0.08
Pressure relief valves	0	0.22907	22	0.00
Open ended valves	0	0.00374	22	0.00
Flanges	18	0.00403	22	1.58
		Total emissions		2.07

Assume pumping rate 100 gpm

Hours = 2 * gals throughput/gpm pump rate/60= $\frac{65,417}{100}$ /60 * 2= 21.8

Fugitive Eqpt leaks Compound emissions	Compound Weight %	lb/yr
Anthracene	10.50	0.22
Dibenzofuran	0.40	0.01
PACs	11.80	0.24

UCC/P&R Oil: Storage Fugitive Equipment Leak

Process Description	Number In service	Emissions (lb/hr/source)	Hours year	Emission (lb/yr)
Pump seals	2	0.01899	0	0.01
Valves (in line)	4	0.00051	0	0.00
Pressure relief valves	0	0.22907	0	0.00
Open ended valves	0	0.00374	0	0.00
Flanges	8	0.00403	0	0.01
		Total emissions		0.02

Assume pumping rate 100 gpm

Hours = 2 * gals throughput/gpm pump rate/60= $\frac{715}{100}$ /60 * 2 0.2

Fugitive Eqpt leaks Compound emissions	Compound Weight %	lb/yr
Anthracene	14.00	0.00
Dibenzofuran	5.10	0.00
Naphthalene	0.10	0.00
PAC's	5.41	0.00

TOTAL FUGITIVE EMISSIONS

	Total lbs/yr
Anthracene	1.57
Benzene	0.02
Biphenyl	0.06
Creosote	11.38
Cresols	0.05
Dibenzofuran	0.17
Naphthalene	2.90
PAC's	13.83
Phenol	0.05
Quinoline	0.05
Toluene	0.00
Xylene	0.00

Total Reportable Fugitive Emissions

Anthacene	1.57
Creosote	11.38
Dibenzofuran	0.17
Naphthalene	2.90
PACs	13.83

Koppers016258

Table 2-7-a. Fume Recovery Emissions, Point Air Releases, 1998 SARA 313 Report
Koppers Industries, Inc., Portland Tar Plant, Portland, Oregon

Fume Recovery VOC Emissions:	6,772	pounds per 720 hours, per ChemCad
Fume Recovery Hourly Emissions:	9.41	lbs/hr
Fume Recovery Operating Hours:	5,030	hours
Fume Recovery Annual Emissions:	47,332	lbs/yr

Constituent	ChemCAD % by weight	Emissions (lbs/yr)
Anthacene	0.429003	203
Creosote	NA	0
Dibenzofuran	5.789842	2,740
Naphthalene	46.61799	22,065
PACs	3.726678	1,764
Benzene	0.058406	28
Toluene	0.05848	28
Ethylbenzene	0.117045	55
Xylene	0.175582	83
Styrene	0.058534	28
Cresols	0.649768	308
Phenol	0.175358	83
Quinoline	1.950891	923

Koppers016259

Table 2-7-b. Fume Recovery Emissions, Operating Hours, 1998 SARA 313 Report
Koppers Industries, Inc., Portland Tar Plant, Portland, Oregon

Assumptions:

All Pitch comes in as solid pitch		
Total Annual Pitch Production:	56,234	tons/yr
Pitch Charging into T-65	58	tons/hr, based on 1,200 tons per each change of 20.6 hrs
% Pitch loaded into trucks from T-68:	60	% of total pitch production
Pitch loading pumping rate into trucks from T-68:	55.5	tons/hr, based on 37 tons loaded per 40 minutes
% Pitch loaded into railcar from T-65:	40	% of total pitch production
Pitch loading pumping rate into railcars from T-65:	58.0	tons/hr, based on 87 tons loaded per 90 minutes
% Pitch transferred from T-65 to T-68	60.0	% of total pitch production
Pitch transfer pumping rate from T-65 to T-68	70.0	tons/hr
Creosote pumping rate	21.6	tons/hr, based on 1,200 gal/15min, and a density of 9.0 lbs/gal
Cresoste Annual Usage	162	tons/yr

Calculations:

Transfer Description	Amount per Charge (tons)	Pumping Rate (ton/hr)	Annual Amount Transferred (tons/yr)	Annual Transfer Time (hours)	Annual Number of Transfers	T-65 fume hours	T-68 fume hours	Total hours
Dry Pitch Charging	1200	58	56,234	970	47	1,086		1,086
From T-68 to trucks	37	55.5	33,740	608	912		2,432	2,432
From T-65 to rail	87	58.0	22,494	388	259	906		906
From T-65 to T-68	1200	70.0	33,740	482	28		538	538
Creosote tranfer	5.4	21.6	162	8	30	34	34	68
TOTALS:				**2,456**	**1,276**	**2,026**	**3,004**	**5,030**

Assume all transfers (except Solid Pitch) are done independently and that the scrubbers are at high capacity (1,050 scfm). Assume it takes one hour before and after each transfer to turn the fume system off and on.

Koppers016260

Table 2-8. Summary of Water Releases, 1998 SARA 313 Report
Koppers Industries, Inc., Portland Tar Plant, Portland, Oregon

Sample calculation:

gal/day x mg/l x 3.785 l/gal x 1 g/1000mg x 1lb/454 g x days/mo. = lb/mo.

Sample	Flow Rate	Measured Concentration				Water Releases			
		Anthracene	Naphthalene	PAC's	Phenol	Anthracene	Naphthalene	PAC's	Phenol
		120-12-7	91-20-3	N590	108-95-2	120-12-7	91-20-3	N590	108-95-2
	GPD	mg/L	mg/L	mg/L	mg/L	lb	lb	lb	lb
Jan-98	21,290	0.0100	0.0004	0.0920	0.1500	0.06	0.00	0.51	0.83
Feb-98	31,420	0.0100	0.0004	0.0920	0.0500	0.07	0.00	0.67	0.37
Mar-98	21,290	0.0100	0.0004	0.0920	0.1300	0.06	0.00	0.51	0.72
Apr-98	7,333	0.0023	0.0002	0.1968	0.0500	0.00	0.00	0.36	0.09
May-98	21,903	0.0023	0.0002	0.1968	0.0500	0.01	0.00	1.11	0.28
Jun-98	7,330	0.0023	0.0002	0.1968	0.1200	0.00	0.00	0.36	0.22
Jul-98	0	0.0023	0.0002	0.1968	0.0000	0.00	0.00	0.00	0.00
Aug-98	0	0.0023	0.0002	0.1968	0.0000	0.00	0.00	0.00	0.00
Sep-98	7,333	0.0056	0.0019	0.3150	0.0500	0.01	0.00	0.58	0.09
Oct-98	12,258	0.0054	0.0005	0.6420	0.0000	0.02	0.00	2.03	0.00
Nov-98	30,333	0.0054	0.0005	0.6420	0.0000	0.04	0.00	4.87	0.00
Dec-98	52,580	0.0054	0.0005	0.6420	0.0000	0.07	0.01	8.72	0.00
					TOTAL	0	0	20	2.6

Anthacene	0
Creosote	0
Dibenzofuran	0
Naphthalene	0
PACs	20

Notes:

1. Anthracene, naphthalene, and PAC were measured are measured quarterly.
2. Phenol concentrations were taken from the monthly discharge report.

Koppers016261

Table 2-9. Calculation of Hazardous Waste Shipments, Transfer to Off-Site Locations, 1998 SARA 313 Report
Koppers Industries, Inc., Portland Tar Plant, Portland, Oregon

In 1998, 2 drums of creosote spill material was shipped off-site to be landfilled. It is assumed that the materials is approximately 20% cresosote (similar to Woodward Tar Plant). It is also assumed that 1 cubic yard of material weighs 2,700 pounds (data from Clairton Tar Plant). The material was sent to the following destination:

Laidlaw Environmental Services
7842 Progress Way
Delta, British Columbia, Canada V4G1A4
ID: PS8388

Total amount shipped: 110 gallons
1,470 pounds

In 1998, 6 drums of refined tar spill material was shipped off to be landfilled. It is assumed that the material is approximately 5% refined tar. As with the cresosote spill material, 1 cubic yard weighs 2,700 pounds. The material was sent ot the following destination:

Laidlaw Environmental Services
Exit 11 off I-80
Knolls, UT 84029
EPA ID: UTD991301748

Total amount shipped: 330 gallons
4,411 lbs

Calculations

	Creosote Spill Material		Refined Tar Spill Material	
Chemical	Composition by weight (%)	Quantity Transferred (pounds)	Composition by weight (%)	Quantity Transferred (pounds)
Total Transferred:		1,470		4,411
Anthracene	0.00	0	0.08	4
Creosote	14.00	206	0.00	0
Dibenzofuran	0.19	3	0.00	0
Naphthalene	3.48	51	0.03	1
PAC's	0.00	0	0.35	16

Koppers016262

Table 2-10. Calculation of Fume Recovery Fluid Recycling, Recycling On-Site, 1998 SARA 313 Report
Koppers Industries, Inc., Portland Tar Plant, Portland, Oregon

Scrubber Fluid: Clean Creosote

Chemical	Fume Recovery Fluid Recycling Composition by weight (%)	Fume Recovery Fluid Recycling Quantity Transferred (pounds)
Total Recycled		36,000
Anthracene	0.00	0
Creosote	70.00	25,200
Dibenzofuran	0.96	346
Naphthalene	17.40	6,264
PAC's	0.00	0

Koppers016263

Table 2-11. Calculation of Pitch Fume Recycling, Recycling On-Site, 1998 SARA 313 Report
Koppers Industries, Inc. Portland, Oregon.

Pitch vapors from the pitch tanks and pitch loading racks are directed to a fume scrubber, where pitch is knocked-out into the creosote, then sold as product.

Influent Pitch Hourly Emissions:	24.7 lbs/hr, per ChemCAD
Fume Recovery Hours of Operation:	5,030 hours
Influent Pitch Annual Emissions:	124,241 lbs/yr
Temperature of vapors:	400 F

Component	ChemCAD % weight @400 F	Quantity Recycled (pounds/yr)
Anthracene	0.30	373
Creosote	0.00	0
Dibenzofuran	0.00	0
Naphthalene	0.01	12
PACs	42.48	52,776

Koppers016264

Table 2-12 Calculation of the Production Ratio, 1998 SARA 313 Report
Koppers Industries, Inc. Portland, Oregon.

1998 Pitch Production:	10,224,364	gallons
1997 Pitch Production:	6,943,524	gallons, per AK, Koppers
Production Ratio:	1.47	

Koppers016265

ATTACHMENT 3

AP-42 TANK EMISSION SPREADSHEETS AND SUPPORTING DOCUMENTATION

able 3-1. Storage Tank Working and Standing Losses from Clean Creosote (P1/P13) Storage Tanks, Point Air Releases, 1998 SARA 313 Report
Koppers Industries, Inc., Portland Tar Plant, Portland, Oregon

Tank ID	Contents	Throughput (gal)	Temp °F	D (ft)	Hs (ft)	V (ft3)	Turn overs	Mv (lb/mol)	Pva (psia)	L_s (lb/yr)	L_w (lb/yr)	Total (lb/yr)	Control (%)	Control Total (lb/yr)		Controlled Anthracene (lb/yr)	Controlled Dibenzofuran (lb/yr)	Controlled Naphthalene (lb/yr)	Controlled PACs (lb/yr)	Controlled Creosote (lb/yr)
T-17	Cln Creo P1/P13	*36,000*	170	*12.0*	*24.0*	20,303	1.8	*104.57*	*0.0752*	4.6	6.7	11.3		11.3			0.0	4.6		1.8
T-67	Cln Creo P1/P13	*250,719*	150	*12.0*	*24.0*	20,303	12.3	*105.76*	*0.0504*	9.7	31.8	41.5		41.5			0.1	13.7		9.8

Notes:

1. T-17 was in creosote service until April 30, 1998, and then changed to storm water service.

Koppers016267

Clean Creosote Lookup Table

Temp (°F)	Temp (°R)	Vapor MW	VP	% wt in Vapor												
				Anthracene	Benzene	Biphenyl	Cresols	Dibenzofuran	Naphthalene	PACs	Phenol	Pyridine	Quinoline	Toluene	Xylenes	Creosote
140	600	114.00	0.0468	0.00	33.68	0.09	0.55	0.11	24.01	0.00	0.79	0.00	0.25	0.00	0.00	40.52
150	610	105.76	0.0504	0.00	40.86	0.14	0.75	0.15	32.98	0.00	1.11	0.00	0.33	0.00	0.00	23.67
160	620	104.97	0.0615	0.00	40.65	0.16	0.84	0.17	36.98	0.00	1.27	0.00	0.37	0.00	0.00	19.54
170	630	104.57	0.0752	0.00	39.96	0.18	0.92	0.20	40.84	0.00	1.44	0.00	0.41	0.00	0.00	16.04
180	640	104.50	0.0921	0.00	38.90	0.21	1.01	0.22	44.50	0.00	1.61	0.00	0.44	0.00	0.00	13.11
190	650	100.75	0.0842	0.00	37.57	0.24	1.08	0.24	47.93	0.00	1.78	0.00	0.47	0.00	0.00	10.69

Koppers016268

CRE

Used Creo Vapor Pressure data for bal Clean Creosote

Process Description	Temp °F	Component	Mean Conc Wt %	MW lb/lb-mole	No Moles	MsubF (Xa)	Liquid MW lb/lb-mole	VPa (psia)	PPa (VP * Xa)	Yi (% by Vol)	Vapor MW lb/lb-mole	Y_w (% by wt.)
CRE	150	**Mixture Total**			**0.6223**	**1.0000**	**160.70**		**0.0504097**	**100**	**105.76**	**100**
		Anthracene		178				0.0001				
		Benzene	0.15	78	0.0019	0.0031	0.24	9.0373	0.0279	55.403	43.2144	40.862
		Biphenyl	0.39	154	0.0025	0.0041	0.63	0.0116	0.0000	0.094	0.1443	0.136
		Cresols	0.33	108	0.0031	0.0049	0.53	0.0753	0.0004	0.734	0.7925	0.749
		Dibenzofuran	0.96	168	0.0057	0.0092	1.54	0.0052	0.0000	0.094	0.1587	0.150
		Naphthalene	17.40	128	0.1359	0.2185	27.96	0.0629	0.0137	27.247	34.8760	32.977
		PACs		268				0.0000				
		Phenol	0.30	94	0.0032	0.0051	0.48	0.1225	0.0006	1.246	1.1715	1.108
		Pyridine		79				1.3220				
		Quinoline	0.33	129	0.0026	0.0041	0.53	0.0336	0.0001	0.274	0.3530	0.334
		Toluene		92				3.2760				
		Xylenes		106				1.2387				
		Creosote	70.00	168	0.4167	0.6696	112.49	0.0112	0.0075	14.903	25.0377	23.675
		bal. Cln Creo	10.14	200	0.0507	0.0815	16.29	0.0000	0.0000	0.005	0.0094	0.009
CRE	160	**Mixture Total**			**0.6223**	**1.0000**	**160.70**		**0.0615214**	**100**	**104.97**	**100**
		Anthracene		178				0.0002				
		Benzene	0.15	78	0.0019	0.0031	0.24	10.8889	0.0337	54.698	42.6643	40.646
		Biphenyl	0.39	154	0.0025	0.0041	0.63	0.0165	0.0001	0.109	0.1680	0.160
		Cresols	0.33	108	0.0031	0.0049	0.53	0.1021	0.0005	0.815	0.8805	0.839
		Dibenzofuran	0.96	168	0.0057	0.0092	1.54	0.0072	0.0001	0.108	0.1813	0.173
		Naphthalene	17.40	128	0.1359	0.2185	27.96	0.0854	0.0187	30.329	38.8214	36.985
		PACs		268				0.0000				
		Phenol	0.30	94	0.0032	0.0051	0.48	0.1708	0.0009	1.424	1.3382	1.275
		Pyridine		79				1.6693				
		Quinoline	0.33	129	0.0026	0.0041	0.53	0.0451	0.0002	0.302	0.3891	0.371
		Toluene		92				4.0371				
		Xylenes		106				1.5631				
		Creosote	70.00	168	0.4167	0.6696	112.49	0.0112	0.0075	12.212	20.5155	19.545
		bal. Cln Creo	10.14	200	0.0507	0.0815	16.29	0.0000	0.0000	0.004	0.0077	0.007

Koppers016269

CCRE

Used Creo Vapor Pressure data for bal Clean Creosote

Process Description	Temp °F	Component	Mean Conc Wt %	MW lb/lb-mole	No Moles	MsubF (Xa)	Liquid MW lb/lb-mole	VPa (psia)	PPa (VP * Xa)	Yi (% by Vol)	Vapor MW lb/lb-mole	Y_w (% by wt.)
CCRE	170	**Mixture Total**			**0.6223**	**1.0000**	**160.70**		**0.0752386**	**100**	**104.57**	**100**
		Anthracene		178				0.0003				
		Benzene	0.15	78	0.0019	0.0031	0.24	13.0425	0.0403	53.571	41.7855	39.959
		Biphenyl	0.39	154	0.0025	0.0041	0.63	0.0232	0.0001	0.125	0.1929	0.184
		Cresols	0.33	108	0.0031	0.0049	0.53	0.1372	0.0007	0.895	0.9669	0.925
		Dibenzofuran	0.96	168	0.0057	0.0092	1.54	0.0100	0.0001	0.122	0.2044	0.196
		Naphthalene	17.40	128	0.1359	0.2185	27.96	0.1149	0.0251	33.364	42.7056	40.839
		PACs		268				0.0000				
		Phenol	0.30	94	0.0032	0.0051	0.48	0.2356	0.0012	1.606	1.5095	1.443
		Pyridine		79				2.0922				
		Quinoline	0.33	129	0.0026	0.0041	0.53	0.0601	0.0002	0.329	0.4239	0.405
		Toluene		92				4.9421				
		Xylenes		106				1.9579				
		Creosote	70.00	168	0.4167	0.6696	112.49	0.0112	0.0075	9.985	16.7752	16.042
		bal. Cln Creo	10.14	200	0.0507	0.0815	16.29	0.0000	0.0000	0.003	0.0063	0.006

Koppers016270

Table 3-2. Storage Tank Working and Standing Losses from Crude Methyl Naphthalene (CMN) Storage Tanks, Point Air Releases, 1998 SARA 313 Report
Koppers Industries, Inc., Portland Tar Plant, Portland, Oregon

Tank ID	Contents	Throughput (gal)	Temp °F	D (ft)	Hs (ft)	Hl (ft)	V (ft3)	Turn overs	Mv (lb/mol)	Pva (psia)	L_s (lb/yr)	L_w (lb/yr)	Total (lb/yr)	Control (%)	Control Total (lb/yr)	Controlled Anthracene (lb/yr)	Controlled Dibenzofuran (lb/yr)	Controlled Naphthalene (lb/yr)	Controlled PACs (lb/yr)
T-3	CMN	2.68	150	24.0	30.0	15.0	101,516	0.0	141.60	0.0149	6.4	0.1	6.6		6.6	0.0	0.1	0.4	

Notes:

1. T-3 was in CMN service until April 30, 1998, and then changed to storm water service.

Koppers016271

CMN Lookup Table				% wt in Vapor											
Temp (°F)	Temp (°R)	Vapor MW	VP	Anthracene	Benzene	Bipheny	Cresols	Dibenzofuran	Naphthalene	PACs	Phenol	Pyridine	Quinoline	Toluene	Xylene
60	520	141.21	0.0004	0.00				1.30	9.07						
70	530	141.26	0.0006	0.00				1.29	8.70						
80	540	141.31	0.0010	0.00				1.28	8.35						
90	550	141.36	0.0015	0.00				1.27	8.03						
100	560	141.41	0.0023	0.00				1.26	7.73						
110	570	141.45	0.0034	0.00				1.26	7.45						
120	580	141.49	0.0051	0.00				1.25	7.19						
130	590	141.53	0.0073	0.00				1.24	6.95						
140	600	141.56	0.0105	0.00				1.23	6.72						
150	610	141.60	0.0149	0.00				1.23	6.50						
160	620	141.63	0.0209	0.00				1.22	6.30						
170	630	141.66	0.0290	0.00				1.21	6.11						
180	640	141.69	0.0398	0.00				1.21	5.93						
190	650	141.72	0.0541	0.00				1.20	5.76						
200	660	141.74	0.0729	0.01				1.19	5.60						
210	670	141.77	0.0973	0.01				1.19	5.45						
220	680	141.79	0.1288	0.01				1.18	5.31						
230	690	141.82	0.1692	0.01				1.17	5.18						
240	700	141.84	0.2204	0.01				1.17	5.05						
250	710	141.86	0.2851	0.01				1.16	4.93						
260	720	141.88	0.3662	0.01				1.16	4.81						
270	730	141.91	0.4671	0.01				1.15	4.70						
280	740	141.93	0.5920	0.01				1.15	4.59						
290	750	141.95	0.7455	0.01				1.14	4.49						
300	760	141.97	0.9332	0.01				1.14	4.40						
310	770	141.99	1.1614	0.01				1.13	4.31						
320	780	142.00	1.4373	0.01				1.13	4.22						

Koppers016272

CMN

Used Pyrene Vapor Pressure data for bal CMN

Process Description	Temp °F	Component	Mean Conc Wt %	Exceed Threshold (Y/N)	MW lb/lb-mole	No Moles	MsubF (Xa)	Liquid MW lb/lb-mole	VPa (psia)	PPa (VP * Xa)	Yi (% by Vol)	Vapor MW lb/lb-mole	Y_w (% by wt.)
Crude	150		Mixture Total			**0.6412**	**1.0000**	**156.0**		**0.0149**	**100.0**	**141.6**	**100.0**
Methyl Naphthalene		Anthracene	0.40	Y	178	0.0022	0.0035	0.62	0.0001	0.0000	0.003	0.0052	0.004
		Benzene		Y	78				9.0373				
		Biphenyl		Y	154				0.0116				
		Cresols		Y	108				0.0753				
		Dibenzofuran	3.20	Y	168	0.0190	0.0297	4.99	0.0052	0.0002	1.033	1.7361	1.226
		Naphthalene	1.40	Y	128	0.0109	0.0171	2.18	0.0629	0.0011	7.193	9.2073	6.502
		PACs		Y	268				0.0000				
		Phenol		Y	94				0.1225				
		Pyridine		Y	79				1.3220				
		Quinoline		Y	129				0.0336				
		Toluene		Y	92				3.2760				
		Xylene		Y	106				1.2387				
		Creosote		Y	175				0.0262				
		Indane		Y	118				0.4255				
		Indene		Y	116				0.3323				
		Methylnaphthalenes	62.00	Y	142	0.4366	0.6809	96.69	0.0196	0.0133	89.498	127.0878	89.753
		Acenaphthene	4.00	Y	154	0.0259	0.0405	6.24	0.0073	0.0003	1.984	3.0592	2.161
		Flourene	1.10	Y	166	0.0066	0.0103	1.72	0.0032	0.0000	0.219	0.3641	0.257
		Phenanthrene	0.50	Y	178	0.0028	0.0044	0.78	0.0001	0.0000	0.004	0.0072	0.005
		Carbazole		Y	167				0.0005				
		Flouranthene		Y	202				0.0000				
		Pyrene		Y	202				0.0000				
		Balance CMN	27.40	Y	200	0.1370	0.2137	42.73	0.00005	0.0000	0.065	0.1303	0.092

Koppers016273

Table 3-3. Storage Tank Working and Standing Losses from Heavy Oil Storage Tanks, Point Air Releases, 1998 SARA 313 Report
Koppers Industries, Inc., Portland Tar Plant, Portland, Oregon

Tank ID	Contents	Throughput (gal)	Temp °F	D (ft)	Hs (ft)	Hl (ft)	V (ft3)	Turn overs	Mv (lb/mol)	Pva (psia)	L_s (lb/yr)	L_w (lb/yr)	Total (lb/yr)	Control (%)	Control Total (lb/yr)	Controlled Anthracene (lb/yr)	Controlled Dibenzofuran (lb/yr)	Controlled Naphthalene (lb/yr)	Controlled PACs (lb/yr)
T-33	HO	*65,417*	250	*18.0*	*24.0*	*12.0*	45,682	1.4	*175.12*	*0.0053*	2.8	1.5	4.3		4.3	0.5	0.4		0.0

Koppers016274

Heavy Oil Lookup Table				% wt in Vapor											
Temp (°F)	Temp (°R)	Vapor MW	VP	Anthracene	Benzene	Biphenyl	Cresols	Dibenzofuran	Naphthalene	PACs	Phenol	Pyridine	Quinoline	Toluene	Xylene
70	530	163.35	0.0000	4.16				14.16		0.00					
80	540	163.85	0.0000	4.53				13.87		0.00					
90	550	164.38	0.0000	4.91				13.57		0.00					
100	560	164.93	0.0000	5.30				13.26		0.00					
110	570	165.49	0.0000	5.69				12.95		0.00					
120	580	166.08	0.0001	6.09				12.63		0.00					
130	590	166.69	0.0001	6.48				12.31		0.00					
140	600	167.31	0.0002	6.88				11.98		0.00					
150	610	167.94	0.0002	7.27				11.66		0.00					
160	620	168.60	0.0003	7.66				11.33		0.00					
170	630	169.26	0.0004	8.04				11.00		0.00					
180	640	169.95	0.0006	8.41				10.67		0.00					
190	650	170.64	0.0009	8.77				10.34		0.00					
200	660	171.35	0.0012	9.12				10.01		0.00					
210	670	172.07	0.0016	9.45				9.68		0.00					
220	680	172.81	0.0022	9.75				9.35		0.00					
230	690	173.56	0.0030	10.04				9.03		0.00					
240	700	174.33	0.0040	10.30				8.70		0.00					
250	710	175.12	0.0053	10.54				8.37		0.00					
260	720	175.92	0.0071	10.74				8.03		0.00					
270	730	176.75	0.0093	10.92				7.70		0.00					
280	740	177.59	0.0122	11.05				7.37		0.00					
290	750	178.45	0.0159	11.15				7.04		0.00					
300	760	179.34	0.0207	11.20				6.71		0.01					
310	770	180.24	0.0269	11.22				6.37		0.01					
320	780	181.16	0.0348	11.18				6.04		0.01					
330	790	182.10	0.0449	11.11				5.71		0.02					

Koppers016275

HO

Used Pyrene Vapor Pressure data for bal Heavy Oil

Process Description	Temp °F	Component	Mean Conc Wt %	Exceed Threshold (Y/N)	MW lb/lb-mole	° No Moles	MsubF (Xa)	Liquid MW lb/lb-mole	VPa (psia)	PPa (VP * Xa)	Yi (% by Vol)	Vapor MW lb/lb-mole	Y_w (% by wt.)
Heavy Oil	250		**Mixture Total**			**0.4833**	**1.0000**	**206.9**		**0.0053**	**100.0**	**175.1**	**100.0**
or CT Dist-Hvy		Anthracene	10.50	Y	178	0.0590	0.1220	21.72	0.0045	0.0006	10.369	18.4564	10.539
		Benzene		Y	78				46.0066				
		Biphenyl		Y	154				0.2485				
		Cresols		Y	108				1.0757				
		Dibenzofuran	0.40	Y	168	0.0024	0.0049	0.83	0.0942	0.0005	8.720	14.6496	8.365
		Naphthalene		Y	128				0.9125				
		PACs	11.80	Y	268	0.0440	0.0909	24.40	0.0000	0.0000	0.000	0.0010	0.001
		Phenol		Y	94				2.2283				
		Pyridine		Y	79				10.1297				
		Quinoline		Y	129				0.4469				
		Toluene		Y	92				20.3001				
		Xylene		Y	106				9.4401				
		Creosote		Y	175				0.3637				
		Indane		Y	118				2.7614				
		Indene		Y	116				2.2618				
		Methylnaphthalenes		Y	142				0.3824				
		Acenaphthene	1.00	Y	154	0.0065	0.0134	2.07	0.1303	0.0017	32.840	50.6420	28.918
		Flourene	0.90	Y	166	0.0054	0.0112	1.86	0.0664	0.0007	13.981	23.2392	13.270
		Phenanthrene	1.50	Y	178	0.0084	0.0174	3.10	0.0053	0.0001	1.721	3.0672	1.751
		Carbazole	2.10	Y	167	0.0126	0.0260	4.34	0.0110	0.0003	5.388	9.0094	5.145
		Flouranthene	5.00	Y	202	0.0248	0.0512	10.35	0.0033	0.0002	3.177	6.4175	3.665
		Pyrene	4.50	Y	202	0.0223	0.0460	9.31	0.0019	0.0001	1.653	3.3436	1.909
		Balance Creosote	62.31	Y	209	0.2981	0.6168	128.91	0.00191	0.0012	22.150	46.2942	26.436

Koppers016276

Table 3-4. Storage Tank Working and Standing Losses from Naphthalene Still Residue (NSR) Storage Tanks, Point Air Releases, 1998 SARA 313 Report
Koppers Industries, Inc., Portland Tar Plant, Portland, Oregon

Tank ID	Contents	Throughput (gal)	Temp °F	D (ft)	Hs (ft)	Hl (ft)	V (ft3)	Turn overs	Mv (lb/mol)	Pva (psia)	L_S (lb/yr)	L_W (lb/yr)	Total (lb/yr)	Control (%)	Control Total (lb/yr)	Controlled Anthracene (lb/yr)	Controlled Dibenzofuran (lb/yr)	Controlled Naphthalene (lb/yr)	Controlled PACs (lb/yr)
T-34	NSR	1,111	160	*18.0*	*24.0*	*12.0*	45,682	0.0	*146.90*	*0.0111*	2.2	0.0	2.2		2.2	0.0	0.1	0.0	0.0

Notes:

1. T-34 was in NSR service until April 30, 1998, and then changed to storm water service.

Koppers016277

NSR Lookup Table				% wt in Vapor											
Temp (°F)	Temp (°R)	Vapor MW	VP	Anthracene	Benzene	Bipheny	Cresols	Dibenzofuran	Naphthalene	PACs	Phenol	Pyridine	Quinoline	Toluene	Xylene
60	520	144.91	0.0002	0.05		4.37		4.13	1.16	0.00			20.58		
70	530	145.17	0.0004	0.06		4.48		4.13	1.12	0.00			19.60		
80	540	145.41	0.0005	0.06		4.59		4.13	1.08	0.00			18.69		
90	550	145.63	0.0008	0.07		4.70		4.12	1.04	0.00			17.84		
100	560	145.85	0.0013	0.08		4.80		4.11	1.01	0.00			17.05		
110	570	146.05	0.0019	0.08		4.90		4.10	0.98	0.00			16.31		
120	580	146.24	0.0027	0.09		4.99		4.09	0.95	0.00			15.62		
130	590	146.42	0.0039	0.10		5.08		4.08	0.92	0.00			14.98		
140	600	146.59	0.0056	0.11		5.17		4.07	0.89	0.00			14.37		
150	610	146.75	0.0080	0.12		5.26		4.06	0.86	0.00			13.81		
160	620	146.90	0.0111	0.13		5.34		4.04	0.84	0.00			13.28		
170	630	147.05	0.0154	0.14		5.41		4.03	0.81	0.00			12.79		
180	640	147.19	0.0211	0.15		5.49		4.01	0.79	0.00			12.32		
190	650	147.32	0.0286	0.16		5.56		4.00	0.77	0.00			11.88		
200	660	147.44	0.0385	0.17		5.63		3.98	0.75	0.00			11.47		
210	670	147.56	0.0513	0.18		5.70		3.96	0.73	0.00			11.08		
220	680	147.68	0.0677	0.19		5.77		3.95	0.71	0.00			10.71		
230	690	147.79	0.0888	0.20		5.83		3.93	0.69	0.00			10.37		
240	700	147.90	0.1156	0.21		5.89		3.91	0.68	0.00			10.04		
250	710	148.00	0.1494	0.23		5.95		3.90	0.66	0.00			9.73		
260	720	148.10	0.1917	0.24		6.01		3.88	0.65	0.00			9.44		
270	730	148.20	0.2443	0.25		6.06		3.86	0.63	0.00			9.16		
280	740	148.29	0.3094	0.27		6.12		3.85	0.62	0.00			8.89		
290	750	148.39	0.3895	0.28		6.17		3.83	0.60	0.00			8.64		
300	760	148.48	0.4874	0.29		6.22		3.81	0.59	0.00			8.40		
310	770	148.57	0.6064	0.31		6.27		3.79	0.58	0.00			8.18		
320	780	148.66	0.7503	0.32		6.31		3.78	0.57	0.00			7.96		

Koppers016278

NSR

Used Flourene Vapor Pressure data for bal NSR

Process Description	Temp °F	Component	Mean Conc Wt %	Exceed Threshold (Y/N)	MW lb/lb-mole	No Moles	MsubF (Xa)	Liquid MW lb/lb-mole	VPa (psia)	PPa (VP * Xa)	Yi (% by Vol)	Vapor MW lb/lb-mole	Y_w (% by wt.)
Naphthalene	60		**Mixture Total**			**0.6232**	**1.0000**	**160.5**		**0.0002**	**100.0**	**144.9**	**100.0**
Still Residue		Anthracene	6.90	Y	178	0.0388	0.0622	11.07	0.0000	0.0000	0.041	0.0725	0.050
		Benzene		Y	78				1.2225				
		Biphenyl	3.30	Y	154	0.0214	0.0344	5.30	0.0003	0.0000	4.113	6.3337	4.371
		Cresols		Y	108				0.0029				
		Dibenzofuran	5.70	Y	168	0.0339	0.0544	9.15	0.0001	0.0000	3.561	5.9826	4.128
		Naphthalene	0.10	Y	128	0.0008	0.0013	0.16	0.0023	0.0000	1.310	1.6765	1.157
		PACs	0.67	Y	268	0.0025	0.0040	1.08	0.0000	0.0000	0.000	0.0000	0.000
		Phenol		Y	94				0.0035				
		Pyridine		Y	79				0.1082				
		Quinoline	3.00	Y	129	0.0233	0.0373	4.81	0.0014	0.0001	23.120	29.8247	20.581
		Toluene		Y	92				0.3480				
		Xylene		Y	106				0.1020				
		Creosote		Y	175				0.0010				
		Indane		Y	118				0.0427				
		Indene		Y	116				0.0315				
		Methylnaphthalenes	17.40	Y	142	0.1225	0.1966	27.92	0.0005	0.0001	44.498	63.1872	43.604
		Acenaphthene	6.90	Y	154	0.0447	0.0718	11.07	0.0002	0.0000	6.780	10.4548	7.215

Koppers016279

Table 3-5. Storage Tank Working and Standing Losses from Priming and Refractory Oil (UCC) Storage Tanks, Point Air Releases, 1998 SARA 313 Report
Koppers Industries, Inc., Portland Tar Plant, Portland, Oregon

Tank ID	Contents	Throughput (gal)	Temp °F	D (ft)	Hs (ft)	Hl (ft)	V (ft3)	Turn overs	Mv (lb/mol)	Pva (psia)	L_s (lb/yr)	L_w (lb/yr)	Total (lb/yr)	Control (%)	Control Total (lb/yr)	Controlled Anthracene (lb/yr)	Controlled Dibenzofuran (lb/yr)	Controlled Naphthalene (lb/yr)	Controlled PACs (lb/yr)
T-19	UCC	*715*	60	*12.0*	*24.0*	*12.0*	20,303	0.0	*148.90*	*0.0001*	**0.0**	**0.0**	**0.0**		**0.0**	0.0	0.0	0.0	0.0

Koppers016280

UCC Lookup Table

Temp (°F)	Temp (°R)	Vapor MW	VP	% wt in Vapor											
				Anthracene	Benzene	Biphenyl	Cresols	Dibenzofuran	Naphthalene	PACs	Phenol	Pyridine	Quinoline	Toluene	Xylene
50	510	148.85	0.0000	0.31				12.83	4.17	0.00					
60	520	148.90	0.0001	0.35				12.74	3.99	0.00					
70	530	148.95	0.0001	0.39				12.65	3.82	0.00					
80	540	149.01	0.0002	0.43				12.56	3.67	0.00					
90	550	149.07	0.0003	0.47				12.47	3.53	0.00					
100	560	149.13	0.0004	0.52				12.39	3.39	0.00					
110	570	149.19	0.0006	0.57				12.30	3.27	0.00					
120	580	149.25	0.0009	0.62				12.21	3.15	0.00					
130	590	149.32	0.0013	0.67				12.12	3.04	0.00					
140	600	149.39	0.0018	0.72				12.03	2.94	0.00					
150	610	149.46	0.0026	0.78				11.94	2.84	0.00					
160	620	149.53	0.0037	0.84				11.85	2.75	0.00					
170	630	149.61	0.0051	0.90				11.76	2.66	0.00					
180	640	149.70	0.0070	0.96				11.67	2.57	0.00					
190	650	149.79	0.0095	1.03				11.58	2.50	0.00					
200	660	149.88	0.0128	1.09				11.49	2.42	0.00					

Koppers016281

UCC

Used Phenanthrene Vapor Pressure data for bal UCC

Process Description	Temp °F	Component	Mean Conc Wt %	Exceed Threshold (Y/N)	MW lb/lb-mole	No Moles	MsubF (Xa)	Liquid MW lb/lb-mole	VPa (psia)	PPa (VP * Xa)	Yi (% by Vol)	Vapor MW lb/lb-mole	Y_w (% by wt.)
UCC	60	**Mixture Total**				**0.5696**	**1.0000**	**175.6**		**0.0001**	**100.0**	**148.9**	**100.0**
		Anthracene	14.00	Y	178	0.0787	0.1381	24.58	0.0000	0.0000	0.293	0.5215	0.350
		Benzene		Y	78				1.2225				
		Biphenyl		Y	154				0.0003				
		Cresols		Y	108				0.0029				
		Dibenzofuran	5.10	Y	168	0.0304	0.0533	8.95	0.0001	0.0000	11.291	18.9688	12.739
		Naphthalene	0.10	Y	128	0.0008	0.0014	0.18	0.0023	0.0000	4.641	5.9409	3.990
		PACs	5.41	Y	268	0.0202	0.0354	9.50	0.0000	0.0000	0.000	0.0000	0.000
		Phenol		Y	94				0.0035				
		Pyridine		Y	79				0.1082				
		Quinoline		Y	129				0.0014				
		Toluene		Y	92				0.3480				
		Xylene		Y	106				0.1020				
		Creosote		Y	175				0.0010				
		Indane		Y	118				0.0427				
		Indene		Y	116				0.0315				
		Methylnaphthalen	5.90	Y	142	0.0415	0.0729	10.36	0.0005	0.0000	53.469	75.9258	50.991
		Acenaphthene	7.00	Y	154	0.0454	0.0797	12.29	0.0002	0.0000	24.373	37.5858	25.242
		Flourene	4.00	Y	166	0.0241	0.0422	7.02	0.0001	0.0000	4.572	7.5993	5.104
		Phenanthrene	2.50	Y	178	0.0140	0.0246	4.39	0.0000	0.0000	0.055	0.0983	0.066
		Carbazole	1.90	Y	167	0.0114	0.0199	3.34	0.0000	0.0000	0.272	0.4541	0.305
		Flouranthene	5.00	Y	202	0.0248	0.0435	8.78	0.0000	0.0000	0.000	0.0010	0.001
		Pyrene	4.50	Y	202	0.0223	0.0391	7.90	0.0000	0.0000	0.026	0.0523	0.035
		Balance UCC	44.59	Y	174	0.2563	0.4499	78.28	0.0000	0.0000	1.008	1.7536	1.178

Koppers016282

Table 3-6. Storage Tank Working and Standing Losses from Refined Tar Storage Tanks, Point Air Releases, 1998 SARA 313 Report
Koppers Industries, Inc., Portland Tar Plant, Portland, Oregon

Tank ID	Contents	Throughput (gal)	Temp °F	D (ft)	Hs (ft)	Hl (ft)	V (ft3)	Turn overs	Mv (lb/mol)	Pva (psia)	L_s (lb/yr)	L_w (lb/yr)	Total (lb/yr)	Control (%)	Control Total (lb/yr)		Controlled Anthracene (lb/yr)	Controlled Dibenzofuran (lb/yr)	Controlled Naphthalene (lb/yr)	Controlled PACs (lb/yr)
Railcars	RT	*95,408*	190	*17.2*	*17.2*	*8.6*	29,894	3.2	*142.33*	*0.0064*	2.2	2.1	4.3		4.3		0.0		1.4	0.0

Koppers016283

Refined Tar Lookup Table				% wt in Vapor											
Temp (°F)	Temp (°R)	Vapor MW	VP	Anthracene	Benzene	Bipheny	Cresols	Dibenzofuran	Naphthalene	PACs	Phenol	Pyridine	Quinoline	Toluene	Xylene
160	620	141.03	0.0025	0.21					34.62	0.00					
170	630	141.45	0.0035	0.23					33.76	0.00					
180	640	141.88	0.0047	0.25					32.91	0.00					
190	650	142.33	0.0064	0.26					32.09	0.00					
200	660	142.79	0.0086	0.28					31.29	0.00					
210	670	143.28	0.0114	0.30					30.51	0.00					
220	680	143.78	0.0150	0.32					29.75	0.00					
230	690	144.30	0.0197	0.34					29.01	0.00					
240	700	144.84	0.0256	0.36					28.27	0.00					
250	710	145.41	0.0330	0.38					27.55	0.00					
260	720	146.01	0.0423	0.40					26.85	0.00					
270	730	146.63	0.0539	0.42					26.15	0.00					
280	740	147.29	0.0683	0.44					25.45	0.00					
290	750	147.98	0.0861	0.46					24.77	0.00					
300	760	148.70	0.1079	0.48					24.08	0.00					
310	770	149.47	0.1347	0.50					23.40	0.00					
320	780	150.28	0.1674	0.52					22.71	0.00					
330	790	151.14	0.2071	0.54					22.03	0.00					
340	800	152.05	0.2552	0.56					21.34	0.00					
350	810	153.01	0.3135	0.57					20.64	0.01					
360	820	154.04	0.3839	0.59					19.93	0.01					
370	830	155.12	0.4686	0.60					19.22	0.01					
380	840	156.27	0.5706	0.61					18.50	0.02					
390	850	157.48	0.6932	0.62					17.77	0.03					
400	860	158.76	0.8406	0.63					17.04	0.04					
410	870	160.10	1.0175	0.64					16.29	0.05					
420	880	161.51	1.2299	0.64					15.54	0.07					

Koppers016284

RT

Used Pyrene Vapor Pressure data for bal RT

Process Description	Temp °F	Component	Mean Conc Wt %	Exceed Threshold (Y/N)	MW lb/lb-mole	No Moles	MsubF (Xa)	Liquid MW lb/lb-mole	VPa (psia)	PPa (VP * Xa)	Yi (% by Vol)	Vapor MW lb/lb-mole	Y_w (% by wt.)
Refined or	190		**Mixture Total**			**0.4006**	**1.0000**	**249.6380**		**0.0064**	**100.0**	**142.3**	**100.0**
Top		Anthracene	1.62	Y	178	0.0091	0.0227	4.04	0.0006	0.0000	0.211	0.3751	0.264
Tar		Benzene		Y	78				18.4022				
		Biphenyl		Y	154				0.0443				
		Cresols		Y	108				0.2407				
		Dibenzofuran		Y	168				0.0184				
		Naphthalene	0.58	Y	128	0.0045	0.0113	1.45	0.2024	0.0023	35.686	45.6776	32.093
		PACs	7.08	Y	268	0.0264	0.0658	17.66	0.0000	0.0000	0.000	0.0000	0.000
		Phenol		Y	94				0.4351				
		Pyridine		Y	79				3.2186				
		Quinoline		Y	129				0.1040				
		Toluene		Y	92				7.2691				
		Xylene		Y	106				3.0086				
		Creosote		Y	175				0.0828				
		Indane		Y	118				0.9634				
		Indene		Y	116				0.7682				
		Methylnaphthalenes	2.58	Y	142	0.0182	0.0454	6.44	0.0718	0.0033	50.756	72.0732	50.639
		Acenaphthene	1.09	Y	154	0.0071	0.0176	2.72	0.0257	0.0005	7.080	10.9185	7.671
		Flourene	1.03	Y	166	0.0062	0.0155	2.57	0.0120	0.0002	2.886	4.7969	3.370
		Phenanthrene	5.04	Y	178	0.0283	0.0706	12.58	0.0007	0.0000	0.743	1.3245	0.931
		Carbazole		Y	167				0.0019				
		Flouranthene	4.24	Y	202	0.0210	0.0524	10.58	0.0001	0.0000	0.102	0.2054	0.144
		Pyrene	3.53	Y	202	0.0175	0.0436	8.81	0.0002	0.0000	0.158	0.3200	0.225
		Balance RT	73.21	Y	279	0.2624	0.6551	182.77	0.00023	0.0002	2.379	6.6364	4.663

Koppers016285

ATTACHMENT 4

COMPANY SUPPLIED DATA

MAY 2 5 1999

KOPPERS INDUSTRIES

INTEROFFICE CORRESPONDENCE

TO: Traci Self (K-1800)
Jill Merrill (ACCI)

FROM: Carl Mueller

SUBJECT: Stickney Creosote VOC Emissions for Portland

DATE: May 25, 1999

The attached is the simulation results for the Portland Pitch fume recovery system for 1998 using Stickney creosote. As we have discussed, I have only one analysis of creosote from 1998, so I used the 1999 average based on 5 samples from Stickney. There is no reason to believe that on an annual basis, the average composition would significantly change.

There are four streams listed: Creosote, Pitch Fumes, Vap Totalizr, and Circulation.
- Creosote is the average creosote analysis.
- Pitch Fumes are the pitch fumes entering the system.
- Vap Totalizr is the total vapors emitted after 720 hours of batch operation.
- Circulation is the circulation stream after 720 hours of batch operation.

A temperature of 170F was used based on information from Amos Kamerer.

All the components highlighted in yellow are those quantified by Rachel Carlson. These numbers are real. The remainder were inserted to make-up unidentified components and to make-up the unknown percentage beyond the GC column's capability for vapor pressure and viscosity calculations.

Any questions....please call.

Carl Mueller

Koppers016287

Stream No.	7	2	20	6
Stream Name	Creosote	Pitch Fumes	Vap Totalizr	Circulation
Temp F	170.0000*	400.0000*	169.9712	169.9645*
Pres psia	14.7000*	14.7000*	14.7000	14.7000*
Enth MMBtu/h	12.133	0.011446	2.0607	16.458
Vapor mole fraction	0.00000	0.00000	0.00000	0.00000
Total lbmol/h	197.3187	0.0943	48.6784	216.7184
Total lb/h	39410.9023	24.7000	6771.7295	50451.8711
Total std L gpm	67.8665	0.0471	12.8635	88.9612
Total std V scfh	74878.24	35.77	18472.39	82240.02
Component mass %				
Air	0.000000	0.000000	0.000000	0.000076
Benzene	0.010000	0.000000	0.058406	0.000000
Thiophene	0.000000	0.000000	0.000000	0.000000
Pyridine	0.000000	0.000000	0.000000	0.000000
Toluene	0.010000	0.000000	0.058480	0.000000
Ethylbenzene	0.020000	0.000000	0.117045	0.000000
M-Xylene	0.010000	0.000000	0.058526	0.000000
P-Xylene	0.010000	0.000000	0.058525	0.000000
Styrene	0.010000	0.000000	0.058534	0.000000
O-Xylene	0.010000	0.000000	0.058531	0.000000
1,2,3-Trimethybz	0.030000	0.000000	0.175606	0.000000
Coumarone	0.080000	0.000000	0.468284	0.000003
2,3,5-Collidine	0.040000	0.000000	0.233906	0.000022
P-Cresol	0.060000	0.000000	0.323463	0.003668
M-Cresol	0.060000	0.000000	0.326287	0.003290
O-Cresol	0.000000	0.000000	0.000018	0.000000
4-Methylindene	0.130000	0.000000	0.744741	0.002051
Diphenyl	0.610000	0.000000	1.550603	0.269161
Phenol	0.030000	0.000000	0.175358	0.000030
Indan	0.200000	0.000000	1.170591	0.000000
Indene	0.370000	0.000000	2.165686	0.000004
Naphthalene	8.329999	0.010000	46.617985	0.280762
Benzothiophene	0.190000	0.000000	1.045949	0.008633
Quinoline	0.480000	0.000000	1.950891	0.114145
Isoquinoline (methyl)	0.110000	0.000000	0.432801	0.028055
2-MthNaphthalene	2.770000	0.010000	11.111248	0.681734
1-Methylindan	0.000000	0.000000	0.000001	0.000000
3-Methylindene	0.000000	0.000000	0.000016	0.000000
2-Methylbenzo[b]thiophene	0.090000	0.000000	0.306143	0.029370
1-MthNaphthalene (methyl)	1.080000	0.010000	4.242915	0.279800
1-ethylnaphthale	0.490000	0.000000	1.123262	0.232558
5-Methylquinoli	0.490000	0.000000	0.710760	0.287732
2,6-Dimethnaph	0.000000	0.000000	0.001594	0.000108
1,6-Dimethnapth	0.000000	0.000000	0.002154	0.000155
1,2-Dimethnaph	0.490000	0.000000	0.772720	0.279439
1,4-Dimethnaph	0.000000	0.000000	0.000871	0.000068
2,3-Dimethnapth	0.000000	0.000000	0.000805	0.000065
Acenaphthylene	0.200000	0.180000	0.253742	0.185747
Acenaphthene	4.580000	0.610000	7.020696	2.853863
4-Phenylpyridin	0.410000	0.000000	0.324876	0.276838
1,2,6-methnaph	0.310000	0.000000	0.283846	0.204208
1,2,7-methnaph	0.000000	0.000000	0.000189	0.000018
1,3,6-methnaph	0.000000	0.000000	0.000210	0.000021
1,3,7-methnaph	0.000000	0.000000	0.000198	0.000019
Dibenzofuran	2.220000	0.000000	5.789842	0.959566
Fluorene	3.360001	0.010000	2.139450	2.342148
4-methylbiphenyl	0.930000	0.000000	1.399856	0.539287

?-Fluorenol	0.930000	0.000000	0.015458	0.724419
nthene	0.930000	0.000000	0.111516	0.711575
4-Methdibenzfur	0.000000	0.000000	0.000154	0.000019
3-Methdibenzfur	0.000000	0.000000	0.000118	0.000015
2-Methdibenzfur	0.000000	0.000000	0.000110	0.000014
4,6-Dimethdibzf	0.000000	0.000000	0.000065	0.000008
3-Methylfluoren	0.000000	0.000000	0.000099	0.000013
2-Methylfluoren	0.000000	0.000000	0.000089	0.000011
1-Methylfluoren	0.000000	0.000000	0.000089	0.000011
Dibenzothiophene	0.760000	0.000000	0.106895	0.579391
Diphenylene Sulf	0.000000	0.000000	0.000116	0.000015
Phenanthrene	11.160001	0.610000	1.609866	8.717450
Anthracene	2.800000	0.300000	0.429003	2.235655
Benzo(c)quinoli	0.000000	0.000000	0.000010	0.000001
Dibenzopyrrole	1.970000	0.080000	0.082796	1.556041
1-methylanthrace	1.110000	0.000000	0.033964	0.862549
Cyclopentaphnanthrene	2.300000	0.250000	0.063518	1.876345
2-Methphenanthr	0.000000	0.000000	0.000017	0.000002
1-Methphenanthr	1.110000	0.000000	0.024564	0.863805
Fluoranthene	8.299998	6.539000	0.356370	8.741087
Pyrene	6.079999	6.649999	0.092894	7.081061
11H-Benzo(a)fluorene	0.920000	0.000000	0.001137	0.718504
11H-Benzo(b)fluorene	1.610000	1.270000	0.003039	1.704923
Benzo(a)fluoren	0.000000	0.000000	0.000000	0.000000
2-Methylpyrene	1.300000	0.000000	0.001191	1.015333
1-Methylpyrene	1.300000	0.000000	0.001179	1.015340
rysene	1.630000	5.850000	0.001366	3.335198
enz(a)anthracene	1.400000	5.309000	0.000768	2.964941
Benzonaphthothio	0.000000	0.650000	0.000044	0.229119
Triphenylene	0.000000	1.730000	0.000615	0.609735
Bz(b)fluoranthe	0.760000	9.890001	3.725735	3.581356
Bz(j)fluoranthe	0.760000	9.890001	0.000032	4.079940
Bz(k)fluoranthe	0.760000	9.890001	0.000032	4.079940
Benzoperylene	0.170000	2.150000	0.000001	0.890675
Benzonaphthacen	0.000000	0.000000	0.000000	0.000000
Picene	0.000000	0.000000	0.000000	0.000000
Coronene	0.000000	0.000000	0.000000	0.000000
Indeno[123cd]pyrene	0.120000	0.000000	0.000000	0.093736
Very Heavy Tar	0.000000	16.271999	0.000000	5.736047
Truxene	0.000000	0.000000	0.000001	0.000000
Benzo(a)pyrene	0.390000	2.740000	0.000043	1.270488
Benzo(b)chrysene	0.000000	5.719999	0.000033	2.016310
Dibenz(a,h)anthracene	0.040000	4.760000	0.000068	1.709107
Benzo(c)fluoren	0.000000	0.930000	0.000267	0.327790
Benzo(c)phenanthracene	0.000000	1.170000	0.001062	0.412280
Dibenzo(a,h)pyrn	0.000000	2.050000	0.000006	0.722635
Dibenzo(a,i)pyrn	0.000000	2.050000	0.000006	0.722635
Benzo(e)pyrene	0.370000	2.420000	0.000044	1.142059
Tar_C30H18	5.700000	0.000000	0.000000	4.452451
Tar_C38H22	5.700000	0.000000	0.000000	4.452464
Tar_C28H16	5.700000	0.000000	0.000007	4.452422
ar_C38H16	5.700000	0.000000	0.000000	4.452439

Stream No.	7	2	20	6
Stream Name	Creosote	Pitch Fumes	Vap Totalizr	Circulation
Temp F	170.0000*	400.0000*	169.9712	169.9645*
Pres psia	14.7000*	14.7000*	14.7000	14.7000*
Enth MMBtu/h	12.133	0.011446	2.0607	16.458
Vapor mole fraction	0.00000	0.00000	0.00000	0.00000
Total lbmol/h	197.3187	0.0943	48.6784	216.7184
Total lb/h	39410.9023	24.7000	6771.7295	50451.8711
Total std L gpm	67.8665	0.0471	12.8635	88.9612
Total std V scfh	74878.24	35.77	18472.39	82240.02
Flowrates in lb/h				
Air	0.0000	0.0000	0.0000	0.0384
Benzene	3.9411	0.0000	3.9551	0.0000
Thiophene	0.0000	0.0000	0.0000	0.0000
Pyridine	0.0000	0.0000	0.0000	0.0000
Toluene	3.9411	0.0000	3.9601	0.0000
Ethylbenzene	7.8822	0.0000	7.9260	0.0000
M-Xylene	3.9411	0.0000	3.9632	0.0000
P-Xylene	3.9411	0.0000	3.9631	0.0000
Styrene	3.9411	0.0000	3.9638	0.0000
O-Xylene	3.9411	0.0000	3.9636	0.0000
1,2,3-Trimethybz	11.8233	0.0000	11.8915	0.0001
Coumarone	31.5287	0.0000	31.7109	0.0017
2,3,5-Collidine	15.7644	0.0000	15.8395	0.0112
P-Cresol	23.6465	0.0000	21.9040	1.8504
M-Cresol	23.6465	0.0000	22.0952	1.6601
O-Cresol	0.0000	0.0000	0.0013	0.0000
4-Methylindene	51.2342	0.0000	50.4319	1.0349
Diphenyl	240.4065	0.0000	105.0027	135.7970
Phenol	11.8233	0.0000	11.8747	0.0152
Indan	78.8218	0.0000	79.2693	0.0002
Indene	145.8203	0.0000	146.6544	0.0022
Naphthalene	3282.9280	0.0025	3156.8438	141.6497
Benzothiophene	74.8807	0.0000	70.8288	4.3553
Quinoline	189.1723	0.0000	132.1090	57.5883
Isoquinoline	43.3520	0.0000	29.3081	14.1542
2-MthNaphthalene	1091.6819	0.0025	752.4236	343.9475
1-Methylindan	0.0000	0.0000	0.0000	0.0000
3-Methylindene	0.0000	0.0000	0.0011	0.0000
2-Methylbenzo[b] Thiophene	35.4698	0.0000	20.7312	14.8175
1-MthNaphthalene	425.6378	0.0025	287.3188	141.1646
1-ethylnaphthale	193.1134	0.0000	76.0642	117.3298
5-Methylquinoli	193.1134	0.0000	48.1307	145.1663
2,6-Dimethnaph	0.0000	0.0000	0.1080	0.0544
1,6-Dimethnapth	0.0000	0.0000	0.1459	0.0781
1,2-Dimethnaph	193.1134	0.0000	52.3265	140.9824
1,4-Dimethnaph	0.0000	0.0000	0.0590	0.0342
2,3-Dimethnapth	0.0000	0.0000	0.0545	0.0330
Acenaphthylene	78.8218	0.0445	17.1827	93.7127
Acenaphthene	1805.0194	0.1507	475.4225	1439.8274
4-Phenylpyridin	161.5847	0.0000	21.9997	139.6698
,2,6-methnaph	122.1738	0.0000	19.2213	103.0265
1,2,7-methnaph	0.0000	0.0000	0.0128	0.0091
1,3,6-methnaph	0.0000	0.0000	0.0142	0.0104
1,3,7-methnaph	0.0000	0.0000	0.0134	0.0098
Dibenzofuran	874.9220	0.0000	392.0724	484.1188
Fluorene	1324.2065	0.0025	144.8778	1181.6576
4-methylbiphenyl	366.5214	0.0000	94.7944	272.0803

2-Fluorenol	366.5214	0.0000	1.0468	365.4830
Xanthene	366.5214	0.0000	7.5516	359.0029
.-Methdibenzfur	0.0000	0.0000	0.0105	0.0096
3-Methdibenzfur	0.0000	0.0000	0.0080	0.0075
2-Methdibenzfur	0.0000	0.0000	0.0074	0.0070
4,6-Dimethdibzf	0.0000	0.0000	0.0044	0.0042
3-Methylfluoren	0.0000	0.0000	0.0067	0.0064
2-Methylfluoren	0.0000	0.0000	0.0061	0.0058
1-Methylfluoren	0.0000	0.0000	0.0060	0.0057
Dibenzothiophene	299.5229	0.0000	7.2386	292.3137
Diphenylene Sulf	0.0000	0.0000	0.0079	0.0074
Phenanthrene	4398.2573	0.1507	109.0158	4398.1172
Anthracene	1103.5052	0.0741	29.0509	1127.9301
Benzo(c)quinoli	0.0000	0.0000	0.0007	0.0007
Dibenzopyrrole	776.3948	0.0198	5.6067	785.0518
1-methylanthrace	437.4610	0.0000	2.2999	435.1722
Cyclopentaphnanthrene	906.4509	0.0617	4.3012	946.6511
2-Methphenanthr	0.0000	0.0000	0.0012	0.0012
1-Methphenanthr	437.4610	0.0000	1.6634	435.8057
Fluoranthene	3271.1042	1.6151	24.1324	4410.0420
Pyrene	2396.1826	1.6425	6.2905	3572.5276
11H-Benzo(a)fluorene	362.5803	0.0000	0.0770	362.4989
11H-Benzo(b)fluorene	634.5155	0.3137	0.2058	860.1653
Benzo(a)fluoren	0.0000	0.0000	0.0000	0.0000
2-Methylpyrene	512.3417	0.0000	0.0807	512.2546
1-Methylpyrene	512.3417	0.0000	0.0799	512.2578
Chrysene	642.3976	1.4450	0.0925	1682.6698
enz(a)anthracene	551.7527	1.3113	0.0520	1495.8682
Benzonaphthothio	0.0000	0.1605	0.0030	115.5949
Triphenylene	0.0000	0.4273	0.0416	307.6230
Bz(b)fluoranthe	299.5229	2.4428	252.2967	1806.8613
Bz(j)fluoranthe	299.5229	2.4428	0.0022	2058.4060
Bz(k)fluoranthe	299.5229	2.4428	0.0022	2058.4060
Benzoperylene	66.9985	0.5311	0.0001	449.3622
Benzonaphthacen	0.0000	0.0000	0.0000	0.0000
Picene	0.0000	0.0000	0.0000	0.0000
Coronene	0.0000	0.0000	0.0000	0.0000
Indeno[123cd]pyrene	47.2931	0.0000	0.0000	47.2915
Very Heavy Tar	0.0000	4.0192	0.0000	2893.9429
Truxene	0.0000	0.0000	0.0001	0.0001
Benzo(a)pyrene	153.7025	0.6768	0.0029	640.9848
Benzo(b)chrysene	0.0000	1.4128	0.0023	1017.2661
Dibenz(a,h)anthracene	15.7644	1.1757	0.0046	862.2765
Benzo(c)fluoren	0.0000	0.2297	0.0181	165.3763
Benzo(c)phenanth	0.0000	0.2890	0.0719	208.0032
Dibenzo(a,h)pyrn	0.0000	0.5063	0.0004	364.5829
Dibenzo(a,i)pyrn	0.0000	0.5063	0.0004	364.5829
Benzo(e)pyrene	145.8204	0.5977	0.0030	576.1901
Tar_C30H18	2246.4216	0.0000	0.0000	2246.3450
Tar_C38H22	2246.4216	0.0000	0.0000	2246.3516
Tar_C28H16	2246.4214	0.0000	0.0005	2246.3303
Tar_C38H16	2246.4214	0.0000	0.0000	2246.3389

PERMITTEE NAME / ADDRESS (Include Facility Name/Location if Different)

NAME KO. S INDUSTRIES INC.

ADDRESS 7540 NW ST HELENS RD
PORTLAND, OR 97210

FACILITY MW TERMINAL

LOCATION MULTNOMAH CO.

NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES) DISCHARGE MONITORING REPORT (DMR)

PERMIT NUMBER (4-16)	DISCHARGE NUMBER (17-19)
101003	001

3077-J
47430

Form Approved.
OMB No. 2040-0004
Approval expires 05-31-9

MONITORING PERIOD

	YEAR	MO	DAY		YEAR	MO	DAY
FROM	98	01	01	TO	98	01	31
	(20-21)	(22-23)	(24-25)		(26-27)	(28-29)	(30-31)

NOTE: Read instructions before completing this form.

PARAMETER (32-37)		(3 Card Only) QUANTITY OR LOADING (46-53) AVERAGE	(54-61) MAXIMUM	UNITS	(4 Card Only) QUANTITY OR CONCENTRATION (38-45) MINIMUM	(46-53) AVERAGE	(54-61) MAXIMUM	UNITS	NO. EX (62-63)	FREQUENCY OF ANALYSIS (64-68)	SAMP TYP (69-7
FLOW	SAMPLE MEASUREMENT	21290		GPD					0	N/A	EST.
	PERMIT REQUIREMENT										
TEMP	SAMPLE MEASUREMENT				38	45	56	°F	0	1/7	GRAI
	PERMIT REQUIREMENT				N/A	N/A	N/A				
pH	SAMPLE MEASUREMENT				6.9	7.0	7.0	SU	0	1/7	GRAI
	PERMIT REQUIREMENT				6.0	—	9.0				
OIL & GREASE	SAMPLE MEASUREMENT				N.D.	2.1	4.2	mg/L	0	1/7	GRAI
	PERMIT REQUIREMENT				0	10	15				
PHENOLS	SAMPLE MEASUREMENT				.15	.15	.15	mg/L	0	1/30	GRAI
	PERMIT REQUIREMENT										
	SAMPLE MEASUREMENT										
	PERMIT REQUIREMENT										
	SAMPLE MEASUREMENT										
	PERMIT REQUIREMENT										

NAME/TITLE PRINCIPAL EXECUTIVE OFFICER			TELEPHONE		DATE		
R.D.COLLINS, VP	I CERTIFY UNDER PENALTY OF LAW THAT I HAVE PERSONALLY EXAMINED AND AM FAMILIAR WITH THE INFORMATION SUBMITTED HEREIN; AND BASED ON MY INQUIRY OF THOSE INDIVIDUALS IMMEDIATELY RESPONSIBLE FOR OBTAINING THE INFORMATION, I BELIEVE THE SUBMITTED INFORMATION IS TRUE, ACCURATE AND COMPLETE. I AM AWARE THAT THERE ARE SIGNIFICANT PENALTIES FOR SUBMITTING FALSE INFORMATION, INCLUDING THE POSSIBILITY OF FINE AND IMPRISONMENT. SEE 18 U.S.C. § 1001 AND 33 U.S.C. § 1319. (Penalties under these statutes may include fines up to $10,000 and or maximum imprisonment of between 6 months and 5 years.)	AMOS S. KAMERER, PLT. MGR	503 286 3681	98	02	10
TYPED OR PRINTED		SIGNATURE OF PRINCIPAL EXECUTIVE OFFICER OR AUTHORIZED AGENT	AREA CODE NUMBER	YEAR	MO	DA

COMMENTS AND EXPLANATION OF ANY VIOLATIONS (Reference all attachments here)

FIRST QUARTER PAH RESULTS ARE ATTACHED

EPA Form 3320-1 (08-95) Previous editions may be used. (REPLACES EPA FORM T-40 WHICH MAY NOT BE USED.)

cc: J. Holtrop-City of Portland W.E. Swearingen-KII

Koppers016292

FROM :KOPPERS ENVIRO/LEGAL 412 227 2423 1998,04-24 10:31 #762 P.01/01

KOPPERS INDUSTRIES INC

7540 NW ST HELENS RD
PORTLAND, OR 97210

NW TERMINAL
[illegible] KOPPERS CO.

NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES)
DISCHARGE MONITORING REPORT (DMR)

Form Approved.
OMB No. 2040-0004
Approval expires 05-31-98

PERMIT NUMBER	DISCHARGE NUMBER
101003	001

3077-J

47430

MONITORING PERIOD

	YEAR	MO	DAY		YEAR	MO	DAY
FROM	98	02	01	TO	98	02	28

NOTE: Read instructions before completing this form.

PARAMETER		QUANTITY OR LOADING			QUANTITY OR CONCENTRATION				NO. EX	FREQUENCY OF ANALYSIS	SAMPLE TYPE
		AVERAGE	MAXIMUM	UNITS	MINIMUM	AVERAGE	MAXIMUM	UNITS			
OW	SAMPLE MEASUREMENT	31,420		GPD					0	N/A	EST
	PERMIT REQUIREMENT										
TEMP.	SAMPLE MEASUREMENT				49	52	57	DF	0	1/7	GRAB
	PERMIT REQUIREMENT				N/A	N/A	N/A				
pH	SAMPLE MEASUREMENT				6.8	7.0	7.1	SU	0	1/7	GRAB
	PERMIT REQUIREMENT				6.0		9.0				
OIL & GREASE	SAMPLE MEASUREMENT				2.1	3.3	4.4	mg/L	0	1/7	GRAB
	PERMIT REQUIREMENT				0	10	15				
PHENOLS	SAMPLE MEASUREMENT				.05	.05	.05	mg/L	0	1/30	GRAB
	PERMIT REQUIREMENT				N/A	5	7				
	SAMPLE MEASUREMENT										
	PERMIT REQUIREMENT										
	SAMPLE MEASUREMENT										
	PERMIT REQUIREMENT										

NAME AND OFFICIAL TITLE OF PRINCIPAL EXECUTIVE OFFICER

R.D. COLLINS, V.P.

TYPED OR PRINTED

I CERTIFY UNDER PENALTY OF LAW THAT I HAVE PERSONALLY EXAMINED AND AM FAMILIAR WITH THE INFORMATION SUBMITTED IN THIS AND BASED ON MY INQUIRY OF THOSE INDIVIDUALS IMMEDIATELY RESPONSIBLE FOR OBTAINING THE INFORMATION, I BELIEVE THE SUBMITTED INFORMATION IS TRUE, ACCURATE AND COMPLETE. I AM AWARE THAT THERE ARE SIGNIFICANT PENALTIES FOR SUBMITTING FALSE INFORMATION, INCLUDING THE POSSIBILITY OF FINE AND IMPRISONMENT. SEE 18 U.S.C. § 1001 AND 33 U.S.C. § 1319. (Penalties under these statutes may include fines up to $10,000 and/or maximum imprisonment of between 6 months and 5 years)

DAVID E. KAMERER, PLT MGR

SIGNATURE OF PRINCIPAL EXECUTIVE OFFICER OR AUTHORIZED AGENT

TELEPHONE

AREA CODE	NUMBER
503	286 3681

DATE

YEAR	MO	DAY
98	03	02

NTS AND EXPLANATION OF ANY VIOLATIONS (Reference all attachments here)

EPA 3320-1 (REV. 9-85) Previous editions may be used. (REPLACES EPA FORM T-40 WHICH MAY NOT BE USED.)

CC: JOHN HOLTROP-CITY OF PORTLAND N.E.SNARENGEN-KII

PAGE 1 OF 1

Koppers016293

PERMITTEE NAME/ADDRESS (Include Facility Name/Location (If Different))
NAME Kopper[illegible]dustries, Inc.
ADDRESS 7540 [illegible] St Helens Road
Portland, OR 97210

FACILITY NW Terminal
LOCATION Multnomah County

NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES)
DISCHARGE MONITORING REPORT (DMR)

101003	001
PERMIT NUMBER (2-10)	DISCHARGE NUMBER (17-19)

MONITORING PERIOD	YEAR	MO	DAY		YEAR	MO	DAY
FROM	98	03	01	TO	98	03	31
	(20-21)	(22-23)	(24-25)		(26-27)	(28-29)	(30-31)

Form A[illegible]ved.
OMB N[illegible] 40-0004
Approval expires 05-31-98

NOTE: Read Instructions before completing this form.

PARAMETER (32-37)		(3 Card Only) QUANTITY OR LOADING (46-53) AVERAGE	(54-61) MAXIMUM	UNITS	(4 Card Only) QUANTITY OR CONCENTRATION (38-45) MINIMUM	(46-53) AVERAGE	(54-61) MAXIMUM	UNITS	NO. EX (62-63)	FREQUENCY OF ANALYSIS (64-68)	SAMPLE TYPE (69-70)
Flow	SAMPLE MEASUREMENT	21,290		GPD							EST.
	PERMIT REQUIREMENT										
Temp.	SAMPLE MEASUREMENT				52	55	58	°F			GRAB
	PERMIT REQUIREMENT				N/A	N/A	N/A				
pH	SAMPLE MEASUREMENT				6.9	7.0	7.1	SU			GRAB
	PERMIT REQUIREMENT				6.0		9.0				
Oil & Grease	SAMPLE MEASUREMENT				2.5	3.8	4.1	MG/L			GRAB
	PERMIT REQUIREMENT				0	10	15				
Phenols	SAMPLE MEASUREMENT				.13	.13	.13	MG/L			GRAB
	PERMIT REQUIREMENT				0	.5	.7				
	SAMPLE MEASUREMENT										
	PERMIT REQUIREMENT										
	SAMPLE MEASUREMENT										
	PERMIT REQUIREMENT										

NAME/TITLE PRINCIPAL EXECUTIVE OFFICER			TELEPHONE		DATE		
R.D. Collins, V.P.	I CERTIFY UNDER PENALTY OF LAW THAT I HAVE PERSONALLY EXAMINED AND AM FAMILIAR WITH THE INFORMATION SUBMITTED HEREIN; AND BASED ON MY INQUIRY OF THOSE INDIVIDUALS IMMEDIATELY RESPONSIBLE FOR OBTAINING THE INFORMATION, I BELIEVE THE SUBMITTED INFORMATION IS TRUE, ACCURATE AND COMPLETE. I AM AWARE THAT THERE ARE SIGNIFICANT PENALTIES FOR SUBMITTING FALSE INFORMATION, INCLUDING THE POSSIBILITY OF FINE AND IMPRISONMENT. SEE 18 U.S.C. § 1001 AND 33 U.S.C. § 1319. (Penalties under these statutes may include fines up to $10,000 and or maximum imprisonment of between 6 months and 5 years.)	Amos E. Kamerer, PLT MGR	503	286-3681	98	04	23
TYPED OR PRINTED		SIGNATURE OF PRINCIPAL EXECUTIVE OFFICER OR AUTHORIZED AGENT	AREA CODE	NUMBER	YEAR	MO	DAY

COMMENTS AND EXPLANATION OF ANY VIOLATIONS (Reference all attachments here)

Koppers016294

cc: J. Woltron - City of Portland, T.I. Self - KTI

PERMITTEE NAME/ADDRESS (Include Facility Name/Location (If Different)
NAME Kopp[illegible] Industries, Inc.
ADDRESS 7540 NW St Helens Road
Portland, OR 97210

FACILITY NW Terminal
LOCATION Multnomah County

NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES)
DISCHARGE MONITORING REPORT (DMR)

PERMIT NUMBER (2-10)	DISCHARGE NUMBER (17-19)
101003	001

MONITORING PERIOD	YEAR	MO	DAY		YEAR	MO	DAY
FROM	98	04	01	TO	98	04	30
	(20-21)	(22-23)	(24-25)		(26-27)	(28-29)	(30-31)

file copy

Form Approved.
OMB No. 2040-0004
Approval expires 05-31-9

NOTE: Read instructions before completing this form.

PARAMETER (32-37)		(3 Card Only) QUANTITY OR LOADING (46-53) AVERAGE	(54-61) MAXIMUM	UNITS	(4 Card Only) QUANTITY OR CONCENTRATION (38-45) MINIMUM	(46-53) AVERAGE	(54-61) MAXIMUM	UNITS	NO. EX (62-63)	FREQUENCY OF ANALYSIS (64-68)	SAMPLE TYPE (69-70)
Flow	SAMPLE MEASUREMENT	7,333		GPD					0	N/A	EST.
	PERMIT REQUIREMENT										
Temp.	SAMPLE MEASUREMENT				58	59	59	°F	0	1/7	GRAB
	PERMIT REQUIREMENT				N/A	N/A	N/A				
pH	SAMPLE MEASUREMENT				6.8	6.9	6.9	SU	0	1/7	GRAB
	PERMIT REQUIREMENT				6.0		9.0				
Oil & Grease	SAMPLE MEASUREMENT				5.4	5.4	5.4	MG/L	0	1/70	GRAB
	PERMIT REQUIREMENT				0	10	15				
Phenols	SAMPLE MEASUREMENT				.05	.05	.05	MG/L	0	1/30	GRAB
	PERMIT REQUIREMENT				0	.5	.7				
	SAMPLE MEASUREMENT										
	PERMIT REQUIREMENT										
	SAMPLE MEASUREMENT										
	PERMIT REQUIREMENT										

NAME/TITLE PRINCIPAL EXECUTIVE OFFICER			TELEPHONE		DATE		
R.D. Collins, V.P.	I CERTIFY UNDER PENALTY OF LAW THAT I HAVE PERSONALLY EXAMINED AND AM FAMILIAR WITH THE INFORMATION SUBMITTED HEREIN; AND BASED ON MY INQUIRY OF THOSE INDIVIDUALS IMMEDIATELY RESPONSIBLE FOR OBTAINING THE INFORMATION, I BELIEVE THE SUBMITTED INFORMATION IS TRUE, ACCURATE AND COMPLETE. I AM AWARE THAT THERE ARE SIGNIFICANT PENALTIES FOR SUBMITTING FALSE INFORMATION, INCLUDING THE POSSIBILITY OF FINE AND IMPRISONMENT. SEE 18 U.S.C. § 1001 AND 33 U.S.C. § 1319. (Penalties under these statutes may include fines up to $10,000 and or maximum imprisonment of between 6 months and 5 years.)	Amos S. Kamerer, PLT MGR	503	286-3681	98	05	07
TYPED OR PRINTED		SIGNATURE OF PRINCIPAL EXECUTIVE OFFICER OR AUTHORIZED AGENT	AREA CODE	NUMBER	YEAR	MO	DAY

COMMENTS AND EXPLANATION OF ANY VIOLATIONS (Reference all attachments here)

Second quarter PAH results are attached.

EPA Form 3320-1 (08-95) Previous editions may be used. (REPLACES EPA FORM T-40 WHICH MAY NOT BE USED.)

Koppers016295

PERMITTEE NAME/ADDRESS (Include Facility/Road Location if Different)
NAME Koppers Industries, Inc.

ADDRESS 9640 NW Saint Helens Road
Portland, OR 97210

FACILITY NW Terminal
LOCATION Multnomah County

NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES)
DISCHARGE MONITORING REPORT (DMR)

101003	001
PERMIT NUMBER	DISCHARGE NUMBER

MONITORING PERIOD

	YEAR	MO	DAY		YEAR	MO	DAY
FROM	98	05	01	TO	98	05	31

Form Approved.
OMB No. 2040-0004
Approval expires 05-31-98

NOTE: Read instructions before completing this form.

PARAMETER		(3 Card Only) QUANTITY OR LOADING			(4 Card Only) QUANTITY OR CONCENTRATION				NO. EX	FREQUENCY OF ANALYSIS	SAMPLE TYPE
		AVERAGE	MAXIMUM	UNITS	MINIMUM	AVERAGE	MAXIMUM	UNITS			
FLOW	SAMPLE MEASUREMENT	21,903		GPD					0	N/A	EST.
	PERMIT REQUIREMENT										
TEMP.	SAMPLE MEASUREMENT				59	60	61	F	0	1/7	GRAB
	PERMIT REQUIREMENT				N/A	N/A	N/A				
pH	SAMPLE MEASUREMENT				7.0	7.0	7.1	SU	0	1/7	GRAB
	PERMIT REQUIREMENT				6.0		9.0				
OIL & GREASE	SAMPLE MEASUREMENT				N.D.	1.5	2.4	MG/L	0	1/7	GRAB
	PERMIT REQUIREMENT				0	10	15				
PHENOLS	SAMPLE MEASUREMENT				.05	.05	.05	MG/L	0	1/30	GRAB
	PERMIT REQUIREMENT				0	.5	1				
	SAMPLE MEASUREMENT										
	PERMIT REQUIREMENT										
	SAMPLE MEASUREMENT										
	PERMIT REQUIREMENT										

NAME/TITLE PRINCIPAL EXECUTIVE OFFICER		TELEPHONE	DATE		
R. D. Collins, V. P.	I CERTIFY UNDER PENALTY OF LAW THAT I HAVE PERSONALLY EXAMINED AND AM FAMILIAR WITH THE INFORMATION SUBMITTED HEREIN; AND BASED ON MY INQUIRY OF THOSE INDIVIDUALS IMMEDIATELY RESPONSIBLE FOR OBTAINING THE INFORMATION, I BELIEVE THE SUBMITTED INFORMATION IS TRUE, ACCURATE AND COMPLETE. I AM AWARE THAT THERE ARE SIGNIFICANT PENALTIES FOR SUBMITTING FALSE INFORMATION, INCLUDING THE POSSIBILITY OF FINE AND IMPRISONMENT. SEE 18 U.S.C. § 1001 AND 33 U.S.C. § 1319. (Possible enforcement fines and imprisonment may include fines up to $10,000 and/or maximum imprisonment of between 6 months and 5 years.)	Robert B. Kamerer, Plt Mgr	503 286-3681	98	05	04
TYPED OR PRINTED		SIGNATURE OF PRINCIPAL EXECUTIVE OFFICER OR AUTHORIZED AGENT	AREA CODE NUMBER	YEAR	MO	DAY

COMMENTS AND EXPLANATION OF ANY VIOLATIONS (Reference all attachments here)

EPA Form 3320-1 (08-95) Previous editions may be used. (REPLACES EPA FORM T-40 WHICH MAY NOT BE USED.)

PAGE OF

City of Portland, T. T. Self, KTT

FROM :KOPPERS ENVIRO/LEGAL 412 227 2423 1998-06-09 06:51 #142 P.01/04
Koppers016296

PERMITTEE NAME/ADDRESS (Include Facility Name/Location if Different)
NAME Koppers Industries, Inc.
ADDRESS 7540 NW Saint Helens Road
Portland, OR 97210

FACILITY NW Terminal
LOCATION Multnomah County

NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES) (2-15)
DISCHARGE MONITORING REPORT (DMR) (17-19)

Form Approved.
OMB No. 2040-0004
Approval expires 05-31-98

PERMIT NUMBER	DISCHARGE NUMBER
101003	001

MONITORING PERIOD

	YEAR	MO	DAY		YEAR	MO	DAY
FROM	98	06	01	TO	98	06	30
	(20-21)	(22-23)	(24-25)		(26-27)	(28-29)	(30-31)

NOTE: Read instructions before completing this form.

PARAMETER (32-37)		(3 Card Only) QUANTITY OR LOADING (46-53) AVERAGE	(54-61) MAXIMUM	UNITS	(4 Card Only) QUANTITY OR CONCENTRATION (38-45) MINIMUM	(46-53) AVERAGE	(54-61) MAXIMUM	UNITS	NO. EX (62-63)	FREQUENCY OF ANALYSIS (64-68)	SAMPLE TYPE (69-70)
FLOW	SAMPLE MEASUREMENT	7330		GPD					0	N/A	EST.
	PERMIT REQUIREMENT										
TEMP.	SAMPLE MEASUREMENT				63	64	65	F	0	1/7	GRAB
	PERMIT REQUIREMENT				N/A	N/A	N/A				
pH	SAMPLE MEASUREMENT				6.8	6.85	6.9	SU	0	1/7	GRAB
	PERMIT REQUIREMENT				6.0		9.0				
OIL & GREASE	SAMPLE MEASUREMENT				2.8	2.8	2.8	MG/L	0	1/7	GRAB
	PERMIT REQUIREMENT				0	10	15				
PHENOLS	SAMPLE MEASUREMENT				.12	.12	.12	MG/L	0	1/30	GRAB
	PERMIT REQUIREMENT				0	.5	.7				
	SAMPLE MEASUREMENT										
	PERMIT REQUIREMENT										
	SAMPLE MEASUREMENT										
	PERMIT REQUIREMENT										

NAME/TITLE PRINCIPAL EXECUTIVE OFFICER			TELEPHONE	DATE		
R. D. Collins, V.P.	I CERTIFY UNDER PENALTY OF LAW THAT I HAVE PERSONALLY EXAMINED AND AM FAMILIAR WITH THE INFORMATION SUBMITTED HEREIN; AND BASED ON MY INQUIRY OF THOSE INDIVIDUALS IMMEDIATELY RESPONSIBLE FOR OBTAINING THE INFORMATION, I BELIEVE THE SUBMITTED INFORMATION IS TRUE, ACCURATE AND COMPLETE. I AM AWARE THAT THERE ARE SIGNIFICANT PENALTIES FOR SUBMITTING FALSE INFORMATION, INCLUDING THE POSSIBILITY OF FINE AND IMPRISONMENT. SEE 18 U.S.C. § 1001 AND 33 U.S.C. § 1319. (Penalties under these statutes may include fines up to $10,000 and or maximum imprisonment of between 6 months and 5 years.)	Amos E. Kamerer, Plt. Mgr.	503 286-3681	98	07	01
TYPED OR PRINTED		SIGNATURE OF PRINCIPAL EXECUTIVE OFFICER OR AUTHORIZED AGENT	AREA CODE / NUMBER	YEAR	MO	DAY

COMMENTS AND EXPLANATION OF ANY VIOLATIONS (Reference all attachments here)

EPA Form 3320-1 (08-86) Previous editions may be used. (REPLACES EPA FORM T-40 WHICH MAY NOT BE USED.)

cc: J. Holtrop-City of Portland, T.I. Self-RII

PAGE OF

Koppers016297

PERMITTEE NAME/ADDRESS (Include Facility Name/Location (If Different)
NAME Koppe Industries, Inc.
ADDRESS 7540 NW Saint Helens Road
Portland, OR 97210

FACILITY NW Terminal
LOCATION Multnomah County

NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES)
DISCHARGE MONITORING REPORT (DMR)

(2-9) PERMIT NUMBER	(17-19) DISCHARGE NUMBER
101003	001

MONITORING PERIOD

	YEAR	MO	DAY		YEAR	MO	DAY
FROM	98	07	01	TO	98	07	31
	(20-21)	(22-23)	(24-25)		(26-27)	(28-29)	(30-31)

Form Approved.
OMB 2040-0004
Approval expires 05-31-98

NOTE: Read instructions before completing this form.

PARAMETER (32-37)		(3 Card Only) QUANTITY OR LOADING (46-53) AVERAGE	(54-61) MAXIMUM	UNITS	(4 Card Only) QUANTITY OR CONCENTRATION (38-45) MINIMUM	(46-53) AVERAGE	(54-61) MAXIMUM	UNITS	NO. EX (62-63)	FREQUENCY OF ANALYSIS (64-68)	SAMPLE TYPE (69-70)
	SAMPLE MEASUREMENT										
	PERMIT REQUIREMENT										
	SAMPLE MEASUREMENT										
	PERMIT REQUIREMENT										
	SAMPLE MEASUREMENT										
	PERMIT REQUIREMENT										
	SAMPLE MEASUREMENT										
	PERMIT REQUIREMENT										
	SAMPLE MEASUREMENT										
	PERMIT REQUIREMENT										
	SAMPLE MEASUREMENT										
	PERMIT REQUIREMENT										
	SAMPLE MEASUREMENT										
	PERMIT REQUIREMENT										

NAME/TITLE PRINCIPAL EXECUTIVE OFFICER		TELEPHONE		DATE		
R. D. Collins, V.P.	I CERTIFY UNDER PENALTY OF LAW THAT I HAVE PERSONALLY EXAMINED AND AM FAMILIAR WITH THE INFORMATION SUBMITTED HEREIN; AND BASED ON MY INQUIRY OF THOSE INDIVIDUALS IMMEDIATELY RESPONSIBLE FOR OBTAINING THE INFORMATION, I BELIEVE THE SUBMITTED INFORMATION IS TRUE, ACCURATE AND COMPLETE. I AM AWARE THAT THERE ARE SIGNIFICANT PENALTIES FOR SUBMITTING FALSE INFORMATION, INCLUDING THE POSSIBILITY OF FINE AND IMPRISONMENT. SEE 18 U.S.C. § 1001 AND 33 U.S.C. § 1319. (Penalties under these statutes may include fines up to $10,000 and or maximum imprisonment of between 6 months and 5 years.)	Amos S. Kamerer, Plt. Mgr.	503 286-3681	98	08	03
TYPED OR PRINTED		SIGNATURE OF PRINCIPAL EXECUTIVE OFFICER OR AUTHORIZED AGENT	AREA CODE NUMBER	YEAR	MO	DAY

COMMENTS AND EXPLANATION OF ANY VIOLATIONS (Reference all attachments here)

Nothing to report, no discharges during the month.

EPA Form 3320-1 (08-86) Previous editions may be used. (REPLACES EPA FORM T-40 WHICH MAY NOT BE USED.)

J. Holtrop-City of Portland; T.I. Self-KII

Koppers016298

PERMITTEE NAME / NAME Koppers Industries, Inc.

ADDRESS 7540 NW Saint Helens Road
Portland, OR 97210

FACILITY NW Terminal
LOCATION Multnomah County

NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES) (2-1[illegible])
DISCHARGE MONITORING REPORT (DMR) (17-19)

PERMIT NUMBER	DISCHARGE NUMBER
101003	001

MONITORING PERIOD	YEAR	MO	DAY		YEAR	MO	DAY
FROM	98	08	01	TO	98	08	31
	(20-21)	(22-23)	(24-25)		(26-27)	(28-29)	(30-31)

Form Approved.
OMB [illegible]40-0004
Approval expires 05-31-98

NOTE: Read instructions before completing this form.

PARAMETER (32-37)		(3 Card Only) QUANTITY OR LOADING (46-53) AVERAGE	(54-61) MAXIMUM	UNITS	(4 Card Only) QUANTITY OR CONCENTRATION (38-45) MINIMUM	(46-53) AVERAGE	(54-61) MAXIMUM	UNITS	NO. EX (62-63)	FREQUENCY OF ANALYSIS (64-68)	SAMPLE TYPE (69-70)
	SAMPLE MEASUREMENT										
	PERMIT REQUIREMENT										
	SAMPLE MEASUREMENT										
	PERMIT REQUIREMENT										
	SAMPLE MEASUREMENT										
	PERMIT REQUIREMENT										
	SAMPLE MEASUREMENT										
	PERMIT REQUIREMENT										
	SAMPLE MEASUREMENT										
	PERMIT REQUIREMENT										
	SAMPLE MEASUREMENT										
	PERMIT REQUIREMENT										
	SAMPLE MEASUREMENT										
	PERMIT REQUIREMENT										

NAME/TITLE PRINCIPAL EXECUTIVE OFFICER		TELEPHONE		DATE		
R. D. Collins, V.P.	I CERTIFY UNDER PENALTY OF LAW THAT I HAVE PERSONALLY EXAMINED AND AM FAMILIAR WITH THE INFORMATION SUBMITTED HEREIN; AND BASED ON MY INQUIRY OF THOSE INDIVIDUALS IMMEDIATELY RESPONSIBLE FOR OBTAINING THE INFORMATION, I BELIEVE THE SUBMITTED INFORMATION IS TRUE, ACCURATE AND COMPLETE. I AM AWARE THAT THERE ARE SIGNIFICANT PENALTIES FOR SUBMITTING FALSE INFORMATION, INCLUDING THE POSSIBILITY OF FINE AND IMPRISONMENT. SEE 18 U.S.C. § 1001 AND 33 U.S.C. § 1319. *(Penalties under these statutes may include fines up to $10,000 and or maximum imprisonment of between 6 months and 5 years.)*	Amos S. Kamerer, Plt. Mgr.	503 | 286-3681	98	09	01
TYPED OR PRINTED		SIGNATURE OF PRINCIPAL EXECUTIVE OFFICER OR AUTHORIZED AGENT	AREA CODE | NUMBER	YEAR	MO	DAY

COMMENTS AND EXPLANATION OF ANY VIOLATIONS *(Reference all attachments here)*

Nothing to report, no discharges during the month.

EPA Form 3320-1 (08-95) Previous editions may be used. (REPLACES EPA FORM T-40 WHICH MAY NOT BE USED.)

J. Holtrop-City of Portland; T.I. Self-KII

Koppers016299

PERMITTEE NAME/ NAME Koppers Industries, Inc.

ADDRESS (Include Facility Name/Location (If Different)) 7540 NW Saint Helens Road
Portland, OR 97210

FACILITY NW Terminal
LOCATION Multnomah County

NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES) (2-16)
101003
PERMIT NUMBER

MONITORING REPORT (DMR) (17-19)
001
DISCHARGE NUMBER

MONITORING PERIOD

	YEAR	MO	DAY		YEAR	MO	DAY
FROM	98	09	01	TO	98	09	30
	(20-21)	(22-23)	(24-25)		(26-27)	(28-29)	(30-31)

Form A; Rev.
OMB No. 2040-0004
Approval expires 05-31-98

NOTE: Read instructions before completing this form.

PARAMETER (32-37)		(3 Card Only) QUANTITY OR LOADING (46-53) AVERAGE	(54-61) MAXIMUM	UNITS	(4 Card Only) QUANTITY OR CONCENTRATION (38-45) MINIMUM	(46-53) AVERAGE	(54-61) MAXIMUM	UNITS	NO. EX (62-63)	FREQUENCY OF ANALYSIS (64-68)	SAMPLE TYPE (69-70)
FLOW	SAMPLE MEASUREMENT	7,333		GPD					0	N/A	EST.
	PERMIT REQUIREMENT										
TEMP	SAMPLE MEASUREMENT				61	65	68	F	0	1/7	GRAB
	PERMIT REQUIREMENT				N/A	N/A	N/A				
PH	SAMPLE MEASUREMENT				6.8	6.9	7.0	SU	0	1/7	GRAB
	PERMIT REQUIREMENT				6.0		9.0				
OIL & GREASE	SAMPLE MEASUREMENT				N.D.	N.D.	N.D.	MG/L	0	1/7	GRAB
	PERMIT REQUIREMENT				0	10	15				
PHENOLS	SAMPLE MEASUREMENT				.05	.05	.05	MG/L	0	1/30	GRAB
	PERMIT REQUIREMENT				0	.5	.7				
	SAMPLE MEASUREMENT										
	PERMIT REQUIREMENT										
	SAMPLE MEASUREMENT										
	PERMIT REQUIREMENT										

NAME/TITLE PRINCIPAL EXECUTIVE OFFICER			TELEPHONE		DATE		
R. D. Collins, V. P.	I CERTIFY UNDER PENALTY OF LAW THAT I HAVE PERSONALLY EXAMINED AND AM FAMILIAR WITH THE INFORMATION SUBMITTED HEREIN; AND BASED ON MY INQUIRY OF THOSE INDIVIDUALS IMMEDIATELY RESPONSIBLE FOR OBTAINING THE INFORMATION, I BELIEVE THE SUBMITTED INFORMATION IS TRUE, ACCURATE AND COMPLETE. I AM AWARE THAT THERE ARE SIGNIFICANT PENALTIES FOR SUBMITTING FALSE INFORMATION, INCLUDING THE POSSIBILITY OF FINE AND IMPRISONMENT. SEE 18 U.S.C. § 1001 AND 33 U.S.C. § 1319. (Penalties under these statutes may include fines up to $10,000 and or maximum imprisonment of between 6 months and 5 years.)	Amos S. Kamerer, Plt. Mgr.	503 286-3681	98	10	01
TYPED OR PRINTED		SIGNATURE OF PRINCIPAL EXECUTIVE OFFICER OR AUTHORIZED AGENT	AREA CODE NUMBER	YEAR	MO	DAY

COMMENTS AND EXPLANATION OF ANY VIOLATIONS (Reference all attachments here)

Third quarter PAH results are attached.

cc: J. Holtrop-City of Portland, T.I. Self - KII

Koppers016300

PERMITTEE NAME/ADDRESS (Include Facility Name/Location if Different)
NAME Kopper Industries, Inc.
ADDRESS 7540 NW Saint Helens Road
Portland, OR 97210
FACILITY NW Terminal
LOCATION Multnomah County

NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES) (2-11)
DISCHARGE MONITORING REPORT (DMR) (17-19)

PERMIT NUMBER	DISCHARGE NUMBER
101003	001

Form Approved.
OMB [illegible]040-0004
Approved. Expires 05-31-98

MONITORING PERIOD

	YEAR	MO	DAY		YEAR	MO	DAY
FROM	98	10	01	TO	98	10	31
	(20-21)	(22-23)	(24-25)		(26-27)	(28-29)	(30-31)

NOTE: Read instructions before completing this form.

PARAMETER (32-37)		(3 Card Only) QUANTITY OR LOADING (46-53) AVERAGE	(54-61) MAXIMUM	UNITS	(4 Card Only) QUANTITY OR CONCENTRATION (38-45) MINIMUM	(46-53) AVERAGE	(54-61) MAXIMUM	UNITS	NO. EX (62-63)	FREQUENCY OF ANALYSIS (64-68)	SAMPLE TYPE (69-70)
FLOW	SAMPLE MEASUREMENT	12,258		GPD					0	N/A	EST.
	PERMIT REQUIREMENT										
TEMP	SAMPLE MEASUREMENT				56	58	60	F	0	1/7	GRAB
	PERMIT REQUIREMENT				N/A	N/A	N/A				
pH	SAMPLE MEASUREMENT				6.5	6.7	6.8	SU	0	1/7	GRAB
	PERMIT REQUIREMENT				6.0		9.0				
OIL & GREASE	SAMPLE MEASUREMENT				N.D.	N.D.	N.D.	MG/L	0	1/7	GRAB
	PERMIT REQUIREMENT				0	10	15				
PHENOLS	SAMPLE MEASUREMENT				N.D.	N.D.	N.D.	MG/L	0	1/30	GRAB
	PERMIT REQUIREMENT				0	.5	.7				
	SAMPLE MEASUREMENT										
	PERMIT REQUIREMENT										
	SAMPLE MEASUREMENT										
	PERMIT REQUIREMENT										

NAME/TITLE PRINCIPAL EXECUTIVE OFFICER			TELEPHONE		DATE		
R. D. Collins, V.P.	I CERTIFY UNDER PENALTY OF LAW THAT I HAVE PERSONALLY EXAMINED AND AM FAMILIAR WITH THE INFORMATION SUBMITTED HEREIN; AND BASED ON MY INQUIRY OF THOSE INDIVIDUALS IMMEDIATELY RESPONSIBLE FOR OBTAINING THE INFORMATION, I BELIEVE THE SUBMITTED INFORMATION IS TRUE, ACCURATE AND COMPLETE. I AM AWARE THAT THERE ARE SIGNIFICANT PENALTIES FOR SUBMITTING FALSE INFORMATION, INCLUDING THE POSSIBILITY OF FINE AND IMPRISONMENT. SEE 18 U.S.C. § 1001 AND 33 U.S.C. § 1319. (Penalties under these statutes may include fines up to $10,000 and or maximum imprisonment of between 6 months and 5 years.)	James S. Kamerer, Plt. Mgr.	503	286-3681	98	11	03
TYPED OR PRINTED		SIGNATURE OF PRINCIPAL EXECUTIVE OFFICER OR AUTHORIZED AGENT	AREA CODE	NUMBER	YEAR	MO	DAY

COMMENTS AND EXPLANATION OF ANY VIOLATIONS (Reference all attachments here)

Fourth quarter PAH results are attached. cc: J. Holtrop-City of Portland, T.I. Self-KII

Koppers016301

PERMITTEE NAME/ADDRESS (Include Facility Name/Location if Different)
NAME Koppers Industries, Inc.
ADDRESS 7540 NW Saint Helens Road
Portland, OR 97210

FACILITY NW Terminal
LOCATION Multnomah County

NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES)
DISCHARGE MONITORING REPORT (DMR)

Form Approved.
OMB No. 2040-0004
Approval expires 05-31-98

PERMIT NUMBER (2-16)	DISCHARGE NUMBER (17-19)
101003	001

MONITORING PERIOD

	YEAR	MO	DAY		YEAR	MO	DAY
FROM	98	11	01	TO	98	11	30
	(20-21)	(22-23)	(24-25)		(26-27)	(28-29)	(30-31)

NOTE: Read instructions before completing this form.

PARAMETER (32-37)		(3 Card Only) QUANTITY OR LOADING (46-53) AVERAGE	(54-61) MAXIMUM	UNITS	(4 Card Only) QUANTITY OR CONCENTRATION (38-45) MINIMUM	(46-53) AVERAGE	(54-61) MAXIMUM	UNITS	NO. EX (62-63)	FREQUENCY OF ANALYSIS (64-68)	SAMPLE TYPE (69-70)
Flow	SAMPLE MEASUREMENT	30,333		GPD					0	N/A	Est.
	PERMIT REQUIREMENT										
Temp	SAMPLE MEASUREMENT				14	14	15	°C	0	1/7	GRAB
	PERMIT REQUIREMENT				N/A	N/A	N/A				
pH	SAMPLE MEASUREMENT				6.8	7.0	7.1	SU	0	1/7	GRAB
	PERMIT REQUIREMENT				6.0		9.0				
Oil & Grease	SAMPLE MEASUREMENT				N.D.	1.7	2.6	MG/L	0	1/7	GRAB
	PERMIT REQUIREMENT				0	10	15				
Phenols	SAMPLE MEASUREMENT				N.D.	N.D.	N.D.	MG/L	0	1/30	GRAB
	PERMIT REQUIREMENT				0	.5	.7				
	SAMPLE MEASUREMENT										
	PERMIT REQUIREMENT										
	SAMPLE MEASUREMENT										
	PERMIT REQUIREMENT										

NAME/TITLE PRINCIPAL EXECUTIVE OFFICER		TELEPHONE	DATE
R. D. Collins, V. P.	I CERTIFY UNDER PENALTY OF LAW THAT I HAVE PERSONALLY EXAMINED AND AM FAMILIAR WITH THE INFORMATION SUBMITTED HEREIN; AND BASED ON MY INQUIRY OF THOSE INDIVIDUALS IMMEDIATELY RESPONSIBLE FOR OBTAINING THE INFORMATION, I BELIEVE THE SUBMITTED INFORMATION IS TRUE, ACCURATE AND COMPLETE. I AM AWARE THAT THERE ARE SIGNIFICANT PENALTIES FOR SUBMITTING FALSE INFORMATION, INCLUDING THE POSSIBILITY OF FINE AND IMPRISONMENT. SEE 18 U.S.C. § 1001 AND 33 U.S.C. § 1319. (Penalties under these statutes may include fines up to $10,000 and or maximum imprisonment of between 6 months and 5 years.)	Amos S. Kamerer, Plt. Mgr.	503 286-3681	98 12 04
TYPED OR PRINTED		SIGNATURE OF PRINCIPAL EXECUTIVE OFFICER OR AUTHORIZED AGENT	AREA CODE / NUMBER	YEAR MO DAY

COMMENTS AND EXPLANATION OF ANY VIOLATIONS (Reference all attachments here)

Koppers016302

cc: J. Holtrop-City of Portland, T.I. Self-KII

PERMITTEE NAME/ADDRESS (Include Facility Name/Location if Different)
NAME Koppers Industries Inc
ADDRESS 7540 NW St. Helens Rd.
Portland, OR 97210

FACILITY NW Terminal
LOCATION Multnomah Co.

NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES) (2-10)
MONITORING REPORT (DMR) (17-19)

101003	001	3077-J / 47430
PERMIT NUMBER	DISCHARGE NUMBER	

Form Approved.
OMB 2040-0004
Approval expires 05-31-98

MONITORING PERIOD

	YEAR	MO	DAY		YEAR	MO	DAY
FROM	98	12	01	TO	98	12	31
	(20-21)	(22-23)	(24-25)		(26-27)	(28-29)	(30-31)

NOTE: Read instructions before completing this form.

PARAMETER (32-37)		(3 Card Only) QUANTITY OR LOADING (46-53) AVERAGE	(54-61) MAXIMUM	UNITS	(4 Card Only) QUANTITY OR CONCENTRATION (38-45) MINIMUM	(46-53) AVERAGE	(54-61) MAXIMUM	UNITS	NO. EX (62-63)	FREQUENCY OF ANALYSIS (64-68)	SAMPLE TYPE (69-70)
FLOW	SAMPLE MEASUREMENT	52,580		GPD					0	N/A	EST.
	PERMIT REQUIREMENT										
TEMP	SAMPLE MEASUREMENT				7.0	10.7	13.6	°C	0	1/7	GRAB
	PERMIT REQUIREMENT				N/A	N/A	N/A				
pH	SAMPLE MEASUREMENT				7.0	7.1	7.4	SU	0	1/7	GRAB
	PERMIT REQUIREMENT				6.0		9.0				
OIL & GREASE	SAMPLE MEASUREMENT				N.D.	2.0	3.0	Mg/L	0	1/7	GRAB
	PERMIT REQUIREMENT				0	10	15				
PHENOLS	SAMPLE MEASUREMENT				N.D.	N.D.	N.D.	Mg/L	0	1/30	GRAB
	PERMIT REQUIREMENT				0	.5	.7				
	SAMPLE MEASUREMENT										
	PERMIT REQUIREMENT										
	SAMPLE MEASUREMENT										
	PERMIT REQUIREMENT										

NAME/TITLE PRINCIPAL EXECUTIVE OFFICER			TELEPHONE			DATE		
R.D. COLLINS, V.P.	I CERTIFY UNDER PENALTY OF LAW THAT I HAVE PERSONALLY EXAMINED AND AM FAMILIAR WITH THE INFORMATION SUBMITTED HEREIN; AND BASED ON MY INQUIRY OF THOSE INDIVIDUALS IMMEDIATELY RESPONSIBLE FOR OBTAINING THE INFORMATION, I BELIEVE THE SUBMITTED INFORMATION IS TRUE, ACCURATE AND COMPLETE. I AM AWARE THAT THERE ARE SIGNIFICANT PENALTIES FOR SUBMITTING FALSE INFORMATION, INCLUDING THE POSSIBILITY OF FINE AND IMPRISONMENT. SEE 18 U.S.C. § 1001 AND 33 U.S.C. § 1319. *(Penalties under these statutes may include fines up to $10,000 and or maximum imprisonment of between 6 months and 5 years.)*	Amos S. Kamerer, Plt. Mgr.	503	286 3681		99	01	05
TYPED OR PRINTED		SIGNATURE OF PRINCIPAL EXECUTIVE OFFICER OR AUTHORIZED AGENT	AREA CODE	NUMBER		YEAR	MO	DAY

COMMENTS AND EXPLANATION OF ANY VIOLATIONS *(Reference all attachments here)*

cc: J. HOLTROP-City of Portland, T.I. Self-KII

Koppers016303

CERTIFICATE OF ANALYSIS

CLIENT: KOPPERS INDUSTRIES, INC.
7540 NW ST. HELENS ROAD
PORTLAND OR 97210-3663

PHONE: (503) 286-3681
FAX: (503) 285-2831

DATE SUBMITTED: 01/21/98

PROJECT NAME: WASTE WATER ANALYSIS

CJ SAMPLE #	CLIENTS ID#	DATE	TIME	DESCRIPTION
980076-001-01		01/21/98	1315	TANKS 1-3-5 WASTE WATER GRAB SAMPLE
980076-001-02		01/21/98	1315	TANKS 1-3-5 WASTE WATER GRAB SAMPLE

REPORT DATE: 01/22/98 REPORT NUMBER: 980076 PAGE: 1 OF 1

SAMPLE	ANALYSIS	PARAMETER	RESULT	UNIT	DETECTION LIMIT	ANALYST
TANKS 1-3-5 WASTE WATER GRAB SAMPLE						
980076-001-01	O&G, TOTAL, GRAV EPA 413.1/9070	TOTAL OIL & GREASE	2.0	PPM	2	Gordon L.
TANKS 1-3-5 WASTE WATER GRAB SAMPLE						
980076-001-02	PNAH 2 EPA 625 (SIM)	ACENAPHTHENE	17	ug/l	0.05	Jacob F.
		ACENAPHTHYLENE	4.7	ug/l	0.05	
		ANTHRACENE	10	ug/l	0.05	
		* BENZO(A)ANTHRACENE	19	ug/l	0.05	
		* BENZO(A)PYRENE	19	ug/l	0.2	
		* BENZO(B)FLUORANTHENE	11	ug/l	0.2	
		BENZO(GHI)PERYLENE	22	ug/l	0.5	
		* BENZO(K)FLUORANTHENE	11	ug/l	0.2	
		CHRYSENE	19	ug/l	0.05	
		* DIBENZO(A,H)ANTHRACENE	ND	ug/l	0.3	
		FLUORANTHENE	23	ug/l	0.05	
		FLUORENE	12	ug/l	0.05	
		* INDENO(1,2,3-CD)PYRENE	32	ug/l	0.4	
		NAPTHALENE	0.35	ug/l	0.05	
		PHENANTHRENE	10	ug/l	0.05	
		PYRENE	19	ug/l	0.05	
			229.05			
		SURROGATE	76%	% RECOVERY	50%-150%	

REVIEWED BY: _____
Martin Little - Laboratory Manager

1st

Koppers016304

CERTIFICATE OF ANALYSIS

CLIENT: KOPPERS INDUSTRIES, INC.
7540 NW ST. HELENS ROAD
PORTLAND OR 97210-3663

PHONE: (503) 286-3681
FAX: (503) 285-2831

DATE SUBMITTED: 04/23/98

PROJECT NAME: TANK 1-3-5 WASTE WATER ANALYSIS

CI SAMPLE #	CLIENTS ID#	DATE	TIME	DESCRIPTION
980581-001-01		04/23/98	1300	TANK 1-3-5 WASTE WATER GRAB SAMPLE
980581-001-02		04/23/98	1300	TANK 1-3-5 WASTE WATER GRAB SAMPLE
980581-001-03		04/23/98	1300	TANK 1-3-5 WASTE WATER GRAB SAMPLE

REPORT DATE: 04/28/98 REPORT NUMBER: 980581 PAGE: 1 OF 1

SAMPLE	ANALYSIS	PARAMETER	RESULT	UNIT	DETECTION LIMIT	ANALYST
TANK 1-3-5 WASTE WATER GRAB SAMPLE						
980681-001	O&G, TOTAL, GRAV EPA 413.1/9070	TOTAL OIL & GREASE	5.4	PPM	2	Gordon I.
	PHENOLS, TOTAL EPA 420.1	TOTAL RECOVERABLE PHENOLICS	<0.05	PPM	0.05	Abigail K.
	PNAH 2 EPA 625 (SIM)	ACENAPHTHENE	2.5	ug/l	0.05	Jacob I.
		ACENAPHTHYLENE	0.24	ug/l	0.05	
		ANTHRACENE	2.3	ug/l	0.05	
		BENZO(A)ANTHRACENE	26	ug/l	0.05	
		BENZO(A)PYRENE	46	ug/l	0.2	
		BENZO(B)FLUORANTHENE	36	ug/l	0.2	
		BENZO(GHI)PERYLENE	34	ug/l	0.5	
		BENZO(K)FLUORANTHENE	36	ug/l	0.2	
		CHRYSENE	29	ug/l	0.05	
		DIBENZO(AH)ANTHRACENE	5.8	ug/l	0.3	
		FLUORANTHENE	31	ug/l	0.05	
		FLUORENE	1.4	ug/l	0.05	
		INDENO(1,2,3-CD)PYRENE	47	ug/l	0.4	
		NAPTHALENE	0.24	ug/l	0.05	
		PHENANTHRENE	12	ug/l	0.05	
		PYRENE	30	ug/l	0.05	
			239.73			
		SURROGATE	109%	% RECOVERY 50%-150%		

REVIEWED BY: _____
Martin Little - Laboratory Manager

2nd

Koppers016305

CERTIFICATE OF ANALYSIS

CLIENT: KOPPERS INDUSTRIES, INC.
7540 NW ST. HELENS ROAD
PORTLAND OR 97210-3663

PHONE: (503) 286-3681
FAX: (503) 285-2831

DATE SUBMITTED: 09/18/98 PO#:

PROJECT NAME: WWTks 1 Through 6

CI SAMPLE #	CLIENTS ID#	DATE	TIME	DESCRIPTION
981304-001		09/18/98	1300	WWTks (1-6)
981304-001		09/18/98	1300	WWTks (1-6)

REPORT DATE: 09/22/98 REPORT NUMBER: 981304 PAGE: 1 OF 2

SAMPLE	ANALYSIS	PARAMETER	RESULT	UNIT	DETECTION LIMIT	ANALYST
WWTks (1-6)						
981304-001	O&G, TOTAL, GRAV EPA 413.1/9070	TOTAL OIL & GREASE	ND	PPM	2	Gordon L.
981304-001	PHENOLS, TOTAL EPA 420.1	TOTAL RECOVERABLE PHENOLICS	0.062	PPM	0.05	Abigail K.
981304-001	PNAH 2 EPA 625 (SIM)	ACENAPHTHENE	10.0	ug/l	0.05	Jacob F.
		ACENAPHTHYLENE	8.4	ug/l	0.05	
		ANTHRACENE	5.6	ug/l	0.05	
		BENZO(A)ANTHRACENE	41.	ug/l	0.05	
		BENZO(A)PYRENE	73.	ug/l	0.2	
		BENZO(B)FLUORANTHENE	55.	ug/l	0.2	
		BENZO(GHI)PERYLENE	63.	ug/l	0.5	
		BENZO(K)FLUORANTHENE	55.	ug/l	0.2	
		CHRYSENE	47.	ug/l	0.05	
		DIBENZO(AH)ANTHRACENE	12.	ug/l	0.3	
		FLUORANTHENE	44.	ug/l	0.05	

REVIEWED BY: Richard O. Reid - Laboratory Director

3rd

Koppers016306

CERTIFICATE OF ANALYSIS

REPORT DATE: 09/22/98 REPORT NUMBER: 981304 PAGE: 2 OF 2

SAMPLE	ANALYSIS	PARAMETER	RESULT	UNIT	DETECTION LIMIT	ANALYST
WATKs (1-6)						
981304-001	PAH 2	FLUORENE	9.7	ug/l	0.05	Jacob F.
	EPA 625 (SIM)	INDENO(1,2,3-CD)PYRENE	79.	ug/l	0.4	
		NAPTHALENE	1.9	ug/l	0.05	
		PHENANTHRENE	24.	ug/l	0.05	
		PYRENE	43.	ug/l	0.05	
			571.6			
		SURROGATE	67%	% RECOVERY	50%-150%	

CERTIFICATE OF ANALYSIS

CLIENT: KOPPERS INDUSTRIES, INC.
7540 NW ST. HELENS ROAD
PORTLAND OR 97210-3663

PHONE: (503) 286-3681
FAX: (503) 285-2831

DATE SUBMITTED: 10/13/98

PROJECT NAME: QUARTERLY WASTEWATER TEST

CI SAMPLE #	CLIENTS ID#	DATE	TIME	DESCRIPTION
981431-001		10/13/98	0800	WWTks
981431-001		10/13/98	0800	WWTks
981431-001		10/13/98	0800	WWTks

REPORT DATE: 10/14/98 REPORT NUMBER: 981431 PAGE: 1 OF 2

SAMPLE	ANALYSIS	PARAMETER	RESULT	UNIT	DETECTION LIMIT	ANALYST
WWTks						
981431-001	O&G. TOTAL. GRAV EPA 413.1/9070	TOTAL OIL & GREASE	ND	PPM	2	Gordon L.
981431-001	PHENOLS. TOTAL EPA 420.1	TOTAL RECOVERABLE PHENOLICS	ND	PPM	0.05	Abigail K.
981431-001	PNAH 2 EPA 625 (SIM)	ACENAPHTHENE	4.9	ug/l	0.05	Jacob F.
		ACENAPHTHYLENE	1.7	ug/l	0.05	
		ANTHRACENE	5.4	ug/l	0.05	
		BENZO(A)ANTHRACENE	66.	ug/l	0.05	
		BENZO(A)PYRENE	144.	ug/l	0.2	
		BENZO(B)FLUORANTHENE	100.	ug/l	0.2	
		BENZO(GHI)PERYLENE	99.	ug/l	0.5	
		BENZO(K)FLUORANTHENE	100.	ug/l	0.2	
		CHRYSENE	73.	ug/l	0.05	
		DIBENZO(AH)ANTHRACENE	52.	ug/l	0.3	

REVIEWED BY:
Richard D. Reid - Laboratory Director

Koppers016308

CERTIFICATE OF ANALYSIS

REPORT DATE: 10/14/98 REPORT NUMBER: 981431 PAGE: 2 OF 2

SAMPLE	ANALYSIS	PARAMETER	RESULT	UNIT	DETECTION LIMIT	ANALYST
WWTks						
981131-001	PNAH 2 EPA 625 (SIM)	FLUORANTHENE	52.	ug/l	0.05	Jacob F.
		FLUORENE	3.9	ug/l	0.05	
		INDENO(1.2.3-CD)PYRENE	180.	ug/l	0.4	
		NAPTHALENE	0.48	ug/l	0.05	
		PHENANTHRENE	18.	ug/l	0.05	
		PYRENE	48.	ug/l	0.05	
		SURROGATE	68%	% RECOVERY	50%-150%	

1998
~~1997~~ SARA Title III, Toxic Chemical Reporting Inventory, Tank and Tank Car Throughputs
Koppers Industries, Inc., Portland Tar Plant, Portland, Oregon

From Amos
Received
5-5-99

Tank ID	Commodity	Tank Capacity (gallons)	Tank Diameter (ft)	Tank Height (ft)	1998 ~~1997~~ Throughput (gallons)	Notes
SW T-3 Jan 1 - April 30	Crude Methyl Naphthalene	100,000	24.00	30.00	~~0~~ 2,687	Not to be considered in inventory
T-33	Heavy Oil	45,000	18.00	24.00	~~56,784~~ 65,417	Working and standing losses
SW T-23	Light Coal Tar Distillate (UCC)	20,000	12.00	24.00	0 0	Standing losses only
T-68	Liquid Pitch	245,000	37.80	29.50	(1) ~~4,175,141~~ [1]	Standing & Vented to Fume System
T-65	Liquid Pitch	750,000	60.30	35.60	(2) ~~6,958,569~~	Standing & Vented to Fume System
SW T-34 Jan 1 - April 30th	Naphthalene Still Residue	45,000	18.00	24.00	~~0~~ 1,111	Not to be considered in inventory
SW T-17 Jan 1 - April 30th	P1/P13 Creosote	20,000	24.00	12.00	36,000 [2] SAME	Working and standing losses
T-67	P1/P13 Creosote	90,000	24.25	28.50	~~203,522~~ 250,719	Working and standing losses
T-19	Priming and Refractory Oil	✓ 20,000	12.00	24.00	~~0~~ 715	Standing losses only
Railcars	Refined Tars	/ 30,000	17	17	~~156,090~~ 95,409	Working and standing losses

[1] All pitch that enters the facility is melted in Tank 65. It is assumed that 100% of the pitch is stored in Tank 65, and 60% is transferred to Tank 68.

[2] Throughput was assumed to be 3,000 gallons per month.

(1) 6,073,933 (TRUCK) - .594%
(2) 4,150,431 (CARS) - .406%

Koppers016310

Table 1. ~~1997~~ 1998 SARA Title III, Toxic Chemical Reporting Inventory, Total Production/Throughput Inventory, Koppers Industries, Inc., Portland Tar Plant, Portland, Oregon

From Amos
Received 5-3-99

Process Production/Usage Rates

Mixture	Density (lb/gal)	Yearly Total (gal)		Maximum On-site (gal)	
Pitch	11.0	~~6,943,524~~	10,224,364	~~577,259~~	890,909
Heavy Oil	9.6	~~42,421~~	65,417	~~29,732~~	38,004
P1/P13 Creosote	9.0	~~218,413~~	250,719	~~94,100~~	82,185
UCC	9.1	~~14,738~~	0	~~16,785~~	0
P&R Oil	9.1	~~4,761~~	715	~~5,476~~	715
CMN	8.5	~~0~~	2,687	~~NA~~	2,687
NSR	9.0	~~0~~	1,111	~~NA~~	1,111
Refined Tar	10.0	~~157,624~~	95,409	~~33,892~~	28,036

Maximum on-site represents the maximum quantity from either the beginning or ending inventory, whichever was greater.

Koppers016311

1999.05-04 10:30 #298 P.02/06 286 3581 FROM :KOPPERS INDUSTRIES, INC.

(51)

HAZARDOUS AND NON-HAZARDOUS DISPOSAL LOG
KOPPERS INDUSTRIES, INC.
PORTLAND, OREGON TERMINAL

Date of Shipment	Destination	Handled By	Material Shipped	Quantity Shipped
4/24/90	Arlington, Oregon	Chem-Security Systems	creosote spill, rags & absorbents [1]	20 drums
5/18/93	Lohern, Calif.	Laidlaw Environmental Services	creosote spill, rags & absorbents [1]	3 drums
9/28/95	San Jose, Calif.	USPCI-Solvent Services	creosote spill, rags & absorbents [1]	3 drums
7/02/97	Houston, Texas	Eltes Environmental Services	no-longer used laboratory chemicals	4 lab packs –NA
3/05/98	Delta, BC, Canada	Laidlaw Environmental Services	creosote spill, rags & absorbents [1]	2 drums * 110 gallons
3/05/98	Knolls, Ut.	Laidlaw Environmental Services	refined tar spill rags & absorbents (non-hazardous)	6 drums – NA 330 gal
1/18/99	Clive,Utah	Safety –Kleen (TG) Inc.	creosote spill, rags & absorbents	4 drums

(1) Asoume 20% creosote, same as Woodward Tar Plant

Koppers016312

cc: Kim

Air/Compliance Consultants, Inc.

TELEPHONE CONVERSATION LOG

Date:	4/5/99	Project Number:	
To:	Amos Kamerer	Company:	KII
Telephone:		From:	Jill
RE:	SARA Memo ANSWERS		

Gen. Notes:

- Do not use term "out of service" for any tanks. KII tanks will be known as "stormwater surge tanks" if they are not being used for product
- TANK shutdown DATES are coming
  No cleaning, no incinerating
- HAZ & other waste DATA is coming
- 71,000 ~~[illegible]~~ 142,000,000 short tons production next 2 yr
- No change in scrubber fluid worth noting!!
- (36K fluid used & 100% recycling!)
- Will FAX Disposal LOG

ACCI\CONVERS.DOC

Service: 3, 17, 23, 4 TANKS

REVISED
1997 SARA REPORT
PORTLAND TAR PLANT
KOPPERS INDUSTRIES, INC.
PORTLAND, OREGON

JULY 1999

Prepared for:

Mr. Amos Kamerer
Koppers Industries, Inc.
Portland Tar Plant
7540 N.W. St. Helens Road
Portland, Oregon 97210-3663

Prepared by:

Air/Compliance Consultants, Inc.
1050 William Pitt Way
Pittsburgh, Pennsylvania 15238
(412) 826-3636

Project Number AC092

Air/Compliance Consultants, Inc.

Air/Compliance Consultants, Inc.

July 13, 1999 *Project No: AC092*

Mr. Amos Kamerer
Koppers Industries, Inc.
Portland Tar Plant
7540 N.W St. Helens Road
Portland, Oregon 97210-3663

RE: Revisions to the 1997 SARA Report

Dear Mr. Kamerer:

Please find enclosed the following:

1997 REVISED SARA REPORT

1. One (1) diskette containing the toxic release inventory for submittal to the EPCRA Reporting Center, with cover letter;
2. One (1) diskette containing the toxic release inventory for submittal to the Oregon Emergency Response Commission, with cover letter;
3. One (1) bound copy of the SARA 313 Report for your files.

As discussed with Ms. Self, the Portland Tar Plant has decided to submit a revision to the 1997 SARA Report to include the reporting of Creosote. In 1997, Creosote was speciated into individual components, rather than reported as Creosote. The revised SARA report includes a Form A submission for Creosote, and revisions to anthracene, naphthalene and PAC Form R submissions due to the reporting if Creosote.

Please sign the cover letters and send them, along with the appropriate diskette to the EPCRA Reporting Center and the Oregon Emergency Response Commissions.

Should you have any questions or desire further clarification on the reports and submittal, please do not hesitate to call me at (412) 826-3636.

Sincerely,

AIR/COMPLIANCE CONSULTANTS, INC.

Kimberly D. Coy
Project Engineer

Jill W. Merrill
President/Principal Engineer

cc: Traci Self, Koppers Industries, Inc.

1050 William Pitt Way
Pittsburgh, PA 15238
412-826-3636
412-826-3640 fax

G:\APROJECT\KOPPERS\KII_PORT\AC092\revisons 97FormR\Admin\LOTKII.doc

July 30, 1999

Mr. Bob Albers
Oregon Emergency Response Commission
c/o State Fire Marshall
4760 Portland Road, Northeast
Salem, Or 97305-1760

Koppers Industries, Inc.
Portland Tar Plant
7540 N.W. St. Helens Road
Portland, OR 97210-3663
TRI ID: 97210KPPRS7540N

RE: 1997 Revised Toxic Chemical Release Inventory, Magnetic Media Submission

Dear Mr. Albers:

Enclosed please find one (1) microcomputer diskette containing revised toxic chemical release reporting information for:

KOPPERS INDUSTRIES, INC., PORTLAND TAR PLANT

This information is submitted as required under Section 313, Title III of the Superfund Amendments and Reauthorization Act of 1986 and the Pollution Prevention Act of 1990.

We are submitting a total of 6 Chemical Reports for our facility. These chemical reports are described as follows:

Chemical Name	Report Year	CAS Number	Revised?	Report Type
Anthacene	1997	000120127	Yes	5-page Form R
Biphenyl	1997	000092524	No	2-page Form A
Creosote	1997	008001589	Yes	2-page Form A
Dibenzofurans	1997	000132649	No	2-page Form A
Naphthalene	1997	000091203	Yes	5-page Form R
Polycyclic Aromatic Compounds	1997	N590	Yes	5-page Form R

Our technical point of contact is **Amos Kamerer** and can be reached at **503-286-3681** should any questions or problems arise in your processing of this diskette.

I hereby certify that I have reviewed the attached documents and that, to the best of my knowledge and belief, the submitted information is true and complete and that the amounts and values in this report are accurate based on reasonable estimates using data available to the preparers of this report.

Sincerely,

Amos Kamerer
Plant Manager

July 30, 1999

EPCRA Reporting Center
P.O. Box 3348
Merrifield, VA 22116-3348

Koppers Industries, Inc.
Portland Tar Plant
7540 N.W. St. Helens Road
Portland, OR 97210-3663
TRI ID: 97210KPPRS7540N

Attn: Toxic Chemical Release Inventory – Magnetic Media Submission

To Whom It May Concern:

Enclosed please find one (1) microcomputer diskette containing revised toxic chemical release reporting information for:

KOPPERS INDUSTRIES, INC., PORTLAND TAR PLANT

This information is submitted as required under Section 313, Title III of the Superfund Amendments and Reauthorization Act of 1986 and the Pollution Prevention Act of 1990.

We are submitting a total of 6 Chemical Reports for our facility. These chemical reports are described as follows:

Chemical Name	Report Year	CAS Number	Revised?	Report Type
Anthacene	1997	000120127	Yes	5-page Form R
Biphenyl	1997	000092524	No	2-page Form A
Creosote	1997	008001589	Yes	2-page Form A
Dibenzofurans	1997	000132649	No	2-page Form A
Naphthalene	1997	000091203	Yes	5-page Form R
Polycyclic Aromatic Compounds	1997	N590	Yes	5-page Form R

Our technical point of contact is **Amos Kamerer** and can be reached at **503-286-3681** should any questions or problems arise in your processing of this diskette.

I hereby certify that I have reviewed the attached documents and that, to the best of my knowledge and belief, the submitted information is true and complete and that the amounts and values in this report are accurate based on reasonable estimates using data available to the preparers of this report.

Sincerely,

Amos Kamerer
Plant Manager

REVISED
1997 SARA REPORT
PORTLAND TAR PLANT
KOPPERS INDUSTRIES, INC.
PORTLAND, OREGON

JULY 1999

Prepared for:

Mr. Amos Kamerer
Koppers Industries, Inc.
Portland Tar Plant
7540 N.W. St. Helens Road
Portland, Oregon 97210-3663

Prepared by:

Air/Compliance Consultants, Inc.
1050 William Pitt Way
Pittsburgh, Pennsylvania 15238
(412) 826-3636

Project Number AC092

TABLE OF CONTENTS

ATTACHMENT	DESCRIPTION
1	**SARA 313 Form R and Form A Reports**
	Form R Anthracene
	Form A Biphenyl
	Form A Creosote
	Form A Dibenzofuran
	Form R Naphthalene
	Form R Polycyclic Aromatic Compounds
2	**Supporting Tables**
	Table 1. 1997 Total Production/Throughput Inventory
	Table 2. 1997 Reporting Inventories for Threshold Quantities
	Table 3. 1997 Summary of Releases, Recycling, Energy Recovery and Waste Treatment
	Table 4. Uncontrolled Tank Emissions
	Table 5. Fume Scrubber Emissions
	Table 6. Fugitive Leak Emissions
	Table 7. Water Discharges
	Table 8. On-site Recycling
	Table 9. Production Ratio
3	**AP-42 Tank Emission Spreadsheets**

SARA 313 FORM R AND FORM A REPORTS

EPA FORM R

TOXIC CHEMICAL RELEASE INVENTORY REPORTING FORM

United States Environmental Protection Agency

Section 313 of the Emergency Planning and Community Right-to-Know Act of 1986, also known as Title III of the Superfund Amendments and Reauthorization Act

WHERE TO SEND COMPLETED FORMS: 1. EPCRA Reporting Center, P.O Box 3348, Merrifield, VA 22116-3348, ATTN: TOXIC CHEMICAL RELEASE INVENTORY
2. APPROPRIATE STATE OFFICE (See instructions in Appendix F)

Enter "X" here if this is a revision: X

For EPA use only

Important: See instructions to determine when "Not Applicable (NA)" boxes should be checked.

PART I. FACILITY IDENTIFICATION INFORMATION

SECTION 1. REPORTING YEAR 1997

SECTION 2. TRADE SECRET INFORMATION

2.1	Are you claiming the toxic chemical identified on page 3 trade secret? ☐ Yes (Answer question 2.2; Attach substantiation forms) ☒ No (Do not answer 2.2; Go to Section 3)	2.2	Is this copy ☐ Sanitized ☐ Unsanitized (Answer only if "YES" in 2.1)

SECTION 3. CERTIFICATION (Important: Read and sign after completing all form sections.)

I hereby certify that I have reviewed the attached documents and that, to the best of my knowledge and belief, the submitted information is true and complete and that the amounts and values in this report are accurate based on reasonable estimates using data available to the preparers of this report.

Name and official title of owner/operator or senior management official:	Signature:	Date Signed:
MR. AMOS KAMERER PLANT MANAGER		07/30/1999

SECTION 4. FACILITY IDENTIFICATION

4.1		TRI Facility ID Number	97210-KPPRS-7540N
ility or Establishment Name	,PERS INDUSTRIES, INC. PORTLAND TAR PLANT	Facility or Establishment Name or Mailing Address(if different from street address)	
Street	7540 N.W. ST. HELENS ROAD	Mailing Address	
City/County/State/Zip Code	PORTLAND MULTNOMAH OR 97210-3663	City/County/State/Zip Code	

4.2	This report contains information for: (Important : check a or b; check c if applicable)	a. ☒ An entire facility	b. ☐ Part of a facility	c. ☐ A Federal facility		
4.3	Technical Contact Name	MR. AMOS KAMERER			Telephone Number (include area code)	(503) 286 - 3681
4.4	Public Contact Name	MR. AMOS KAMERER			Telephone Number (include area code)	(503) 286 - 3681
4.5	SIC Code (s) (4 digits)	a. 2865	b.	c.	d.	e. f.

4.6	Latitude	Degrees	Minutes	Seconds	Longitude	Degrees	Minutes	Seconds
		045	34	52		122	45	28

4.7 Dun & Bradstreet Number(s) (9 digits)	4.8 EPA identification Number (RCRA I.D. No.) (12 characters)	4.9 Facility NPDES Permit Number(s) (9 characters)	4.10 Underground Injection Well Code (UIC) I.D. Number(s) (12 digits)
a. 027734359	a. ORD027734359	a. OR0101003	a. NA
b. NA	b. NA	b. NA	b.

SECTION 5. PARENT COMPANY INFORMATION

5.1	Name of Parent Company	NA ☐	KOPPERS INDUSTRIES, INC.
	Parent Company's Dun & Bradstreet Number	NA ☐	196991582

EPA FORM R
PART II. CHEMICAL-SPECIFIC INFORMATION

TRI Facility ID Number: 97210-KPPRS-7540N

Toxic Chemical, Category or Generic Name: ANTHRACENE

SECTION 1. TOXIC CHEMICAL IDENTITY (Important: DO NOT complete this section if you completed Section 2 below.)

1.1 CAS Number (Important: Enter only one number exactly as it appears on the Section 313 list. Enter category code if reporting a chemical category.)
- 000120127

1.2 Toxic Chemical or Chemical Category Name (Important: Enter only one name exactly as it appears on the Section 313 list.)
ANTHRACENE

1.3 Generic Chemical Name (Important: Complete only if Part 1, Section 2.1 is checked "yes". Generic Name must be structurally descriptive)
NA

SECTION 2. MIXTURE COMPONENT IDENTITY (Important: DO NOT complete this section if you completed Section 1 above.)

2.1 Generic Chemical Name Provided by Supplier (Important: Maximum of 70 characters, including numbers, letters, spaces, and punctuation.)
NA

SECTION 3. ACTIVITIES AND USES OF THE TOXIC CHEMICAL AT THE FACILITY
(Important: Check all that apply.)

3.1 Manufacture the toxic chemical:
- a. [X] Produce
- b. [ ] Import

If produce or import:
- c. [ ] For on-site use/processing
- d. [ ] For sale/distribution
- e. [ ] As a byproduct
- f. [X] As an impurity

3.2 Process the toxic chemical:
- a. [ ] As a reactant
- b. [ ] As a formulation component
- c. [X] As an article component
- d. [ ] Repackaging

3.3 Otherwise use the toxic chemical:
- a. [ ] As a chemical processing aid
- b. [ ] As a manufacturing aid
- c. [ ] Ancillary or other use

SECTION 4. MAXIMUM AMOUNT OF THE TOXIC CHEMICAL ONSITE AT ANY TIME DURING THE CALENDAR YEAR

4.1 04 (Enter two-digit code from instruction package.)

SECTION 5. QUANTITY OF THE TOXIC CHEMICAL ENTERING EACH ENVIRONMENTAL MEDIUM ONSITE

			A. Total Release (pounds/year) (Enter range code or estimate*)	B. Basis of estimate (enter code)	C. % From Stormwater
5.1	Fugitive or non-point air emissions	NA [ ]	2	E	
5.2	Stack or point air emissions	NA [ ]	49	E	
5.3	Discharges to receiving streams or water bodies (enter one name per box)				
	Stream or Water Body Name				
5.3.1	NA				
5.3.2					
5.3.3					
5.4.1	Underground Injection onsite to Class I Wells	NA [X]	NA		
5.4.2	Underground injection onsite to Class II-V Wells	NA [X]	NA		

If additional pages of Part II, Section 5.3 are attached, indicate the total number of pages in this box [1] and indicate the Part II, Section 5.3 page number in this box. [1] (example: 1,2,3, etc)

* Range Codes: A= 1 - 10 pounds; B= 11- 499 pounds; C= 500 - 999 pounds.

EPA FORM R

PART II. CHEMICAL - SPECIFIC INFORMATION (CONTINUED)

TRI Facility ID Number
97210-KPPRS-7540N
Toxic Chemical, Category, or Generic Name
ANTHRACENE

SECTION 5. QUANTITY OF THE TOXIC CHEMICAL ENTERING EACH ENVIRONMENTAL MEDIUM ONSITE (Continued)

		NA	A. Total Release (pounds/year) (enter range code* or estimate)	B. Basis of Estimate (enter code)
5.5	Disposal to land onsite			
5.5.1A	RCRA Subtitle C landfills	X	NA	
5.5.1B	Other landfills	X	NA	
5.5.2	Land treatment/application farming	X	NA	
5.5.3	Surface Impoundment	X	NA	
5.5.4	Other disposal	X	NA	

SECTION 6. TRANSFERS OF THE TOXIC CHEMICAL IN WASTES TO OFF-SITE LOCATIONS

6.1 DISCHARGES TO PUBLICLY OWNED TREATMENT WORKS (POTWs)

6.1.A Total Quantity Transferred to POTWs and Basis of Estimate

6.1.A.1. Total Transfers (pounds/year) (enter range code* or estimate)	6.1.A.2 Basis of Estimate (enter code)
NA	

.1.B. 1	POTW Name	NA					
POTW Address							
City		State		County		Zip	-
6.1.B. 2	POTW Name						
POTW Address							
City		State		County		Zip	

If additional pages of Part II, Section 6.1 are attached, indicate the total number of pages in this box [1] and indicate the Part II, Section 6.1 page number in this box [1] (example: 1,2,3, etc.)

SECTION 6.2 TRANSFERS TO OTHER OFF-SITE LOCATIONS

6.2. 1	Off-Site EPA Identification Number (RCRA ID No.)	NA					
Off-Site Location Name	NA						
Off-Site Address							
City		State		County		Zip	

Is location under control of reporting facility or parent company? [ ] Yes [ ] No

* Range Codes: A = 1 - 10 pounds; B = 11 - 499 pounds; C = 500 - 999 pounds.

EPA FORM R

PART II CHEMICAL-SPECIFIC INFORMATION (CONTINUED)

TRI Facility ID Number
97210-KPPRS-7540N
Toxic Chemical, Category or Generic Name
ANTHRACENE

SECTION 6.2 TRANSFERS TO OTHER OFF-SITE LOCATIONS (Continued)

A. Total Transfers (pounds/year) (enter range code* or estimate)	B. Basis of Estimate (enter code)	C. Type of Waste Treatment/Disposal/ Recycling/Energy Recovery (enter code)
1.	1.	1.
2.	2.	2.
3.	3.	3.
4.	4.	4.

6.2 2 Off-Site EPA Identification Number (RCRA ID No.)

Off-Site location Name

Off-Site Address

City | State | County | Zip -

Is location under control of reporting facility or parent company? ☐ Yes ☐ No

A. Total Transfers (pounds/year) (enter range code* or estimate)	B. Basis of Estimate (enter code)	C. Type of Waste Treatment/Disposal/ Recycling/Energy Recovery (enter code)
1.	1.	1.
2.	2.	2.
3.	3.	3.
4.	4.	4.

SECTION 7A. ON-SITE WASTE TREATMENT METHODS AND EFFICIENCY

[X] Not Applicable (NA) - Check here if no on-site waste treatment is applied to any waste stream containing the toxic chemical or chemical category.

a. General Waste Stream (enter code)	b. Waste Treatment Method(s) Sequence [enter 3-character code(s)]	c. Range of Influent Concentration	d. Waste Treatment Efficiency Estimate	e. Based on Operating Data ?
7A.1a	7A.1b: 1 2 3 4 5 6 7 8	7A.1c	7A.1d	7A.1e
NA			0 %	Yes ☐ No ☐
7A.2a	7A.2b: 1 2 3 4 5 6 7 8	7A.2c	7A.2d	7A.2e
			%	Yes ☐ No ☐
7A.3a	7A.3b: 1 2 3 4 5 6 7 8	7A.3c	7A.3d	7A.3e
			%	Yes ☐ No ☐
7A.4a	7A.4b: 1 2 3 4 5 6 7 8	7A.4c	7A.4d	7A.4e
			%	Yes ☐ No ☐
7A.5a	7A.5b: 1 2 3 4 5 6 7 8	7A.5c	7A.5d	7A.5e
			%	Yes ☐ No ☐

ditional pages of Part II, Section 6.2/7A are attached, indicate the total number of pages in this box [1]

...d indicate the Part II, Section 6.2/7A page number in this box : [1] (example: 1,2,3, etc)

* Range Codes: A = 1 - 10 pounds; B = 11 - 499 pounds; C = 500 - 999 pounds.

EPA FORM R

PART II. CHEMICAL-SPECIFIC INFORMATION (CONTINUED)

TRI Facility ID Number
97210-KPPRS-7540N
Toxic Chemical, Category or Generic Name
ANTHRACENE

SECTION 7B. ON-SITE ENERGY RECOVERY PROCESSES

[X] Not Applicable (NA) - Check here if no on-site energy recovery is applied to any waste stream containing the toxic chemical or chemical category.

Energy Recovery Methods [enter 3-character code(s)]

1	2	3	4
NA			

SECTION 7C. ON-SITE RECYCLING PROCESSES

[ ] Not Applicable (NA) - Check here if no on-site recycling is applied to any waste stream containing the toxic chemical or chemical category.

Recycling Methods [enter 3-character code(s)]

1.	2.	3.	4.	5.
R14				
6.	**7.**	**8.**	**9.**	**10.**

SECTION 8. SOURCE REDUCTION AND RECYCLING ACTIVITIES

		Column A Prior Year (pounds/year)	Column B Current Reporting Year (pounds/year)	Column C Following Year (pounds/year)	Column D Second Following Year (pounds/year)
8.1	Quantity released **	0	52	52	52
8.2	Quantity used for energy recovery onsite	0	0	0	0
	Quantity used for energy recovery offsite	0	0	0	0
8.4	Quantity recycled onsite	0	12000	12000	12000
8.5	Quantity recycled offsite	0	0	0	0
8.6	Quantity treated onsite	0	0	0	0
8.7	Quantity treated offsite	0	0	0	0

8.8	Quantity released to the environment as a result of remedial actions, catastrophic events, or one-time events not associated with production processes (pounds/year)	0
8.9	Production ratio or activity index	0001.00

8.10 Did your facility engage in any source reduction activities for this chemical during the reporting year ? If not, enter "NA" in Section 8.10.1 and answer Section 8.11.

	Source Reduction Activities [enter code(s)]	Methods to Identify Activity (enter codes)		
8.10.1	NA	a.	b.	c.
8.10.2		a.	b.	c.
8.10.3		a.	b.	c.
8.10.4		a.	b.	c.

		YES	NO
8.11	Is additional information on source reduction, recycling, or pollution control activities included with this report ? (Check one box)	[ ]	[X]

**ort releases pursuant to EPCRA Section 329(8) including "any spilling, leaking, pumping, pouring, emitting, emptying, discharging, cting, escaping, leaching, dumping, or disposing into the environment." Do not include any quantity treated onsite or offsite.

EPA
United States Environmental Protection Agency

FORM R

TOXIC CHEMICAL RELEASE INVENTORY REPORTING FORM

Section 313 of the Emergency Planning and Community Right-to-Know Act of 1986, also known as Title III of the Superfund Amendments and Reauthorization Act

WHERE TO SEND COMPLETED FORMS: 1. EPCRA Reporting Center, P.O Box 3348, Merrifield, VA 22116-3348, ATTN: TOXIC CHEMICAL RELEASE INVENTORY
2. APPROPRIATE STATE OFFICE (See instructions in Appendix F)

Enter "X" here if this is a revision: X

For EPA use only

Important: See instructions to determine when "Not Applicable (NA)" boxes should be checked.

PART I. FACILITY IDENTIFICATION INFORMATION

SECTION 1. REPORTING YEAR 1997

SECTION 2. TRADE SECRET INFORMATION

2.1 Are you claiming the toxic chemical identified on page 3 trade secret?
[ ] Yes (Answer question 2.2; Attach substantiation forms) [X] No (Do not answer 2.2; Go to Section 3)

2.2 Is this copy [ ] Sanitized [ ] Unsanitized (Answer only if "YES" in 2.1)

SECTION 3. CERTIFICATION (Important: Read and sign after completing all form sections.)

I hereby certify that I have reviewed the attached documents and that, to the best of my knowledge and belief, the submitted information is true and complete and that the amounts and values in this report are accurate based on reasonable estimates using data available to the preparers of this report.

Name and official title of owner/operator or senior management official:	Signature:	Date Signed:
MR. AMOS KAMERER PLANT MANAGER		07/30/1999

SECTION 4. FACILITY IDENTIFICATION

4.1 TRI Facility ID Number: 97210-KPPRS-7540N

Facility or Establishment Name: KOPPERS INDUSTRIES, INC. PORTLAND TAR PLANT

Facility or Establishment Name or Mailing Address (if different from street address):

Street: 7540 N.W. ST. HELENS ROAD

Mailing Address:

City/County/State/Zip Code: PORTLAND MULTNOMAH OR 97210-3663

City/County/State/Zip Code:

4.2 This report contains information for: (Important : check a or b; check c if applicable)
a. [X] An entire facility b. [ ] Part of a facility c. [ ] A Federal facility

4.3 Technical Contact Name: MR. AMOS KAMERER — Telephone Number (include area code): (503) 286 - 3681

4.4 Public Contact Name: MR. AMOS KAMERER — Telephone Number (include area code): (503) 286 - 3681

4.5 SIC Code (s) (4 digits): a. 2865 b. c. d. e. f.

4.6

Latitude	Degrees	Minutes	Seconds	Longitude	Degrees	Minutes	Seconds
	045	34	52		122	45	28

4.7 Dun & Bradstreet Number(s) (9 digits)	4.8 EPA identification Number (RCRA I.D. No.) (12 characters)	4.9 Facility NPDES Permit Number(s) (9 characters)	4.10 Underground Injection Well Code (UIC) I.D. Number(s) (12 digits)
a. 027734359	a. ORD027734359	a. OR0101003	a. NA
b. NA	b. NA	b. NA	b.

SECTION 5. PARENT COMPANY INFORMATION

5.1 Name of Parent Company: NA [ ] KOPPERS INDUSTRIES, INC.

Parent Company's Dun & Bradstreet Number: NA [ ] 196991582

EPA FORM R
PART II. CHEMICAL-SPECIFIC INFORMATION

TRI Facility ID Number
97210-KPPRS-7540N
Toxic Chemical, Category or Generic Name
NAPHTHALENE

SECTION 1. TOXIC CHEMICAL IDENTITY (Important: DO NOT complete this section if you completed Section 2 below.)

1.1	CAS Number (Important: Enter only one number exactly as it appears on the Section 313 list. Enter category code if reporting a chemical category.)
	000091203
1.2	Toxic Chemical or Chemical Category Name (Important: Enter only one name exactly as it appears on the Section 313 list.)
	NAPHTHALENE
1.3	Generic Chemical Name (Important: Complete **only** if Part 1, Section 2.1 is checked "yes". Generic Name must be structurally descriptive)
	NA

SECTION 2. MIXTURE COMPONENT IDENTITY (Important: DO NOT complete this section if you completed Section 1 above.)

2.1	Generic Chemical Name Provided by Supplier (Important: Maximum of 70 characters, including numbers, letters, spaces, and punctuation.)
	NA

SECTION 3. ACTIVITIES AND USES OF THE TOXIC CHEMICAL AT THE FACILITY
(Important: Check all that apply.)

3.1 Manufacture the toxic chemical:	3.2 Process the toxic chemical:	3.3 Otherwise use the toxic chemical:
a. [X] Produce b. [ ] Import		
If produce or import:		
c. [ ] For on-site use/processing	a. [ ] As a reactant	a. [ ] As a chemical processing aid
d. [ ] For sale/distribution	b. [ ] As a formulation component	b. [ ] As a manufacturing aid
e. [ ] As a byproduct	c. [X] As an article component	c. [ ] Ancillary or other use
f. [X] As an impurity	d. [ ] Repackaging	

SECTION 4. MAXIMUM AMOUNT OF THE TOXIC CHEMICAL ONSITE AT ANY TIME DURING THE CALENDAR YEAR

4.1	05 (Enter two-digit code from instruction package.)	

SECTION 5. QUANTITY OF THE TOXIC CHEMICAL ENTERING EACH ENVIRONMENTAL MEDIUM ONSITE

			A. Total Release (pounds/year) (Enter range code or estimate*)	B. Basis of estimate (enter code)	C. % From Stormwater
5.1	Fugitive or non-point air emissions	NA [ ]	3	E	
5.2	Stack or point air emissions	NA [ ]	1735	E	
5.3	Discharges to receiving streams or water bodies (enter one name per box)				
	Stream or Water Body Name				
5.3.1	NA				
5.3.2					
5.3.3					
5.4.1	Underground Injection onsite to Class I Wells	NA [X]	NA		
5.4.2	Underground injection onsite to Class II-V Wells	NA [X]	NA		

If additional pages of Part II, Section 5.3 are attached, indicate the total number of pages in this box [1] and indicate the Part II, Section 5.3 page number in this box. [1] (example: 1,2,3, etc)

* Range Codes: A= 1 - 10 pounds; B= 11- 499 pounds; C= 500 - 999 pounds.

EPA FORM R

PART II. CHEMICAL - SPECIFIC INFORMATION (CONTINUED)

TRI Facility ID Number
97210-KPPRS-7540N
Toxic Chemical, Category, or Generic Name
NAPHTHALENE

SECTION 5. QUANTITY OF THE TOXIC CHEMICAL ENTERING EACH ENVIRONMENTAL MEDIUM ONSITE (Continued)

		NA	A. Total Release (pounds/year) (enter range code* or estimate)	B. Basis of Estimate (enter code)
5.5	Disposal to land onsite			
5.5.1A	RCRA Subtitle C landfills	X	NA	
5.5.1B	Other landfills	X	NA	
5.5.2	Land treatment/application farming	X	NA	
5.5.3	Surface Impoundment	X	NA	
5.5.4	Other disposal	X	NA	

SECTION 6. TRANSFERS OF THE TOXIC CHEMICAL IN WASTES TO OFF-SITE LOCATIONS

6.1 DISCHARGES TO PUBLICLY OWNED TREATMENT WORKS (POTWs)

6.1.A Total Quantity Transferred to POTWs and Basis of Estimate

6.1.A.1. Total Transfers (pounds/year) (enter range code* or estimate)	6.1.A.2 Basis of Estimate (enter code)
NA	

6.1.B. 1	POTW Name	NA					
POTW Address							
City		State		County		Zip	-
6.1.B. 2	POTW Name						
POTW Address							
City		State		County		Zip	

If additional pages of Part II, Section 6.1 are attached, indicate the total number of pages in this box [1] **and indicate the Part II, Section 6.1 page number in this box** [1] **(example: 1,2,3, etc.)**

SECTION 6.2 TRANSFERS TO OTHER OFF-SITE LOCATIONS

6.2. 1	Off-Site EPA Identification Number (RCRA ID No.)	NA					
Off-Site Location Name		NA					
Off-Site Address							
City		State		County		Zip	

Is location under control of reporting facility or parent company? [ ] Yes [ ] No

* Range Codes: A = 1 - 10 pounds; B = 11 - 499 pounds; C = 500 - 999 pounds.

EPA FORM R

PART II CHEMICAL-SPECIFIC INFORMATION (CONTINUED)

TRI Facility ID Number
97210-KPPRS-7540N
Toxic Chemical, Category or Generic Name
NAPHTHALENE

SECTION 6.2 TRANSFERS TO OTHER OFF-SITE LOCATIONS (Continued)

A. Total Transfers (pounds/year) (enter range code* or estimate)	B. Basis of Estimate (enter code)	C. Type of Waste Treatment/Disposal/ Recycling/Energy Recovery (enter code)
1.	1.	1.
2.	2.	2.
3.	3.	3.
4.	4.	4.

6.2 2 Off-Site EPA Identification Number (RCRA ID No.)

Off-Site location Name

Off-Site Address

City | State | County | Zip -

Is location under control of reporting facility or parent company? ☐ Yes ☐ No

A. Total Transfers (pounds/year) (enter range code* or estimate)	B. Basis of Estimate (enter code)	C. Type of Waste Treatment/Disposal/ Recycling/Energy Recovery (enter code)
1.	1.	1.
2.	2.	2.
3.	3.	3.
4.	4.	4.

SECTION 7A. ON-SITE WASTE TREATMENT METHODS AND EFFICIENCY

☒ Not Applicable (NA) - Check here if no on-site waste treatment is applied to any waste stream containing the toxic chemical or chemical category.

a. General Waste Stream (enter code)	b. Waste Treatment Method(s) Sequence [enter 3-character code(s)]	c. Range of Influent Concentration	d. Waste Treatment Efficiency Estimate	e. Based on Operating Data ?
7A.1a	7A.1b: 1 2 3 4 5 6 7 8	7A.1c	7A.1d	7A.1e
NA			0 %	Yes ☐ No ☐
7A.2a	7A.2b: 1 2 3 4 5 6 7 8	7A.2c	7A.2d	7A.2e
			%	Yes ☐ No ☐
7A.3a	7A.3b: 1 2 3 4 5 6 7 8	7A.3c	7A.3d	7A.3e
			%	Yes ☐ No ☐
7A.4a	7A.4b: 1 2 3 4 5 6 7 8	7A.4c	7A.4d	7A.4e
			%	Yes ☐ No ☐
7A.5a	7A.5b: 1 2 3 4 5 6 7 8	7A.5c	7A.5d	7A.5e
			%	Yes ☐ No ☐

Additional pages of Part II, Section 6.2/7A are attached, indicate the total number of pages in this box 1
and indicate the Part II, Section 6.2/7A page number in this box : 1 (example: 1,2,3, etc)

* Range Codes: A = 1 - 10 pounds; B = 11 - 499 pounds; C = 500 - 999 pounds.

EPA FORM R
PART II. CHEMICAL-SPECIFIC INFORMATION (CONTINUED)

TRI Facility ID Number
97210-KPPRS-7540N
Toxic Chemical, Category or Generic Name
NAPHTHALENE

SECTION 7B. ON-SITE ENERGY RECOVERY PROCESSES

[X] Not Applicable (NA) - Check here if no on-site energy recovery is applied to any waste stream containing the toxic chemical or chemical category.

Energy Recovery Methods [enter 3-character code(s)]

1 NA | 2 | 3 | 4

SECTION 7C. ON-SITE RECYCLING PROCESSES

[ ] Not Applicable (NA) - Check here if no on-site recycling is applied to any waste stream containing the toxic chemical or chemical category.

Recycling Methods [enter 3-character code(s)]

1. R14 | 2. | 3. | 4. | 5.

6. | 7. | 8. | 9. | 10.

SECTION 8. SOURCE REDUCTION AND RECYCLING ACTIVITIES

		Column A Prior Year (pounds/year)	Column B Current Reporting Year (pounds/year)	Column C Following Year (pounds/year)	Column D Second Following Year (pounds/year)
8.1	Quantity released **	0	1700	1700	1700
8.2	Quantity used for energy recovery onsite	0	0	0	0
	Quantity used for energy recovery offsite	0	0	0	0
8.4	Quantity recycled onsite	0	12000	12000	12000
8.5	Quantity recycled offsite	0	0	0	0
8.6	Quantity treated onsite	0	0	0	0
8.7	Quantity treated offsite	0	0	0	0
8.8	Quantity released to the environment as a result of remedial actions, catastrophic events, or one-time events not associated with production processes (pounds/year)			0	
8.9	Production ratio or activity index			0001.00	

8.10 Did your facility engage in any source reduction activities for this chemical during the reporting year ? If not, enter "NA" in Section 8.10.1 and answer Section 8.11.

	Source Reduction Activities [enter code(s)]	Methods to Identify Activity (enter codes)		
8.10.1	NA	a.	b.	c.
8.10.2		a.	b.	c.
8.10.3		a.	b.	c.
8.10.4		a.	b.	c.

8.11 Is additional information on source reduction, recycling, or pollution control activities included with this report ? (Check one box) — YES [ ] NO [X]

** Report releases pursuant to EPCRA Section 329(8) including "any spilling, leaking, pumping, pouring, emitting, emptying, discharging, injecting, escaping, leaching, dumping, or disposing into the environment." Do not include any quantity treated onsite or offsite.

EPA
United States Environmental Protection Agency

FORM R

TOXIC CHEMICAL RELEASE INVENTORY REPORTING FORM

Section 313 of the Emergency Planning and Community Right-to-Know Act of 1986, also known as Title III of the Superfund Amendments and Reauthorization Act

WHERE TO SEND COMPLETED FORMS: 1. EPCRA Reporting Center, P.O Box 3348, Merrifield, VA 22116-3348, ATTN: TOXIC CHEMICAL RELEASE INVENTORY
2. APPROPRIATE STATE OFFICE (See instructions in Appendix F)

Enter "X" here if this is a revision: X

For EPA use only

Important: See instructions to determine when "Not Applicable (NA)" boxes should be checked.

PART I. FACILITY IDENTIFICATION INFORMATION

SECTION 1. REPORTING YEAR 1997

SECTION 2. TRADE SECRET INFORMATION

2.1 Are you claiming the toxic chemical identified on page 3 trade secret?
[ ] Yes (Answer question 2.2; Attach substantiation forms) [X] No (Do not answer 2.2; Go to Section 3)

2.2 Is this copy [ ] Sanitized [ ] Unsanitized (Answer only if "YES" in 2.1)

SECTION 3. CERTIFICATION (Important: Read and sign after completing all form sections.)

I hereby certify that I have reviewed the attached documents and that, to the best of my knowledge and belief, the submitted information is true and complete and that the amounts and values in this report are accurate based on reasonable estimates using data available to the preparers of this report.

Name and official title of owner/operator or senior management official:	Signature:	Date Signed:
MR. AMOS KAMERER PLANT MANAGER		07/30/1999

SECTION 4. FACILITY IDENTIFICATION

4.1 TRI Facility ID Number: 97210-KPPRS-7540N

ility or Establishment Name: KOPPERS INDUSTRIES, INC PORTLAND TAR PLANT

Facility or Establishment Name or Mailing Address(if different from street address):

Street: 7540 N.W. ST. HELENS ROAD

Mailing Address:

City/County/State/Zip Code: PORTLAND MULTNOMAH OR 97210-3663

City/County/State/Zip Code:

4.2 This report contains information for: (Important : check a or b; check c if applicable) a. [X] An entire facility b. [ ] Part of a facility c. [ ] A Federal facility

4.3	Technical Contact Name	MR. AMOS KAMERER	Telephone Number (include area code): (503) 286 - 3681
4.4	Public Contact Name	MR. AMOS KAMERER	Telephone Number (include area code): (503) 286 - 3681

4.5 SIC Code (s) (4 digits): a. 2865 b. c. d. e. f.

4.6	Latitude	Degrees	Minutes	Seconds	Longitude	Degrees	Minutes	Seconds
		045	34	52		122	45	28

4.7 Dun & Bradstreet Number(s) (9 digits)	**4.8** EPA identification Number (RCRA I.D. No.) (12 characters)	**4.9** Facility NPDES Permit Number(s) (9 characters)	**4.10** Underground Injection Well Code (UIC) I.D. Number(s) (12 digits)
a. 027734359	a. ORD027734359	a. OR0101003	a. NA
b. NA	b. NA	b. NA	b.

SECTION 5. PARENT COMPANY INFORMATION

5.1	Name of Parent Company	NA [ ]	KOPPERS INDUSTRIES, INC.
	Parent Company's Dun & Bradstreet Number	NA [ ]	196991582

EPA FORM R
PART II. CHEMICAL-SPECIFIC INFORMATION

TRI Facility ID Number
97210-KPPRS-7540N
Toxic Chemical, Category or Generic Name
POLYCYCLIC AROMATIC COMPOUNDS

SECTION 1. TOXIC CHEMICAL IDENTITY (Important: DO NOT complete this section if you completed Section 2 below.)

1.1	CAS Number (Important: Enter only one number exactly as it appears on the Section 313 list. Enter category code if reporting a chemical category.)
	N590
1.2	Toxic Chemical or Chemical Category Name (Important: Enter only one name exactly as it appears on the Section 313 list.)
	POLYCYCLIC AROMATIC COMPOUNDS
1.3	Generic Chemical Name (Important: Complete **only** if Part 1, Section 2.1 is checked "yes". Generic Name must be structurally descriptive)
	NA

SECTION 2. MIXTURE COMPONENT IDENTITY (Important: DO NOT complete this section if you completed Section 1 above.)

2.1	Generic Chemical Name Provided by Supplier (Important: Maximum of 70 characters, including numbers, letters, spaces, and punctuation.)
	NA

SECTION 3. ACTIVITIES AND USES OF THE TOXIC CHEMICAL AT THE FACILITY
(Important: Check all that apply.)

3.1 Manufacture the toxic chemical:	3.2 Process the toxic chemical:	3.3 Otherwise use the toxic chemical:
a. [X] Produce b. [ ] Import		
If produce or import:		
c. [ ] For on-site use/processing	a. [ ] As a reactant	a. [ ] As a chemical processing aid
d. [ ] For sale/distribution	b. [ ] As a formulation component	b. [ ] As a manufacturing aid
e. [ ] As a byproduct	c. [X] As an article component	c. [ ] Ancillary or other use
f. [X] As an impurity	d. [ ] Repackaging	

SECTION 4. MAXIMUM AMOUNT OF THE TOXIC CHEMICAL ONSITE AT ANY TIME DURING THE CALENDAR YEAR

4.1	05 (Enter two-digit code from instruction package.)	

SECTION 5. QUANTITY OF THE TOXIC CHEMICAL ENTERING EACH ENVIRONMENTAL MEDIUM ONSITE

			A. Total Release (pounds/year) (Enter range code or estimate*)	B. Basis of estimate (enter code)	C. % From Stormwater
5.1	Fugitive or non-point air emissions	NA [ ]	23	E	
5.2	Stack or point air emissions	NA [ ]	0	E	
5.3	Discharges to receiving streams or water bodies (enter one name per box)				
	Stream or Water Body Name				
5.3.1	ST. HELENS ROAD CREEK		2	M	100.00
5.3.2					
5.3.3					
5.4.1	Underground Injection onsite to Class I Wells	NA [X]	NA		
5.4.2	Underground injection onsite to Class II-V Wells	NA [X]	NA		

If additional pages of Part II, Section 5.3 are attached, indicate the total number of pages in this box [1]
and indicate the Part II, Section 5.3 page number in this box. [1] (example: 1,2,3, etc)

* Range Codes: A= 1 - 10 pounds; B= 11- 499 pounds; C= 500 - 999 pounds.

EPA FORM R

PART II. CHEMICAL - SPECIFIC INFORMATION (CONTINUED)

TRI Facility ID Number
97210-KPPRS-7540N
Toxic Chemical, Category, or Generic Name
POLYCYCLIC AROMATIC COMPOUNDS

SECTION 5. QUANTITY OF THE TOXIC CHEMICAL ENTERING EACH ENVIRONMENTAL MEDIUM ONSITE (Continued)

		NA	A. Total Release (pounds/year) (enter range code* or estimate)	B. Basis of Estimate (enter code)
5.5	Disposal to land onsite			
5.5.1A	RCRA Subtitle C landfills	X	NA	
5.5.1B	Other landfills	X	NA	
5.5.2	Land treatment/application farming	X	NA	
5.5.3	Surface Impoundment	X	NA	
5.5.4	Other disposal	X	NA	

SECTION 6. TRANSFERS OF THE TOXIC CHEMICAL IN WASTES TO OFF-SITE LOCATIONS

6.1 DISCHARGES TO PUBLICLY OWNED TREATMENT WORKS (POTWs)

6.1.A Total Quantity Transferred to POTWs and Basis of Estimate

6.1.A.1. Total Transfers (pounds/year) (enter range code* or estimate)	6.1.A.2 Basis of Estimate (enter code)
NA	

6.1.B. 1	POTW Name	NA					
POTW Address							
City		State		County		Zip	-
6.1.B. 2	POTW Name						
POTW Address							
City		State		County		Zip	

If additional pages of Part II, Section 6.1 are attached, indicate the total number of pages in this box [1] and indicate the Part II, Section 6.1 page number in this box [1] (example: 1,2,3, etc.)

SECTION 6.2 TRANSFERS TO OTHER OFF-SITE LOCATIONS

6.2. 1	Off-Site EPA Identification Number (RCRA ID No.)	NA					
Off-Site Location Name		NA					
Off-Site Address							
City		State		County		Zip	

Is location under control of reporting facility or parent company? [ ] Yes [ ] No

* Range Codes: A = 1 - 10 pounds; B = 11 - 499 pounds; C = 500 - 999 pounds.

EPA FORM R

PART II CHEMICAL-SPECIFIC INFORMATION (CONTINUED)

TRI Facility ID Number
97210-KPPRS-7540N
Toxic Chemical, Category or Generic Name
POLYCYCLIC AROMATIC COMPOUNDS

SECTION 6.2 TRANSFERS TO OTHER OFF-SITE LOCATIONS (Continued)

A. Total Transfers (pounds/year) (enter range code* or estimate)	B. Basis of Estimate (enter code)	C. Type of Waste Treatment/Disposal/ Recycling/Energy Recovery (enter code)
1.	1.	1.
2.	2.	2.
3.	3.	3.
4.	4.	4.

6.2 2 Off-Site EPA Identification Number (RCRA ID No.)

Off-Site location Name

Off-Site Address

City | State | County | Zip -

Is location under control of reporting facility or parent company? ☐ Yes ☐ No

A. Total Transfers (pounds/year) (enter range code* or estimate)	B. Basis of Estimate (enter code)	C. Type of Waste Treatment/Disposal/ Recycling/Energy Recovery (enter code)
1.	1.	1.
2.	2.	2.
3.	3.	3.
4.	4.	4.

SECTION 7A. ON-SITE WASTE TREATMENT METHODS AND EFFICIENCY

☐ Not Applicable (NA) - Check here if no on-site waste treatment is applied to any waste stream containing the toxic chemical or chemical category.

a. General Waste Stream (enter code)	b. Waste Treatment Method(s) Sequence [enter 3-character code(s)]	c. Range of Influent Concentration	d. Waste Treatment Efficiency Estimate	e. Based on Operating Data ?
7A.1a	7A.1b: 1 P15 2 NA; 3 4 5; 6 7 8	7A.1c	7A.1d	7A.1e
W		5	0 %	Yes ☐ No X
7A.2a	7A.2b: 1 2; 3 4 5; 6 7 8	7A.2c	7A.2d	7A.2e
			%	Yes ☐ No ☐
7A.3a	7A.3b: 1 2; 3 4 5; 6 7 8	7A.3c	7A.3d	7A.3e
			%	Yes ☐ No ☐
7A.4a	7A.4b: 1 2; 3 4 5; 6 7 8	7A.4c	7A.4d	7A.4e
			%	Yes ☐ No ☐
7A.5a	7A.5b: 1 2; 3 4 5; 6 7 8	7A.5c	7A.5d	7A.5e
			%	Yes ☐ No ☐

Additional pages of Part II, Section 6.2/7A are attached, indicate the total number of pages in this box 1

...d indicate the Part II, Section 6.2/7A page number in this box : 1 (example: 1,2,3, etc)

* Range Codes: A = 1 - 10 pounds; B = 11 - 499 pounds; C = 500 - 999 pounds.

EPA FORM R

PART II. CHEMICAL-SPECIFIC INFORMATION (CONTINUED)

TRI Facility ID Number
97210-KPPRS-7540N
Toxic Chemical, Category or Generic Name
POLYCYCLIC AROMATIC COMPOUNDS

SECTION 7B. ON-SITE ENERGY RECOVERY PROCESSES

[X] Not Applicable (NA) - Check here if no on-site energy recovery is applied to any waste stream containing the toxic chemical or chemical category.

Energy Recovery Methods [enter 3-character code(s)]

1 NA | 2 | 3 | 4

SECTION 7C. ON-SITE RECYCLING PROCESSES

[ ] Not Applicable (NA) - Check here if no on-site recycling is applied to any waste stream containing the toxic chemical or chemical category.

Recycling Methods [enter 3-character code(s)]

1. R14 | 2. | 3. | 4. | 5.

6. | 7. | 8. | 9. | 10.

SECTION 8. SOURCE REDUCTION AND RECYCLING ACTIVITIES

		Column A Prior Year (pounds/year)	Column B Current Reporting Year (pounds/year)	Column C Following Year (pounds/year)	Column D Second Following Year (pounds/year)
8.1	Quantity released **	0	25	25	25
8.2	Quantity used for energy recovery onsite	0	0	0	0
	Quantity used for energy recovery offsite	0	0	0	0
8.4	Quantity recycled onsite	0	71000	71000	71000
8.5	Quantity recycled offsite	0	0	0	0
8.6	Quantity treated onsite	0	2	2	2
8.7	Quantity treated offsite	0	0	0	0
8.8	Quantity released to the environment as a result of remedial actions, catastrophic events, or one-time events not associated with production processes (pounds/year)			0	
8.9	Production ratio or activity index			0001.00	

8.10 Did your facility engage in any source reduction activities for this chemical during the reporting year ? If not, enter "NA" in Section 8.10.1 and answer Section 8.11.

	Source Reduction Activities [enter code(s)]	Methods to Identify Activity (enter codes)		
8.10.1	NA	a.	b.	c.
8.10.2		a.	b.	c.
8.10.3		a.	b.	c.
8.10.4		a.	b.	c.

8.11 Is additional information on source reduction, recycling, or pollution control activities included with this report ? (Check one box) — YES [ ] NO [X]

port releases pursuant to EPCRA Section 329(8) including "any spilling, leaking, pumping, pouring, emitting, emptying, discharging, jecting, escaping, leaching, dumping, or disposing into the environment." Do not include any quantity treated onsite or offsite

United States Environmental Protection Agency

TOXIC CHEMICAL RELEASE INVENTORY

FORM A

WHERE TO SEND COMPLETED FORMS: 1. EPCRA Reporting Center P.O Box 3348 Merrifield, VA 22116-3348 ATTN: TOXIC CHEMICAL RELEASE INVENTORY	2. APPROPRIATE STATE OFFICE (See instructions in Appendix F)	Enter "X" here if this is a revision	X
		For EPA use only	

Important: See instructions to determine when "Not Applicable (NA)" boxes should be checked.

PART I. FACILITY IDENTIFICATION INFORMATION

SECTION 1. REPORTING YEAR 1997

SECTION 2. TRADE SECRET INFORMATION

2.1	Are you claiming the toxic chemical identified on page 3 trade secret?	2.2	Is this copy ☐ Sanitized ☐ Unsanitized
	☐ Yes (Answer question 2.2; Attach substantiation forms) ☒ No (Do not answer 2.2; Go to Section 3)		(Answer only if "YES" in 2.1)

SECTION 3. CERTIFICATION (Important: Read and sign after completing all form sections.)

I hereby certify that to the best of my knowledge and belief, for each toxic chemical listed in the statement, the annual reportable amount as defined in 40 CFR 372.27 (a), did not exceed 500 pounds for this reporting year and that the chemical was manufactured, processed, or otherwise used in an amount not exceeding 1 million pounds during this reporting year

Name and official title of owner/operator or senior management official:	Signature:	Date Signed:
MR. AMOS KAMERER PLANT MANAGER		07/30/1999

SECTION 4. FACILITY IDENTIFICATION

4.1		TRI Facility ID Number	97210-KPPRS-7540N
lity or Establishment Name		Facility or Establishment Name or Mailing Address(if different from street address)	
..OPPERS INDUSTRIES, INC. PORTLAND TAR PLANT			
Street		Mailing Address	
7540 N.W. ST. HELENS ROAD			
City/County/State/Zip Code		City/County/State/Zip Code	
PORTLAND MULTNOMAH OR 97210-3663			

4.2	This report contains information for: (Important : check c if applicable)	c. ☐ A Federal facility
4.3	Technical Contact Name: MR. AMOS KAMERER	Telephone Number (include area code): (503) 286 - 3681
4.4	Intentionally left blank	

4.5	SIC Code (s) (4 digits)	a. 2865	b.	c.	d.	e.	f.

4.6	Latitude	Degrees	Minutes	Seconds	Longitude	Degrees	Minutes	Seconds
		045	34	52		122	45	28

4.7	Dun & Bradstreet Number(s) (9 digits)	4.8	EPA identification Number (RCRA I.D. No.) (12 characters)	4.9	Facility NPDES Permit Number(s) (9 characters)	4.10	Underground Injection Well Code (UIC) I.D. Number(s) (12 digits)
a.	027734359	a.	ORD027734359	a.	OR0101003	a.	NA
b.	NA	b.	NA	b.	NA	b.	

SECTION 5. PARENT COMPANY INFORMATION

5.1	Name of Parent Company	NA ☐	KOPPERS INDUSTRIES, INC.
	Parent Company's Dun & Bradstreet Number	NA ☐	196991582

EPA FORM A
PART II. CHEMICAL IDENTIFICATION

FID: 97210-KPPRS-7540N

SECTION 1. TOXIC CHEMICAL IDENTITY

Report 1 of 1

..1	CAS Number (Important: Enter only one number exactly as it appears on the Section 313 list. Enter category code if reporting a chemical category.)
	008001589
1.2	Toxic Chemical or Chemical Category Name (Important: Enter only one name exactly as it appears on the Section 313 list.)
	CREOSOTE
1.3	Generic Chemical Name (Important: Complete only if Part I, Section 2.1 is checked "yes". Generic Name must be structurally descriptive).
	NA

SECTION 2. MIXTURE COMPONENT IDENTITY (Important: DO NOT complete this section if you completed Section 1 above.)

2.1	Generic Chemical Name Provided by Supplier (Important: Maximum of 70 characters, including numbers, letters, spaces, and punctuation.)
	NA

United States Environmental Protection Agency

TOXIC CHEMICAL RELEASE INVENTORY

FORM A

WHERE TO SEND COMPLETED FORMS: 1. EPCRA Reporting Center, P.O Box 3348, Merrifield, VA 22116-3348, ATTN: TOXIC CHEMICAL RELEASE INVENTORY
2. APPROPRIATE STATE OFFICE (See instructions in Appendix F)

Enter "X" here if this is a revision: [ ]

For EPA use only

Important: See instructions to determine when "Not Applicable (NA)" boxes should be checked.

PART I. FACILITY IDENTIFICATION INFORMATION

SECTION 1. REPORTING YEAR 1997

SECTION 2. TRADE SECRET INFORMATION

2.1	Are you claiming the toxic chemical identified on page 3 trade secret? [ ] Yes (Answer question 2.2; Attach substantiation forms) [X] No (Do not answer 2.2; Go to Section 3)	2.2	Is this copy [ ] Sanitized [ ] Unsanitized (Answer only if "YES" in 2.1)

SECTION 3. CERTIFICATION (Important: Read and sign after completing all form sections.)

I hereby certify that to the best of my knowledge and belief, for each toxic chemical listed in the statement, the annual reportable amount as defined in 40 CFR 372.27 (a), did not exceed 500 pounds for this reporting year and that the chemical was manufactured, processed, or otherwise used in an amount not exceeding 1 million pounds during this reporting year

Name and official title of owner/operator or senior management official:	Signature:	Date Signed:
MR. AMOS KAMERER PLANT MANAGER		06/30/1998

SECTION 4. FACILITY IDENTIFICATION

4.1		TRI Facility ID Number	97210-KPPRS-7540N
ility or Establishment Name		Facility or Establishment Name or Mailing Address(if different from street address)	
PPERS INDUSTRIES, INC. PORTLAND TAR PLANT			
Street		Mailing Address	
7540 N W ST. HELENS ROAD			
City/County/State/Zip Code		City/County/State/Zip Code	
PORTLAND MULTNOMAH OR 97210-3663			

4.2	This report contains information for: (Important : check c if applicable)	c. [ ]	A Federal facility
4.3	Technical Contact Name: MR. AMOS KAMERER	Telephone Number (include area code)	(503) 286 - 3681
4.4	Intentionally left blank		

4.5 SIC Code (s) (4 digits)	a.	b.	c.	d.	e.	f.
	2865					

4.6	Latitude	Degrees	Minutes	Seconds	Longitude	Degrees	Minutes	Seconds
		045	34	52		122	45	28

4.7 Dun & Bradstreet Number(s) (9 digits)	4.8 EPA identification Number (RCRA I.D. No.) (12 characters)	4.9 Facility NPDES Permit Number(s) (9 characters)	4.10 Underground Injection Well Code (UIC) I.D. Number(s) (12 digits)
a. 027734359	a. ORD027734359	a. OR0101003	a. NA
b. NA	b. NA	b. NA	b.

SECTION 5. PARENT COMPANY INFORMATION

5.1	Name of Parent Company	NA [ ]	KOPPERS INDUSTRIES, INC.
	Parent Company's Dun & Bradstreet Number	NA [ ]	196991582

EPA FORM A
PART II. CHEMICAL IDENTIFICATION

FID: 97210-KPPRS-7540N

SECTION 1. TOXIC CHEMICAL IDENTITY

Report 1 of 1

1.1	CAS Number (Important: Enter only one number exactly as it appears on the Section 313 list. Enter category code if reporting a chemical category.)
	000132649
1.2	Toxic Chemical or Chemical Category Name (Important: Enter only one name exactly as it appears on the Section 313 list.)
	DIBENZOFURAN
1.3	Generic Chemical Name (Important: Complete only if Part I, Section 2.1 is checked "yes". Generic Name must be structurally descriptive).
	NA

SECTION 2. MIXTURE COMPONENT IDENTITY (Important: DO NOT complete this section if you completed Section 1 above.)

2.1	Generic Chemical Name Provided by Supplier (Important: Maximum of 70 characters, including numbers, letters, spaces, and punctuation.)
	NA

United States Environmental Protection Agency

TOXIC CHEMICAL RELEASE INVENTORY

FORM A

WHERE TO SEND COMPLETED FORMS: 1. EPCRA Reporting Center P.O Box 3348 Merrifield, VA 22116-3348 ATTN: TOXIC CHEMICAL RELEASE INVENTORY	2. APPROPRIATE STATE OFFICE (See instructions in Appendix F)	Enter "X" here if this is a revision	
		For EPA use only	

Important: See instructions to determine when "Not Applicable (NA)" boxes should be checked.

PART I. FACILITY IDENTIFICATION INFORMATION

SECTION 1. REPORTING YEAR 1997

SECTION 2. TRADE SECRET INFORMATION

2.1	Are you claiming the toxic chemical identified on page 3 trade secret?	2.2	Is this copy ☐ Sanitized ☐ Unsanitized
	☐ Yes (Answer question 2.2; Attach substantiation forms) ☒ No (Do not answer 2.2; Go to Section 3)		(Answer only if "YES" in 2.1)

SECTION 3. CERTIFICATION (Important: Read and sign after completing all form sections.)

I hereby certify that to the best of my knowledge and belief, for each toxic chemical listed in the statement, the annual reportable amount as defined in 40 CFR 372.27 (a), did not exceed 500 pounds for this reporting year and that the chemical was manufactured, processed, or otherwise used in an amount not exceeding 1 million pounds during this reporting year

Name and official title of owner/operator or senior management official:	Signature:	Date Signed:
MR. AMOS KAMERER PLANT MANAGER		06/30/1998

SECTION 4. FACILITY IDENTIFICATION

4.1		TRI Facility ID Number	97210-KPPRS-7540N
lity or Establishment Name	KOPPERS INDUSTRIES, INC. PORTLAND TAR PLANT	Facility or Establishment Name or Mailing Address(if different from street address)	
Street	7540 N.W. ST. HELENS ROAD	Mailing Address	
City/County/State/Zip Code	PORTLAND MULTNOMAH OR 97210-3663	City/County/State/Zip Code	

4.2	This report contains information for: (Important : check c if applicable)	c. ☐ A Federal facility
4.3	Technical Contact Name: MR. AMOS KAMERER	Telephone Number (include area code): (503) 286 - 3681
4.4	Intentionally left blank	

4.5	SIC Code (s) (4 digits)	a. 2865	b.	c.	d.	e.	f.

4.6	Latitude	Degrees	Minutes	Seconds	Longitude	Degrees	Minutes	Seconds
		045	34	52		122	45	28

4.7 Dun & Bradstreet Number(s) (9 digits)	4.8 EPA identification Number (RCRA I.D. No.) (12 characters)	4.9 Facility NPDES Permit Number(s) (9 characters)	4.10 Underground Injection Well Code (UIC) I.D. Number(s) (12 digits)
a. 027734359	a. ORD027734359	a. OR0101003	a. NA
b. NA	b. NA	b. NA	b.

SECTION 5. PARENT COMPANY INFORMATION

5.1	Name of Parent Company	NA ☐	KOPPERS INDUSTRIES, INC.
	Parent Company's Dun & Bradstreet Number	NA ☐	196991582

EPA FORM A

PART II. CHEMICAL IDENTIFICATION

FID: 97210-KPPRS-7540N

SECTION 1. TOXIC CHEMICAL IDENTITY

Report 1 of 1

1.1	CAS Number (Important: Enter only one number exactly as it appears on the Section 313 list. Enter category code if reporting a chemical category.)
	000092524
1.2	Toxic Chemical or Chemical Category Name (Important: Enter only one name exactly as it appears on the Section 313 list.)
	BIPHENYL
1.3	Generic Chemical Name (Important: Complete only if Part I, Section 2.1 is checked "yes". Generic Name must be structurally descriptive).
	NA

SECTION 2. MIXTURE COMPONENT IDENTITY (Important: DO NOT complete this section if you completed Section 1 above.)

2.1	Generic Chemical Name Provided by Supplier (Important: Maximum of 70 characters, including numbers, letters, spaces, and punctuation.)
	NA

SUPPORTING TABLES

Table 1. 1997 SARA Title III, Toxic Chemical Reporting Inventory, Total Production/Throughput Inventory, Koppers Industries, Inc., Portland Tar Plant, Portland, Oregon

Process Production/Usage Rates

Mixture	Density (lb/gal)	Yearly Total (gal)	Maximum On-site (gal)
Pitch	11.0	6,943,524	577,259
Heavy Oil	9.6	42,421	29,732
P1/P13 Creosote	9.0	218,413	94,100
UCC	9.1	14,738	16,785
P&R Oil	9.1	4,761	5,476
CMN	8.5	0	NA
NSR	9.0	0	NA
Refined Tar	10.0	157,624	33,892

Maximum on-site represents the maximum quantity from either the beginning or ending inventory, whichever was greater.

Koppers016343

REVISION

Table 2. 1997 SARA Title III, Toxic Chemical Reporting Inventory, Reporting Inventories for Threshold Quantities, Koppers Industries, Inc., Portland Tar Plant, Portland, Oregon

YEARLY TOTALS

Mixture	Yearly Total (lbs)	Anthracene 120-12-7	Benzene 71-43-2	Biphenyl 92-52-4	Cresols 1319-77-3	Di-benzo-furan 132-64-9	Naphthalene 91-20-3	PAC's N590	Phenol 108-95-2	Pyridine 110-86-1	Quinoline 91-22-5	Toluene 108-88-3	Xylene 1330-20-7	Creosote 8001-58-9
Pitch	76,378,764	603,392	0	0	0	0	30,552	6,056,836	0	0	0	0	0	0
Heavy Oil	407,242	41,539	0	0	0	1,629	0	48,034	0	0	0	0	0	0
P1/P13 Creosote	1,965,717	0	2,949	7,666	6,487	18,871	342,035	0	5,897	0	6,487	0	0	1,376,002
UCC	134,116	18,776	0	0	0	0	134	7,256	0	0	0	0	0	0
P&R Oil	43,325	6,066	0	0	0	0	43	2,344	0	0	0	0	0	0
CMN	0	0	0	0	0	0	0	0	0	0	0	0	0	0
NSR	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Refined Tar	1,576,240	25,535	0	0	0	0	9,142	111,535	0	0	0	0	0	0
Total:		695,308	2,949	7,666	6,487	20,500	381,906	6,226,004	5,897	0	6,487	0	0	1,376,002

MONTHLY MAXIMUMS

Mixture	Monthly Maximum (lbs)	Anthracene 120-12-7	Benzene 71-43-2	Biphenyl 92-52-4	Cresols 1319-77-3	Di-benzo-furan 132-64-9	Naphthalene 91-20-3	PAC's N590	Phenol 108-95-2	Pyridine 110-86-1	Quinoline 91-22-5	Toluene 108-88-3	Xylene 1330-20-7	Xylene 1330-20-7
Pitch	6,349,849	50,164	0	0	0	0	2,540	503,543	0	0	0	0	0	0
Heavy Oil	285,427	29,114	0	0	0	1,142	0	33,666	0	0	0	0	0	0
P1/P13 Creosote	846,900	0	1,270	3,303	2,795	8,130	147,361	0	2,541	0	2,795	0	0	592,830
UCC	152,744	8,554	0	2,291	382	5,346	21,690	5,346	351	0	1,375	199	260	260
P&R Oil	49,832	2,791	0	747	125	1,744	7,076	1,744	115	0	448	65	85	85
CMN	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
NSR	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Refined Tar	338,920	5,491	0	0	0	0	1,966	23,982	0	0	0	0	0	0
Total:		96,112	1,270	6,342	3,301	16,362	180,632	568,281	3,007	0	4,618	263	344	593,174

Reportable Toxic Chemicals for 1997 include: Anthracene, Biphenyl, Dibenzofurans, Naphthalene, PAC's and Creosote. Over 25,000 pounds processed.
(note that biphenyl and dibenzofurans are below 25,000 pounds, but were reported because reported in orginal submittal).

Koppers016344

Table 3. 1997 SARA Title III, Toxic Chemical Reporting Inventory, Summary of Releases, Recycling, Energy Recovery, and Waste Treatment, Koppers Industries, Inc., Portland Tar Plant, Portland, Oregon

	Anthracene (lb/yr)	Benzene (lb/yr)	**Biphenyl (lb/yr)**	Cresols (lb/yr)	**Dibenzofuran (lb/yr)**	**Naphthalene (lb/yr)**	**PACs (lb/yr)**	Phenol (lb/yr)	Pyridine (lb/yr)	Quinoline (lb/yr)	Toluene (lb/yr)	Xylenes (lb/yr)	**Creosote (lb/yr)**
RELEASES													
Point Air Releases													
Uncontrolled Tanks	**2**	42	**0**	1	**0**	**37**	**0**	1	0	0	0	0	**57**
Loading Racks and Pitch Tanks (Scrubber)	47	0	**24**	40	**26**	**1,698**	**0**	55	0	53	495	190	**0**
TOTAL	49	42	**24**	41	**27**	**1735**	**0**	56	0	53	495	190	**57**
Non-point Air Releases													
Fugitives	**2**	0	**0**	0	**0**	**3**	**23**	0	0	0	0	0	**10**
Land Discharges	**Not applicable in 1997**												
Water Discharges	**0**	0	**0**	0	**0**	**0**	**2**	8	0	0	0	0	**0**
Total Released	**52**	42	**24**	41	**27**	**1738**	**25**	64	0	53	495	190	**66**
ENERGY RECOVERY ON-SITE/OFF-SITE	**Not applicable in 1997**												
ON-SITE RECYCLING													
Pitch Recycling (Fume Scrubber)	**12,433**	0	**0**	0	**0**	**11,951**	**70,998**	0	0	0	0	0	**0**
OFF-SITE RECYCLING	**Not applicable in 1997**												
QUANTITY TREATED ON-SITE													
Wastewater (Assuming same quantity as effluent)	**0**	0	**0**	0	**0**	**0**	**2**	8	0	0	0	0	**0**
QUANTITY TREATED OFF-SITE	**Not applicable in 1997**												

Notes:

1. Bolded chemicals are reportable for 1997.
2. Biphenyl, dibenzofurans and creosote can use Form A's because total reportable amount is under 500 pounds. Naphthalene, anthracene, and PACs requires a Form R because reportable amount is over 500 pounds.

Koppers016345

Table 4. 1997 SARA Title III, Toxic Chemical Reporting Inventory, Uncontrolled Tank Emissions, Koppers Industries, Inc., Portland Tar Plant, Portland Oregon

Tank ID	Contents	Temp °F	VOCs (lb/yr)	Anthracene (lb/yr)	Benzene (lb/yr)	Biphenyl (lb/yr)	Cresols (lb/yr)	Dibenzofuran (lb/yr)	Naphthalene (lb/yr)	PACs (lb/yr)	Phenol (lb/yr)	Pyridine (lb/yr)	Quinoline (lb/yr)	Toluene (lb/yr)	Xylenes (lb/yr)	Creosote (lb/yr)
T-33	Heavy Oil	250	6.1	1.7				0.3		0.00						
T-19	P&R Oil	180	0.3	0.2				0.0	0.1	0.0						
T-23	Light Uncorrected Creo	180	0.2	0.1				0.0	0.1	0.0						
T-17	P1/P13 Creosote	170	33.1	0.0	8.8	0.0	0.2	0.0	8.9	0.0	0.3	0.0	0.1	0.0	0.0	14.7
T-67	P1/P13 Creosote	150	102.9	0.0	32.7	0.1	0.6	0.1	26.4	0.0	0.7	0.0	0.3	0.0	0.0	42.0
Railcar	Refined Tar	190	6.0	0.1					1.6	0.0						
T-3	Crude Methyl Naphthalene	Not considered in inventory - was not manufactured, processed, or used in 1997.														
T-34	Naphthalene Still Residue	Not considered in inventory - was not manufactured, processed, or used in 1997.														
Total			148.6	2.0	41.5	0.1	0.8	0.5	37.1	0.0	0.9	0.0	0.4	0.0	0.0	56.8

Koppers016346

Table 5. 1997 SARA Title III, Toxic Chemical Reporting Inventory, Fume Scrubber Emissions, Koppers Industries, Inc. Portland Tar Plant, Portland, Oregon

Note: This accounts for all loading losses, losses from Tank 65 & 68, Liquid Pitch Tanks, and losses from T-102.

Basis:

12" Venturi Scrubber		
Operating Draft:	2.5	inches water
Motive liquid flow:	73	gpm
Approximate air flow from Manufacturer's Chart:	1,050	cfm
Liquid Pitch Throughput	38,272	tons
Pitch Vapor Pressure at 375 F (psia)	0.0077	reference Jim Dietz, 5/22/98
Pitch Vapor pressure at 500 F (psia)	0.058	reference Physical Properties Table 3/7/95

Scrubber Liquid	
Material	Creosote
Temperature(degrees F):	170
Vapor Pressure (psia)	0.0587
Gas MW (estimated)	168

The following analysis is based on steady state conditions. Actual conditions are transient.

	VP	Log 10(VP)	T (R)	1/T
Pitch Vapor Pressure	0.0077	-2.113509275	835	0.0011976
Pitch Vapor Pressure	0.058	-1.236572006	960	0.0010417
				-0.0001559

	A	B
log p = A - (B/T)	4.621368946	5,623.62

Temp(F)	Temp(R)	VP(psia)
500	960	0.05800
170	630	0.00005
375	835	0.00770
425	885	0.01849

Scrubber conditions:	Scrubber Inlet		Scrubber
	Melt Tank (65)	Shipping Tank (68)	Outlet
Temperature(degrees F):	375	425	170
Material	Pitch	Pitch	Pitch
Vapor Pressure -(psia)	0.0077	0.0185	0.0077
Gas MW	220	236	194

Production:		
Shipped	Rail	Truck
Production (tons)	15,309	22,963
Density (lbs/gal)	11	11
Production (gallons)	2,783,428	4,175,141

Koppers016347

Table 5. 1997 SARA Title III, Toxic Chemical Reporting Inventory, Fume Scrubber Emissions, Koppers Industries, Inc. Portland Tar Plant, Portland, Oregon

Calculations

Potential Estimated Working Losses from Tanks without Scrubber Control

Liquid Pitch Annual Throughput	38,272 tons 11 lb/gal		
Estimated VOC Loss-			
Design flow rate (cfm)	1,050		
flow rate (cf per hour)	63,000		
flow rate (gallons per hour)	471,303		
flow rate (gpm)	7,855		
Uncontrolled VOC	Rail Shipped	Tank Car	Total
Percent of Product	40%	60%	
Tank Temperature	375	425	
Vapor Pressure of Pitch (Saturated)	0.00770	0.01849	
ppm of VOC (based on 14.7 psia)	524	1,258	
VOC lb/cu ft-	0.57	0.61	
VOC based on fume flow rate(cf/hr)	13.20	48	
VOC (lb/hr)	7.55	29.12	
VOC(lb/month)	5,439	20,966	
VOC(lb/yr)	66,174	255,083	321,257
Uncontrolled VOC (tpy)	33	128	161
Controlled Outlet VOC			
Assume Temperature		170	
Assumed Vapor Pressure equivalent to:	Pitch	Pitch	
Vapor Pressure (psia)	0.00005	0.00005	
ppm of VOC (based on 14.7 psia)	3	3	
Total scrubber gas flow (cf/hr)	63,000	63,000	
VOC flow (cf/ hr)	0.1	0.1	
VOC lb/cu ft-	0.50	0.44	
VOC (lb/hr)	0.04	0	
VOC(lb/month)	31	40	
VOC(lb/yr)	376	487	863
VOC(tpy)	0	0	0
Check:			
Amount of Pitch collected in scrubber (lbs/month)	33	127	160
Amount of Pitch collected in scrubber (gal/month)	3	12	15

Koppers016348

Table 5. 1997 SARA Title III, Toxic Chemical Reporting Inventory, Fume Scrubber Emissions, Koppers Industries, Inc. Portland Tar Plant, Portland, Oregon

Creosote Solvent Losses:

Creosote scrubbing liquor		
Density =	9	lb/gal
Usage =	3,000	gallons/ month
Total	324,000	lbs/yr

Estimated Creo Loss = (Pitch Loss)*VPCreo/VPpitch*lbscreo/lbpitch

	816	0.05874	324,000	
		0.00005	38,272	2,000

Estimated VOC Loss = 4,096 lbs/yr

Speciated Loss = 4,096 * (PP of component)/(total vapor pressure of creosote)

Acenaphthene	4,096	0.001	=	52
		0.059		

Compostion: Component	VPa (psia)	PPa (VP * Xa)	Initial Liq Conc Wt %	Estimated Creo Rel (lbs/yr)	Pitch Vapor (Wt %)	Pitch Release (lb/yr)	Total Release (lb/yr)
Acenaphthene	0.014	0.001	4.55	52	18.69	161	213
Anthracene	0.001	0.000	5.6	6	4.82	42	47
Benzene	13.003	0.000	0	0	0.00	0	0
Biphenyl	0.019	0.000	1.5	24	0.00	0	24
Carbazole	0.001	0.000	1.55	1	0.00	0	1
Creosote	0.048	0.000	0	0	0.00	0	0
Cresols	0.138	0.001	0.25	40	0.00	0	40
Dibenzofuran	0.010	0.000	3.5	26	0.00	0	26
Flouranthene	0.000	0.000	6.65	0	0.25	2	2
Flourene	0.029	0.001	4.6	101	47.81	412	513
Indane	0.649	0.003	0.305	211	0.00	0	211
Indene	0.512	0.014	1.71	948	0.00	0	948
Methylnaphthalenes	0.042	0.005	9.925	365	0.00	0	365
Naphthalene	0.110	0.022	14.2	1,527	19.79	171	1,698
PACs	0.000	0.000	3.5	0	0.00	0	0
Phenanthrene	0.000	0.000	14.35	3	2.54	22	25
Phenol	0.179	0.001	0.23	55	0.00	0	55
Pyrene	0.000	0.000	5.75	0	0.71	6	7
Pyridine	2.102	0.000	0	0	0.00	0	0
Quinoline	0.060	0.001	0.9	53	0.00	0	53
Toluene	2.787	0.007	0.13	495	0.00	0	495
Xylene	0.941	0.003	0.17	190	0.00	0	190
Balance Creosote	0.000	0.000	20.63	0	0.00	0	
Total		**0.059**		**4,096**		**816**	**4,912**

Koppers016349

Table 6. Summary of 1997 Fugitive Leak Emissions, Koppers Industries, Inc., Portland Tar Plant, Portland, Oregon.

Creosote Fugitive Equipment Leaks
Tanks 17,67,102,

Process Description	Number In service	Emission Factor (lb/hr/source)	Hours (year)	Emission (lb/yr)
Pump seals	3	0.01899	46	2.62
Valves (in line)	23	0.00051	46	0.54
Pressure relief valves	0	0.22907	46	0.00
Open ended valves	1	0.00374	46	0.17
Flanges	57	0.00403	46	10.55
		Total emissions		13.87

Assume pumping rate 200 gpm

Hours = 2 * gals throughput/gpm pump rate/60= $\frac{275,522}{200}$ *2 /60 = 45.9

Fugitive Equipment Leaks Compound Emissions	Compound Weight %	lb/yr
Benzene	0.15	0.02
Biphenyl	0.39	0.05
Cresols	0.33	0.05
Dibenzofuran	0.96	0.13
Naphthalene	17.40	2.41
PACs	0.00	0.00
Phenol	0.30	0.04
Quinoline	0.33	0.05
Creosote	70.00	9.71

NSR Naphthalene Still Residue Fugitive Equipment Leaks

Process Description	Number In service	Emissions lb/hr/source	Hours year	Emission (lb/yr)
Pump seals	1	0.01899	0	0.00
Valves (in line)	2	0.00051	0	0.00
Pressure relief valves	0	0.22907	0	0.00
Open ended valves	0	0.00374	0	0.00
Flanges	4	0.00403	0	0.00
		Total Emissions		0.00

Fugitive Equipment Leaks Compound Emissions	Compound Weight %	Emission (lb/yr)
Anthracene	6.90	0.00
Biphenyl	3.00	0.00
Dibenzofuran	5.70	0.00
Naphthalene	0.10	0.00
Quinoline	3.00	0.00
PAC's	0.67	0.00

Koppers016350

Table 6. Summary of 1997 Fugitive Leak Emissions, Koppers Industries, Inc., Portland Tar Plant, Portland, Oregon.

Pitch: Storage Fugitive Equipment Leak

Process Description	Number In service	Emissions (lb/hr/source)	Hours year	Emission (lb/yr)
Pump seals	5	0.01899	580	55.05
Valves (in line)	31	0.00051	580	9.11
Pressure relief valves	0	0.22907	580	0.00
Open ended valves	5	0.00374	580	10.86
Flanges	68	0.00403	580	158.91
		Total emissions		233.92

Assume pumping rate 400 gpm

Hours = 2 * gals throughput/gpm pump rate/60= $\frac{6,958,569}{400}$ /60 *2= 579.9

Fugitive Eqpt leaks Compound emissions	Compound Weight %	lb/yr
Anthracene	0.79	1.85
Naphthalene	0.04	0.10
PAC's	7.93	18.55

Pitch: Loading Fugitive Equipment Leak

Process Description	Number In service	Emissions (lb/hr/source)	Hours year	Emission (lb/yr)
Pump seals	2	0.01899	290	11.01
Valves (in line)	11	0.00051	290	1.62
Pressure relief valves	0	0.22907	290	0.00
Open ended valves	2	0.00374	290	2.17
Flanges	33	0.00403	290	38.56
		Total emissions		53.36

Assume pumping rate 400 gpm

Hours = * gals throughput/gpm pump rate/60= $\frac{6,958,569}{400}$ /60 = 289.9

Fugitive Eqpt leaks Compound emissions	Compound Weight %	lb/yr	Total Pitch lb/yr
Anthracene	0.79	0.42	2.27
Naphthalene	0.04	0.02	0.12
PAC's	7.93	4.23	22.78

Koppers016351

Table 6. Summary of 1997 Fugitive Leak Emissions, Koppers Industries, Inc., Portland Tar Plant, Portland, Oregon.

Heavy Oil: Storage Fugitive Equipment Leak

Process Description	Number In service	Emissions (lb/hr/source)	Hours year	Emission (lb/yr)
Pump seals	1	0.01899	19	0.36
Valves (in line)	7	0.00051	19	0.07
Pressure relief valves	0	0.22907	19	0.00
Open ended valves	0	0.00374	19	0.00
Flanges	18	0.00403	19	1.37
		Total emissions		0.43

Assume pumping rate 100 gpm

Hours = 2 * gals throughput/gpm pump rate/60= $\frac{56,784}{100}$ /60 * 2= 18.9

Fugitive Eqpt leaks Compound emissions	Compound Weight %	lb/yr
Anthracene	10.20	0.04
Dibenzofuran	0.40	0.00
Naphthalene	11.80	0.05

UCC/P&R Oil: Storage Fugitive Equipment Leak

Process Description	Number In service	Emissions (lb/hr/source)	Hours year	Emission (lb/yr)
Pump seals	2	0.01899	6	0.25
Valves (in line)	4	0.00051	6	0.01
Pressure relief valves	0	0.22907	6	0.00
Open ended valves	0	0.00374	6	0.00
Flanges	8	0.00403	6	0.21
		Total emissions		0.26

Assume pumping rate 100 gpm

Hours = 2 * gals throughput/gpm pump rate/60= $\frac{19,499}{100}$ /60 * 2 6.5

Fugitive Eqpt leaks Compound emissions	Compound Weight %	lb/yr
Anthracene	9.45	0.02
Dibenzofuran	3.00	0.01
Naphthalene	5.50	0.01
PAC's	5.41	0.01

TOTAL FUGITIVE EMISSIONS

	Creosote lbs/yr	Pitch lbs/yr	Heavy Oil lbs/yr	UCC & P&R Oil lbs/yr	Total lbs/yr
Anthracene	0.00	2.27	0.04	0.02	2.34
Benzene	0.02	0.00	0.00	0.00	0.02
Biphenyl	0.05	0.00	0.00	0.00	0.05
Cresols	0.05	0.00	0.00	0.00	0.05
Dibenzofuran	0.13	0.00	0.00	0.01	0.14
Naphthalene	2.41	0.12	0.05	0.01	2.60
PAC's	0.00	22.78	0.00	0.01	22.80
Phenol	0.04	0.00	0.00	0.00	0.04
Quinoline	0.05	0.00	0.00	0.00	0.05
Creosote	9.71	0.00	0.00	0.00	9.71

Total VOCs 301.84

Koppers016352

Table 7. 1997 SARA Title III, Toxic Chemical Reporting Inventory, Water Discharge
Koppers Industries, Inc. Portland, Oregon.

Sample calculation: lbs/month Phenol

32,903 gal/day x 0.140 mg/l x 3.785 l/gal x 1 g/1000mg x 1lb/454 g x 31 days/mo. = 1.19 lbs/mo.

Sample	Analysis Data	Flow Rate GPD	Measured Phenol 108-95-2 mg/L	Measured PAC's N590 mg/L	Assumed PAC's N590 mg/L	Phenol 108-95-2 lb	PAC's N590 lb
Jan-97	3-Feb-97	32,903	0.140		0.063	1.19	0.54
Feb-97	4-Mar-97	7,857	0.120		0.063	0.22	0.12
Mar-97	17-Apr-97	17,742	0.500	1.654 [1]	0.063	2.29	0.29
Apr-97	5-May-97	14,677	0.170	0.063	0.063	0.62	0.23
May-97	9-Jun-97	10,645	0.080	0.084	0.084	0.22	0.23
Jun-97	7-Jul-97	3,667	0.240		0.084	0.22	0.08
Jul-97	8-Aug-97	7,097	0.100		0.084	0.18	0.15
Aug-97	9-Sep-97	3,226	0.000		0.084	0.00	0.07
Sep-97	10-Oct-97	3,667	0.100	0.015	0.015	0.09	0.01
Oct-97	4-Nov-97	17,742	0.090		0.015	0.41	0.07
Nov-97	1-Dec-97	22,000	0.100		0.015	0.55	0.08
Dec-97	5-Jan-97	28,387	0.280		0.015	2.05	0.11
	Total annual					8.0	2.0

1 - Outlier, not used

Koppers016353

Table 8. 1997 SARA Title III, Toxic Chemical Reporting Inventory, On-site Recycling
Koppers Industries, Inc. Portland, Oregon.

Pitch vapors from the pitch tanks and pitch loading racks are directed to a fume scrubber, where pitch is knocked-out into the creosote, then sold as product.

Influent Pitch Vapor (uncontrolled emissions): 321,257 pounds/yr
Temperature of vapors: 425 F

Component	Pitch Vapor % weight @ 425F	Quantity Recycled (pounds/yr)
Anthracene	3.87	12,433
Naphthalene	3.72	11,951
PACs	22.1	70,998

Koppers016354

REVISION

Table 9. 1997 SARA Title III, Toxic Chemical Reporting Inventory, Production Ratio
Koppers Industries, Inc. Portland, Oregon.

1997 Pitch Production:	6,943,524	gallons
1996 Pitch Production:	6,943,524	gallons, per AK, Koppers (approximately)
Production Ratio:	1.00	

Koppers016355

AP-42 TANK EMISIONS SPREADSHEETS

REVISION

1997 SARA Title III, Toxic Chemical Reporting Inventory, Tank and Tank Car Throughputs
Koppers Industries, Inc., Portland Tar Plant, Portland, Oregon

Tank ID	Commodity	Tank Capacity (gallons)	Tank Diameter (ft)	Tank Height (ft)	1997 Throughput (gallons)		Notes
T-3	Crude Methyl Naphthalene	100,000	24.00	30.00	0		Not to be considered in inventory
T-33	Heavy Oil	45,000	18.00	24.00	56,784		Working and standing losses
T-23	Light Coal Tar Distillate (UCC)	20,000	12.00	24.00	0		Standing losses only
T-68	Liquid Pitch	245,000	37.80	29.50	4,175,141	[1]	Standing & Vented to Fume System
T-65	Liquid Pitch	750,000	60.30	35.60	6,958,569		Standing & Vented to Fume System
T-34	Naphthalene Still Residue	45,000	18.00	24.00	0		Not to be considered in inventory
T-17	P1/P13 Creosote	20,000	24.00	12.00	36,000	[2]	Working and standing losses
T-67	P1/P13 Creosote	90,000	24.25	28.50	203,522		Working and standing losses
T-19	Priming and Refractory Oil	20,000	12.00	24.00	0		Standing losses only
Railcars	Refined Tars	30,000	17	17	156,090		Working and standing losses

[1] All pitch that enters the facility is melted in Tank 65. It is assumed that100% of the pitch is stored in Tank 65, and 60% is transferred to Tank 68.

[2] Throughput was assumed to be 3,000 gallons per month.

Koppers016357

Table 1. 1997 Emissions from Heavy Oil Tanks, Portland Tar Plant, Portland, Oregon, Koppers Industries, Inc.

Tank ID	Contents	Temp °F	Uncontrolled VOCs (lb/yr)	Control Efficiency (%)	Controlled VOCs (lb/yr)	Controlled Anthracene (lb/yr)	Controlled Benzene	Controlled Biphenyl	Controlled Cresols	Controlled Dibenzofuran (lb/yr)	Controlled Naphthalene	Controlle PACs (lb/yr)	Controlled Phenol (lb/yr)	Controlle Pyridine (lb/yr)	Controlled Quinoline (lb/yr)	Controlled Toluene (lb/yr)	Controlled Xylene (lb/yr)
T-33	Heavy Oil	250	6.1		6.1	1.7				0.3		0.0					
			6.1		6.1	1.7				0.3		0.0					

Koppers016358

Tank ID	T-33	Description	Heavy Oil
City	Portland	State	OR
Company	Koppers Industries, Inc.		

Tank Information	
Diameter (D)	*18.0* ft
Shell Height (H_s)	*24.0* ft
Liquid Height (H_L)	*12* ft
Tank Volume	45,000 gal
Annual Throughput	*56,784* gal
Number of Turnovers	1.3 turnovers
Is Tank Heated (Y/N)?	Y
Breather Vent Pressure Range (ΔP_B)	*0.00* psia
Paint solar absorbance (primer, good) (α)	*0.89*
Solar Insolation (I) for Portland, Oregon	*1,067* Btu/f^2-day

Content Information	
Vapor Molecular Weight (M_v)	*174.60* lb/lb-mole
Vapor Pressure @ Average Daily Temp (P_{VA})	*0.0079* psia
Daily Average Ambient Temp (T_{AA})	538 °R
Daily Max Ambient Temp (T_{AX})	548 °R
Daily Min Ambient Temp (T_{AN})	528 °R
Daily Ambient Temp Range (ΔT_A)	20 °R
Daily Average Liquid Surface Temperature	710 °R
Maximum Liquid Surface Temperature	720 °R
Minimum Liquid SurfaceTemperature	700 °R
Bulk Liquid Temperature Range	20 °R
Maximum Liquid Surface Temp (T_{LX})	720.00 °R
Minimum Liquid Surface Temp (T_{LN})	700.00 °R
Average Liquid Surface Temp (T_{LA})	710.00 °R
Vapor Pressure @ Max Liq. Surface Temp(P_{LX})	*0.0102* psia
Vapor Pressure @ Min Liq. Surface Temp (P_{LN})	*0.0061* psia
Vapor Pressure Range (ΔP_V)	0.00416 psia

BREATHING LOSSES

Vv =	3,101 ft^3	
$H_{VO} = (H_S - H_L + H_{RO})$	=	12.19
$T_{LA} = (0.44T_{AA}) + (0.56T_B) + (0.0079\alpha I)$	=	709.44 °R
$T_B = T_{AA} + (6\alpha) - 1$	=	709 °R
Wv =	0.0002 lb/ft^3	
K_E =	0.021	
$\Delta T_v = (0.72*\Delta T_A) + 0.028\alpha I$	=	14.4 °R
K_S =	0.995	

L_S(2/96) = 4.2 lb/yr

WORKING LOSSES

$L_W = 0.0010 M_V P_{VA} Q K_N K_P$ = 1.9 lb/yr

TOTAL LOSSES

$L_S + L_W$ = 6.1 lb/yr

Koppers016359

Table 1. 1997 Emissions from UCC and P&R Tanks, Portland Tar Plant, Portland, Oregon, Koppers Industries, Inc.

Tank ID	Contents	Temp °F	Uncontrolled VOCs (lb/yr)	Control Efficiency (%)	Controlled VOCs (lb/yr)	Controlled Anthracene (lb/yr)	Controlled Benzene (lb/yr)	Controlled Biphenyl (lb/yr)	Controlled Cresols (lb/yr)	Controlled Dibenzofuran (lb/yr)	Controlled Naphthalene (lb/yr)	Controlled PACs (lb/yr)	Controlled Phenol (lb/yr)	Controlled Pyridine (lb/yr)	Controlled Quinoline (lb/yr)	Controlled Toluene (lb/yr)	Controlled Xylenes (lb/yr)
T-19	P&R Oil	180	0.3		0.3	0.2					0.1	0.0					
T-23	Light Uncorrected Creo	180	0.2		0.2	0.1					0.1	0.0					
Total			0.6		0.6	0.3					0.1	0.0					

Koppers016360

Tank ID	T-19	Description	P&R Oil
City	Portland	State	OR
Company	Koppers Industries, Inc.		

Tank Information		
Diameter (D)	*12.0*	ft
Shell Height (H_s)	*24.0*	ft
Liquid Height (H_L)	*4.0*	ft
Tank Volume	20,000	gal
Annual Throughput	*0*	gal
Number of Turnovers	0.0	turnovers
Is Tank Heated (Y/N)?	y	
Breather Vent Pressure Range (ΔP_B)	*0.00*	psia
Paint solar absorbance (primer, good) (α)	*0.89*	
Solar Insolation (I) for Portland, OR	*1,067*	Btu/ft^2-day

Content Information		
Vapor Molecular Weight (M_v)	*166.06*	lb/lb-mole
Vapor Pressure @ Average Daily Temp (P_{VA})	*0.0007*	psia
Daily Average Ambient Temp (T_{AA})	538	°R
Daily Max Ambient Temp (T_{AX})	548	°R
Daily Min Ambient Temp (T_{AN})	528	°R
Daily Ambient Temp Range (ΔT_A)	20	°R
Daily Average Liquid Surface Temperature	640	°R
Maximum Liquid Surface Temperature	650	°R
Minimum Liquid SurfaceTemperature	630	°R
Bulk Liquid Temperature Range	20	°R
Maximum Liquid Surface Temp (T_{LX})	650.00	°R
Minimum Liquid Surface Temp (T_{LN})	630.00	°R
Average Liquid Surface Temp (T_{LA})	640.00	°R
Vapor Pressure @ Max Liq. Surface Temp(P_{LX})	*0.0010*	psia
Vapor Pressure @ Min Liq. Surface Temp (P_{LN})	*0.0005*	psia
Vapor Pressure Range (ΔP_V)	0.0005	psia

BREATHING LOSSES

Vv =	2,276 ft^3	
$H_{VO} = (H_S - H_L + H_{RO})$	=	20.13
$T_{LA} = (0.44T_{AA}) + (0.56T_B) + (0.0079\alpha I)$	=	639.44 °R
$T_B = T_{AA} + (6\alpha) - 1$	=	639 °R
Wv =	0.0000 lb/ft^3	
K_E =	0.023	
$\Delta T_v = (0.72*\Delta T_A) + 0.028\alpha I$	=	14.4 °R
K_S =	0.999	
L_S (2/96) =	**0.3 lb/yr**	

WORKING LOSSES

$L_W = 0.0010\ M_v P_{VA} Q K_N K_p$ =	**0.0 lb/yr**

TOTAL LOSSES

$L_S + L_W$ =	**0.3 lb/yr**

Koppers016361

Tank ID	T-23	Description	Light Uncorrected Creo
City	Portland	State	OR
Company	Koppers Industries, Inc.		

Tank Information		
Diameter (D)	*12.0*	ft
Shell Height (H_s)	*24.0*	ft
Liquid Height (H_L)	*11.0*	ft
Tank Volume	20,000	gal
Annual Throughput	*0*	gal
Number of Turnovers	0.0	turnovers
Is Tank Heated (Y/N)?	y	
Breather Vent Pressure Range (ΔP_B)	*0.00*	psia
Paint solar absorbance (primer, good) (α)	*0.89*	
Solar Insolation (I) for Portland, OR	*1,067*	Btu/ft^2-day

Content Information		
Vapor Molecular Weight (M_v)	*166.06*	lb/lb-mole
Vapor Pressure @ Average Daily Temp (P_{VA})	*0.0007*	psia
Daily Average Ambient Temp (T_{AA})	538	°R
Daily Max Ambient Temp (T_{AX})	548	°R
Daily Min Ambient Temp (T_{AN})	528	°R
Daily Ambient Temp Range (ΔT_A)	20	°R
Daily Average Liquid Surface Temperature	640	°R
Maximum Liquid Surface Temperature	650	°R
Minimum Liquid SurfaceTemperature	630	°R
Bulk Liquid Temperature Range	20	°R
Maximum Liquid Surface Temp (T_{LX})	650.00	°R
Minimum Liquid Surface Temp (T_{LN})	630.00	°R
Average Liquid Surface Temp (T_{LA})	640.00	°R
Vapor Pressure @ Max Liq. Surface Temp(P_{LX})	*0.0010*	psia
Vapor Pressure @ Min Liq. Surface Temp (P_{LN})	*0.0005*	psia
Vapor Pressure Range (ΔP_V)	0.0005	psia

BREATHING LOSSES

Vv =	1,484 ft^3	
$H_{VO} = (H_S - H_L + H_{RO})$	=	13.13
$T_{LA} = (0.44T_{AA}) + (0.56T_B) + (0.0079\alpha I)$	=	639.44 °R
$T_B = T_{AA} + (6\alpha) - 1$	=	639 °R
Wv =	0.0000 lb/ft^3	
K_E =	0.023	
$\Delta T_v = (0.72*\Delta T_A) + 0.028\alpha I$	=	14.4 °R
K_S =	0.999	
L_S (2/96) =	**0.2 lb/yr**	

WORKING LOSSES

$L_W = 0.0010\ M_V P_{VA} Q K_N K_P$ =	**0.0 lb/yr**

TOTAL LOSSES

$L_S + L_W$ =	**0.2 lb/yr**

Koppers016362

Table 1. 1997 Emissions from Clean Creosote Tanks, Portland Tar Plant, Portland, Oregon, Koppers Industries, Inc.

Tank ID	Contents	Temp °F	Uncontrolled VOCs (lb/yr)	Control Efficienc (%)	Controlled VOCs (lb/yr)	Controlled Anthracene (lb/yr)	Controlle Benzene (lb/yr)	Controlle Biphenyl (lb/yr)	Controlle Cresols (lb/yr)	Controlled Dibenzofura (lb/yr)	Controlled Naphthalene (lb/yr)	Controlle PACs (lb/yr)	Controlle Phenol (lb/yr)	Controlle Pyridine (lb/yr)	Controlle Quinoline (lb/yr)	Controlled Creosote (lb/yr)
T-17	P1/P13 Creosote	170	33.1		33.1		8.8	0.0	0.2	0.0	8.9		0.3		0.1	14.7
T-67	P1/P13 Creosote	150	102.9		102.9		32.7	0.1	0.6	0.1	26.4		0.7		0.3	42.0
Total			136.0		136.0		41.5	0.1	0.8	0.2	35.3		0.9		0.4	56.8

Koppers016363

Tank ID	T-17	Description	P1/P13 Creosote
City	Portland	State	OR
Company	Koppers Industries, Inc.		

Tank Information

Diameter (D)	*12.0*	ft
Shell Height (H_s)	*24.0*	ft
Liquid Height (H_L)	*12.0*	ft
Tank Volume	20,000	gal
Annual Throughput	*36,000*	gal
Number of Turnovers	1.8	turnovers
Is Tank Heated (Y/N)?	Y	
Breather Vent Pressure Range (ΔP_B)	*0.00*	psia
Paint solar absorbance (primer, good) (α)	*0.89*	
Solar Insolation (I) for Portland OR	*1,067*	Btu/ft^2-day

Content Information

Vapor Molecular Weight (M_v)	*119.84*	lb/lb-mole
Vapor Pressure @ Average Daily Temp (P_{VA})	*0.1031*	psia
Daily Average Ambient Temp (T_{AA})	538	°R
Daily Max Ambient Temp (T_{AX})	548	°R
Daily Min Ambient Temp (T_{AN})	528	°R
Daily Ambient Temp Range (ΔT_A)	20	°R
Daily Average Liquid Surface Temperature	630	°R
Maximum Liquid Surface Temperature	640	°R
Minimum Liquid SurfaceTemperature	620	°R
Bulk Liquid Temperature Range	20	°R
Maximum Liquid Surface Temp (T_{LX})	640.00	°R
Minimum Liquid Surface Temp (T_{LN})	620.00	°R
Average Liquid Surface Temp (T_{LA})	630.00	°R
Vapor Pressure @ Max Liq. Surface Temp(P_{LX})	*0.1303*	psia
Vapor Pressure @ Min Liq. Surface Temp (P_{LN})	*0.0811*	psia
Vapor Pressure Range (ΔP_V)	0.0492	psia

BREATHING LOSSES

Vv =	1,371 ft^3	
$H_{VO} = (H_S - H_L + H_{RO})$	=	12.13
$T_{LA} = (0.44T_{AA}) + (0.56T_B) + (0.0079\alpha I)$	=	629.44 °R
$T_B = T_{AA} + (6\alpha) - 1$	=	629 °R
Wv =	0.0018 lb/ft^3	
K_E =	0.026	
$\Delta T_v = (0.72*\Delta T_A) + 0.028\alpha I$	=	14.4 °R
K_S =	0.938	
L_S (2/96) =	**22.5 lb/yr**	

WORKING LOSSES

$L_W = 0.0010\ M_V P_{VA} O K_N K_P$ =	**10.59 lb/yr**

TOTAL LOSSES

$L_S + L_W$ =	**33.1 lb/yr**

Tank ID	T-67	Description	P1/P13 Creosote
City	Portland	State	OR
Company	Koppers Industries, Inc.		

Tank Information

Diameter (D)	*24.3*	ft
Shell Height (H_s)	*28.5*	ft
Liquid Height (H_L)	*14.3*	ft
Tank Volume	90,000	gal
Annual Throughput	*203,522*	gal
Number of Turnovers	2.3	turnovers
Is Tank Heated (Y/N)?	Y	
Breather Vent Pressure Range (ΔP_B)	*0.00*	psia
Paint solar absorbance (primer, good) (α)	*0.89*	
Solar Insolation (I) for Portland OR	*1,067*	Btu/ft^2-day

Content Information

Vapor Molecular Weight (M_v)	*115.36*	lb/lb-mole
Vapor Pressure @ Average Daily Temp (P_{VA})	*0.0635*	psia
Daily Average Ambient Temp (T_{AA})	538	°R
Daily Max Ambient Temp (T_{AX})	548	°R
Daily Min Ambient Temp (T_{AN})	528	°R
Daily Ambient Temp Range (ΔT_A)	20	°R
Daily Average Liquid Surface Temperature	610	°R
Maximum Liquid Surface Temperature	620	°R
Minimum Liquid SurfaceTemperature	600	°R
Bulk Liquid Temperature Range	20	°R
Maximum Liquid Surface Temp (T_{LX})	620.00	°R
Minimum Liquid Surface Temp (T_{LN})	600.00	°R
Average Liquid Surface Temp (T_{LA})	610.00	°R
Vapor Pressure @ Max Liq. Surface Temp(P_{LX})	*0.0811*	psia
Vapor Pressure @ Min Liq. Surface Temp (P_{LN})	*0.0495*	psia
Vapor Pressure Range (ΔP_V)	0.0316	psia

BREATHING LOSSES

Vv =	6,698 ft^3	
$H_{VO} = (H_S - H_L + H_{RO})$	=	14.50
$T_{LA} = (0.44T_{AA}) + (0.56T_B) + (0.0079\alpha I)$	=	609.44 °R
$T_B = T_{AA} + (6\alpha) - 1$	=	609 °R
Wv =	0.0011 lb/ft^3	
K_E =	0.026	
$\Delta T_v = (0.72*\Delta T_A) + 0.028\alpha I$	=	14.4 °R
K_S =	0.953	
$L_S(2/96)$ =	**67.4 lb/yr**	

WORKING LOSSES

$L_W = 0.0010\ M_v P_{VA} OK_N K_P$ =	**35.50 lb/yr**

TOTAL LOSSES

$L_S + L_W$ =	**102.9 lb/yr**

Table 1. 1997 Emissions from Refined Tar Railcar, Portland Tar Plant, Portland, Oregon, Koppers Industries, Inc.

Tank ID	Contents	Temp °F	Uncontrolled VOCs (lb/yr)	Control Efficiency (%)	Controlled VOCs (lb/yr)	Controlled Anthracene (lb/yr)	ontrolle Benzene (lb/yr)	Controlled Biphenyl (lb/yr)	Controlle Cresols (lb/yr)	Controlled Dibenzofuran (lb/yr)	Controlled Naphthalene (lb/yr)	Controlled PACs (lb/yr)	ontrolle Phenol (lb/yr)	ontrolle Pyridine (lb/yr)	ontrolle Quinoline (lb/yr)	ontrolle Toluene (lb/yr)	ontrolled Xylene (lb/yr)
Railcar	Refined Tar	190	6.0		6.0	0.1					1.6	0.0					
Total			6.0		6.0	0.1					1.6	0.0					

Koppers016366

Tank ID	Railcar	Description	Refined Tar
City	Portland	State	OR
Company	Koppers Industries, Inc.		

Tank Information		
Diameter (D)	*17.2*	ft
Shell Height (H_s)	*17.2*	ft
Liquid Height (H_L)	*8.6*	ft
Tank Volume	29,894	gal
Annual Throughput	*156,090*	gal
Number of Turnovers	5.2	turnovers
Is Tank Heated (Y/N)?	Y	
Breather Vent Pressure Range (ΔP_B)	*0.00*	psia
Paint solar absorbance (primer, good) (α)	*0.89*	
Solar Insolation (I) for Portland, OR	*1,067*	Btu/f^2-day

Content Information		
Vapor Molecular Weight (M_v)	*142.23*	lb/lb-mole
Vapor Pressure @ Average Daily Temp (P_{VA})	*0.0069*	psia
Daily Average Ambient Temp (T_{AA})	538	°R
Daily Max Ambient Temp (T_{AX})	548	°R
Daily Min Ambient Temp (T_{AN})	528	°R
Daily Ambient Temp Range (ΔT_A)	20	°R
Daily Average Liquid Surface Temperature	650	°R
Maximum Liquid Surface Temperature	660	°R
Minimum Liquid SurfaceTemperature	640	°R
Bulk Liquid Temperature Range	20	°R
Maximum Liquid Surface Temp (T_{LX})	660.00	°R
Minimum Liquid Surface Temp (T_{LN})	640.00	°R
Average Liquid Surface Temp (T_{LA})	650.00	°R
Vapor Pressure @ Max Liq. Surface Temp(P_{LX})	*0.0091*	psia
Vapor Pressure @ Min Liq. Surface Temp (P_{LN})	*0.0052*	psia
Vapor Pressure Range (ΔP_V)	0.00391	psia

BREATHING LOSSES

Vv =	2,040	ft^3	
$H_{VO} = (H_S - H_L + H_{RO})$	=		8.78
$T_{LA} = (0.44T_{AA}) + (0.56T_B) + (0.0079\alpha I)$	=		649.44 °R
$T_B = T_{AA} + (6\alpha) - 1$	=		649 °R
Wv =	0.0001	lb/ft^3	
$\mathbf{K_E}$ =	0.022		
$\Delta T_v = (0.72*\Delta T_A) + 0.028\alpha I$	=		14.4 °R
$\mathbf{K_S}$ =	0.997		

$L_S(2/96)$ = 2.4 lb/yr

WORKING LOSSES

$L_W = 0.0010 M_V P_{VA} Q K_N K_P$ = 3.7 lb/yr

TOTAL LOSSES

$L_S + L_W$ = 6.0 lb/yr

Attachment C-II – Oil Pollution Act Certification of the No Substantial Harm Criteria

Facility Name:_Northwest Terminal, Portland, Oregon

Facility Address: 7540 NW Saint Helens Road, Portland, OR 97210

1. Does the facility transfer oil over water to or from vessels and does the facility have a total oil storage capacity greater than or equal to 42,000 gallons?
   Yes _X_ No ___

2. Does the facility have a total oil storage capacity greater than or equal to 1 million gallons and does the facility lack secondary containment that is sufficiently large to contain the capacity of the largest aboveground oil storage tank plus sufficient freeboard to allow for precipitation within any aboveground oil storage tank area?
   Yes ___ No _X__

3. Does the facility have a total oil storage capacity greater than or equal to 1 million gallons and is the facility located at a distance such that a discharge from the facility could cause injury to fish and wildlife and sensitive environments?
   Yes ___ No __X_

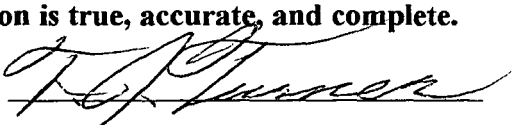
4. Does the facility have a total oil storage capacity greater than or equal to 1 million gallons and is the facility located at a distance such that a discharge from the facility would shut down a public drinking water intake ?

   Yes ___ No _X__

5. Does the facility have a total oil storage capacity greater than or equal to 1 million gallons and has the facility experienced a reportable oil discharge in an amount greater than or equal to 10,000 gallons within the last 5 years?
   Yes ___ No _X__

Certification:

I certify under penalty of law that I have personally examined and am familiar with the information submitted in this document, and that based on my inquiry of those individuals responsible for obtaining this information, I believe that the submitted information is true, accurate, and complete.

Signature: 

Printed Name: T. J. Turner, General Foreman Date: October 26, 2004

Note: The dock operations and the FRP dated 08/02, is managed by Pacific Terminal Services, Inc.

A facility that has the potential to cause substantial harm to the environment in the event of a discharge must prepare and submit a facility-specific response plan to EPA in accordance with 112.20. A description of the screening criteria for the substantial harm flowchart is provided below:

1. ***Non-Transportation-Related Facilities With a Total Oil Storage Capacity Greater Than or Equal to 42,000 Gallons Where Operations Include Over-Water Transfers of Oil.***

A non-transportation-related facility with a total oil storage capacity greater than 42,000 gallons that transfers oil over water to or from vessels must submit a response plan to EPA. Daily oil transfer operations at these types of facilities occur between barges and vessels and onshore bulk storage tanks over open water. These facilities are located adjacent to navigable water.

2. ***Lack of Adequate Secondary Containment at Facilities With a Total Oil Storage Capacity Greater Than or Equal to 1 Million Gallons.***

Any facility with a total oil storage capacity greater than or equal to 1 million gallons without secondary containment sufficiently large to contain the capacity of the largest aboveground oil storage tank within each area plus sufficient freeboard to allow for precipitation must submit a response plan to EPA. Secondary containment structures that meet the standard of good engineering practice for the purposes of this part include berms, dikes, retaining walls, curbing, culverts, gutters, or other drainage systems.

3. ***Proximity to Fish and Wildlife and Sensitive Environments at Facilities With a Total Oil Storage Capacity Greater Than or Equal to 1 Million Gallons.***

A facility with a total oil storage capacity greater than or equal to 1 million gallons must submit its response plan if it is located at a distance such that a discharge from the facility could cause injury (as defined at 40 CFR 112.2) to fish and wildlife and sensitive environments. For further description of fish and wildlife and sensitive environments, see Appendices I, II, and III to DOC / NOAA's "Guidance for Facility and Vessel Response Plans: Fish and Wildlife and Sensitive Environments" (see Appendix E to 112.20 , section 13, for availability) and the applicable Area Contingency Plan. Facility owners or operators must determine the distance at which an oil discharge could cause injury to fish and wildlife and sensitive environments using the appropriate formula presented in Attachment C-III to this appendix or a comparable formula.

4. ***Proximity to Public Drinking Water Intakes at Facilities with a Total Storage Oil Capacity Greater Than or Equal to 1 Million Gallons.***

A facility with a total storage capacity greater than or equal to 1 million gallons must submit its response plan if it is located at a distance such that a discharge from the facility would shut down a public drinking water intake, which is analogous to a public water system as described at 40 CFR 143.2(c) . The distance at which an oil discharge from an SPCC-regulated facility would shut down a public drinking water intake shall be calculated using

the appropriate formula presented in Attachment C-III to this appendix or a comparable formula.

2.5 ***Facilities That Have Experienced Reportable Oil Discharges in an Amount Greater Than or Equal to 10,000 Gallons Within the Past 5 Years and That Have a Total Oil Storage Capacity Greater Than or Equal to 1 Million Gallons.***

A facility's oil spill history within the past 5 years shall be considered in the evaluation for substantial harm. Any facility with a total oil storage capacity greater than or equal to 1 million gallons that has experienced a reportable oil discharge in an amount greater than or equal to 10,000 gallons within the past 5 years must submit a response plan to EPA.

PACIFIC TERMINAL SERVICES, INC.
910 SW Spokane Street, Seattle, Washington 98134
P.O. Box 24005, Seattle, Washington 98124-0005
Tele. (206) 628-0051 Fax (206) 628-0293

September 3, 2002

Amos Kamerer
Koppers Industries, Inc.
7540 NW St. Helens Road
Portland, OR 97210-3663

Dear Amos:

Enclosed please find an executed copy of the escalation letter for the Dock Services Agreement, an executed copy of the Oil Spill Contingency Agreement, and a copy of the modifications to PTSI's Oil Spill Contingency Plan.

The modifications to the Oil Spill Contingency Plan were completed and mailed to the Oregon Department of Environmental Quality, United States Environmental Protection Agency Region 10, and the United States Coast Guard-Portland Marine Safety Office.

I will let you know if I receive any comments on the modifications submitted. Please call if you have any questions.

Sincerely,

Troy M. Goodman, PE
President

PACIFIC TERMINAL SERVICES, INC.
910 SW Spokane Street, Seattle, Washington 98134
P.O. Box 24005, Seattle, Washington 98124-0005
Tele. (206) 628-0051 Fax (206) 628-0293

August 8, 2002

Amos Kamerer
Koppers Industries, Inc.
7540 NW St. Helens Road
Portland, OR 97210-3663

Portland Plant
CONTROLLED DOCUMENT
Date: 1-22-03
Signature:

Dear Amos:

This is with reference to your request to have Pacific Terminal Services (PTSI) include Koppers' pitch unloading facility in the PTSI Oil Spill Contingency Plan.

PTSI will submit a minor modification to our Oil Spill Contingency Plan incorporating the Koppers dock receipt line to the first shore valve. These modifications (includes update copies sent to all plan holders) will be provided for a lump sum of Twelve Hundred Dollars ($1200.00). Any additional modifications, meetings with Oregon DEQ, or other work necessary to complete the modification will be done on a time and materials basis.

In addition, Koppers will pay a response contractor fee of $0.0533 per barrel of pitch received through the dockline. This fee will be subject to annual review and escalation. This fee does not remove Koppers from any liability for spill clean up costs.

Let me know if this meets with your approval. If so, I will submit the plan changes to DEQ next week.

Sincerely,

Troy M. Goodman, PE
President

Accepted and agreed to this 20 day of August 2002.

Koppers Industries, Inc.

By: _____

Title: Plant Manager
A. S. Kamerer

Accepted and agreed to this 27 day of August 2002.

Pacific Terminal Services, Inc.

By: _____

Title: President

LOG OF AMENDMENTS TO THE PLAN

Amendment Number	Date	Page No.	Description of Amendment	ODEQ Notified? (see Note below)	Approval Initials
1	2-18-93	ALL	General Revision per NVIC 7-92	Yes	
2	7-1-94	ALL	Revised to address USCG and EPA deficiencies	Yes	
3	10-99	ALL	Revised for transfer from PNO to PTSI	Yes	
4	11-00	ALL	Revisions per DEQ	Yes	
5	01-01	ALL	Revisions per DEQ	Yes	
6	03-01	ALL	Revisions per EPA	Yes	
7	05-01	3-12 to 3-14	Revised per DEQ	Yes	
8	05-01	Tab. 8	Added per DEQ	Yes	
9	07-05-01	ii	Table of Contents	Yes	
		1-20	Section 1.5.1	Yes	
		2-8	Section 2.4	Yes	
		2-16 to 2-21	Section 2.5.2 to 2.6.4	Yes	
		3-11 to 3-21	Section 3.2.3 to 3.5	Yes	
		Fig 2-4	Oil Spill Report Form	Yes	
		Fig 2-5	Oil Spill Equipment Response Time	Yes	
		App A	Cooperative Information	Yes	
		App B	Cooperative Equipment	Yes	
		App H	Field Manual	Yes	
		App L	Wildlife Search, Rescue, and Rehabilitation Guideline	Yes	
10	05-02	2-8 to 2-10	Call-out checklist and Facility Response Personnel	Yes	
11	08-02	1-5 to 1-7 and 2-8 to 2-9	Call-out checklist and inclusion of Koppers operations		

Koppers016373

This plan addresses only the operations of PTSI and those oil storage tanks at the facility leased by PTSI from Northwest Natural Gas Company (NNG). PTSI began operations at this facility in November 1999. Pacific Northern Oil (PNO) operated the facility from August 1978 until PTSI took over operations. Prior to that time, others operated the fuel oil terminal. The facility has been in industrial service since the early 1900's. All tanks passed API 653 inspection in 1999.

Facility Owner:	Northwest Natural Gas Company
Address:	220 NW Second, Portland, OR 97209
Telephone:	(503) 226-4211

In addition, PTSI operates the pier and pipeline for receipt of liquid coal tar pitch (molten) for Koppers Industries. Liquid coal tar pitch is pumped from ships through a pipeline from the pier to storage tanks located upland new to NW St. Helens Road. Koppers Industries owns the pipeline, storage tanks, and associated process and distribution facilities. Koppers Industries leases the property from NNG.

Corporate:	Koppers Industries, Inc. 436 Seventh Avenue Pittsburgh, PA 15219 (412) 227-2001	Local: Koppers Industries, Inc. 7540 NW St. Helens Road Portland, OR 97210 (503) 286-3681

Regulatory Jurisdiction

For the purpose of dividing the federal regulatory jurisdiction between the EPA and the USCG, the oil facility at PTSI is defined as a "complex" consisting of a non-transportation related facility and a marine transportation related facility. The non-transportation related facility includes seven aboveground storage tanks (with capacities shown in Table 1of the Tables section, located in secondary containment areas (surrounded by concrete or dirt retaining walls at least 12 feet high), each with a capacity large enough to contain the volume of the largest storage tank. Refer to Figure 1-3 (in Figures section), Facility Layout. The non-transportation related part of the facility complex is regulated by the EPA.

The marine transportation related facility portion of the complex includes three steel aboveground oil transfer pipelines running between the aboveground storage tanks and the fuel oil dock. The No 6 fuel oil pipelines are insulated and steam heat traced

to heat the fuel oil in the pipeline before transfers begin. The marine transportation related part of the facility complex is regulated by the USCG.

The boundaries between the non-transportation related part of the complex and the marine transportation related portion are the valves in the transfer pipelines at the shore end of the dock walkway. PTSI operates the marine transportation related portion of the Koppers liquid coal tar pitch pipeline.

For state regulations, the jurisdiction of the ODEQ covers the entire facility.

1.1.4 Tanks and Facility Operations

The facility is designed to receive and store various grades of fuel oils by truck, rail car, barge, or tanker and to mix these various grades of oil together to make marine and industrial fuel oils. These products are then delivered by truck or barge. The SIC Code for PTSI is 5171. The aboveground storage tanks operated by Pacific Terminal Services Inc. (PTSI) are shown in the Facility Layout, Figure 1-3 and are listed in Table 1 (shown in Figure and Table sections respectively).

In addition, liquid coal tar pitch (molten) is received from ships at the pier and pumped to the Koppers upland storage tanks. At the Koppers Facility, various coal tar pitch products are processed, stored, and distributed by truck and by rail car. The SIC for Koppers Industries is 2865.

1.1.5 Dock Pipelines

Fuel oil transfers to and from the dock are made in the following three parallel, aboveground pipelines:

a)	one 12"-diameter for heavy fuel oil:	Line fill capacity: 63 barrels.
b)	one 10"-diameter for diesel oil:	Line fill capacity: 44 barrels.
c)	one 8"-diameter for cutter oil:	Line fill capacity: 28 barrels.

These pipelines run aboveground directly from the tank yard areas to the dock "risers" at the dock service platform. All lines may be isolated with the gate valves located at the shore end of the dock walkway and at the dock service platform.

Liquid coal tar pitch transfers from the pier to the upland storage tanks are made through a single 8" product transfer pipe. This pipe increases in size to 10" just after crossing the top of the riverbank. The pipe is heat "traced" with 1" and 2" hot oil pipes attached to the product pipe. The product and heat trace pipes are completely encased with 6" thick insulation. The heat trace fluid is a petroleum based oil similar to diesel fuel oil with a higher flash point.

The liquid coal tar pitch transfer pipe has shut off valves at the ship connection on the pier (two valves – one manual and one remotely motor operated), a valve at the top of the river bank (manually operated), and manually operated valves near the storage tanks to direct the product to the proper tank.

The transfer pipe runs above ground from the pier connection to the storage tank area. The total length of the pipeline is approximately 2000'. The product line-fill capacity is approximately 200 barrels from the ship connection on the pier to the shut off valve near the tank. The heat trace line-fill capacity is approximately 5 barrels from the end of the pier to the shut off valves at the meter shed about 150' inshore of the top of the bank.

1.1.6 Volume of Oil Transfers

Oil tankers delivering oil products into the facility have been as large as 50,000 DWT while the largest barges have had capacities of up to 100,000 barrels. Actual oil volumes transferred are typically much smaller than could be delivered by these large vessels. For example, the average transfer in 2000 was156,000 barrels per month.

Ships bringing coal tar pitch will discharge about 8,400 metric tons (50,000 barrels) of product. Six to twelve ships a year will discharge at the facility. Each discharge will take 36 to 48 hours. The facility will only "receive" coal tar pitch.

1.1.7 Vessel Information

Fuel oil is shipped and received in bulk in oil tank vessels or barges brought to the facility by tug boats. Oil barges vary in length from 120' to 350' and have oil storage capacities that range between 5000 barrels and 75,000 barrels. Some typical barge sizes are listed in Table 2, in Figures section.

Liquid coal tar pitch (molten) is transferred from ships to upland storage tanks. A steel transfer hose will be directly connected between the ship and the pier transfer pipe connection. The ships are conventional dry bulk/container carriers fitted with special deep tanks for carriage and transfer of liquid coal tar pitch. The deep tanks are approximately 8,900 metric ton capacity (approximately 60,000 barrels.) The vessels are about 40,000 DWT capacity and approximately 650' long and 95' wide.

1.1.8 Simultaneous Operations

There is only one loading berth at the facility dock. In general, there is only one transfer to a vessel at a time. However, from time to time, a tug boat, which may be tending a tank barge moored at the dock, may receive diesel oil simultaneously with the transfer to or from the barge. In this case, two facility dock operators are assigned, one to act as the Person-In-Charge of each of the two transfer operations. The oil transfer hose is laid across the barge to the tug boat. The lengths of the tug boats fueled may be as much as 150 feet.

Other operations which may occur simultaneously with barge or ship loading or unloading include:

a) Inter-tank transfers,
b) Truck loading or unloading, or
c) Rail car unloading.

These operations are described in Section 6.0, Spill Risk Variables.

1.1.9 Calculation of Oil Spill Planning Volumes

Worst case planning volumes are calculated to determine the amount of oil spill response resources that are necessary to have available. The ODEQ, the EPA, and the USCG each have different requirements and definitions of worst case planning volumes.

ODEQ Worst Case Spill

The ODEQ defines the Worst Case Spill planning volume as the entire volume of product from the largest aboveground storage tank on the facility site complicated by adverse weather conditions (during which wind, reduced visibility, and sea state hinder but do not preclude normal response operations). The ODEQ Worst Case

Piping/Manifold Rupture or Leak	Shut off transfer pumps. Initiate evacuation of affected pipeline. Call 911, in case of injuries or fire. Evacuate in case of emergency. Complete Oil Spill Report Form. Make Calls on Call-Out Checklist. Monitor air for H2S. Launch/ operate boat to deploy oil boom. Follow directions of Qualified Individual.	Close all valves to isolate pipeline/manifold. Open oil boom storage. Feed boom into water. Assist supervisor in boat to deploy boom. Follow directions of shift supervisor.
Fire or Explosion	Shut off transfer pumps. Close all pipeline valves, if possible. Call 911, in case of injuries or fire. Evacuate, if necessary Use fire extinguisher, if safe to do so. Complete Oil Spill Report Form. Make Calls on Call-Out Checklist. Monitor air for H2S. Launch/ operate boat to deploy oil boom. Follow directions of Qualified Individual.	Close riser valve at dock, if possible. Evacuate, if necessary Use fire extinguisher, if safe to do so. Open oil boom storage. Feed boom into water. Assist supervisor in boat to deploy boom. Follow directions of shift supervisor.
Pump Failure	Shut off transfer pumps. Call 911, in case of injuries or fire. Evacuate in case of emergency. Complete Oil Spill Report Form. Make Calls on Call-Out Checklist. Monitor air for H2S. Launch/ operate boat to deploy oil boom. Follow directions of Qualified Individual.	Close all pipeline valves. Open oil boom storage. Feed boom into water. Assist supervisor in boat to deploy boom. Follow directions of shift supervisor.

In addition to the equipment shutdown and the mitigation steps outlined above, the on-duty personnel will also make efforts for containment on land including digging trenches to divert or channel spilled oil and building berms and/or plugging storm drains to contain a spill and to mitigate spill damages. Storm drains may be quickly plugged by placing plastic sheeting over the grated opening and shoveling dirt or sand on top of the plastic to hold it down.

2.4 NOTIFICATION

ALL SPILLS REQUIRE REPORTING

2.4.1 Call-Out Checklist

After a spill, the on-duty shift supervisor will immediately call:

911 IN CASE OF INJURY, FIRE OR EXPLOSION.

After shutting off all pumps, closing all valves, and assessing details of the spill listed on the Oil Spill Report Form, the on-duty shift supervisor will call the following people:

1. Facility Manager:

Title	Name	Office	Pager	Mobile	Home
Terminal Manager/QI	Troy Goodman	206-938-6500	206-810-8592	206-571-5483	425-427-5660
Alt QI	George Clark	206-628-0051	888-983-9087	206-793-4358	425-672-9080
Alt QI	Bob Robertson	206-938-6506	206-977-4528	206-255-5010	360-923-0203
Alt QI	Tina Garrett	503-240-3452	503-920-8639	503-572-9355	503-283-6841
Alt QI	Nicole Waldo	206-938-6533	206-871-9476	206-730-8053	425-828-4206

If spill involves Koppers Industries Portland Coal Tar Pitch Pipeline then notify:

Title	Name	Office	Pager	Mobile	Home
Manager	Amos Kammerer	503-286-3681		503-705-8748	503-246-8045
Alternate	T.J. Turner	503-286-3681			360-896-5139

2. Primary Response Contractor(s):

Clean Rivers Cooperative: (503) 220-2040

3. NWNG, Security (at facility gate): (503) 286-5250

Immediately, upon receiving the call and details about the spill, the QI, or the designated alternate QI, will call the following:

1. USCG National Response Center (NRC) at:	**1-800-424-8802** or		(202)-267-2675.
2. Oregon Emergency Response System (OERS) at:	**1-800-452-0311** or		(503)-378-6377.
3. Local USCG Marine Safety Office at:			**(503) 240-9301.**
4. Northwest Natural Gas Company:			
Sandi Hart at Office: ext. 4322			(503) 226-4211
or distribution dispatch night supervisor:			(503) 226-4211
5. Corp. of Engineers:	Corp. of Engineers	Office:	(503) 221-4188
	Bill Switzenberg, Shipyard Chief	Office:	(503) 326-5636
	Brandon Smith, Envir. Coord	Office:	(503) 326-2477
6. Portland Fire Department:			911
7. Police and State Patrol			911
8. Hospital and Evacuation Notice			911
9. EPA Region X			(206) 553-1263

If there is no answer at any of these numbers, call the next number, and after 5 minutes, try calling the unanswered number again.

Facility Response Personnel

NAME	JOB DESCRIPTION	RESPONSE ROLE	RESPONSE TIME	WORK TELEPHONE	HOME TELEPHONE
Bill Schaeffner	Dockman/PT Spvsr	1st Hr-Phase I	On-duty	(503) 286-5321	(503) 654-7873
Burt Nye	Dockman/PT Spvsr	1st Hr-Phase I	On-duty	(503) 286-5321	(360) 573-4122
Gary Bucknum	Dockman/PT Spvsr	1st Hr-Phase I	On-duty	(503) 286-5321	(503) 283-2287
Bud Dahlen	Dockman	1st Hr-Phase I	On-duty	(503) 286-5321	(503) 286-3873
Mark Flower	Dockman/PT Spvsr	1st Hr-Phase I	On-duty	(503) 286-5321	(503) 777-4124
Trent Hamilton	Dockman	1st Hr-Phase I	On-Duty	(503) 286-5321	(503) 521-9905
Larry Lamb	Dockman	1st Hr-Phase I	On-Duty	(503) 286-5321	(503) 492-5100
Tracy Wild	Dockman/PT Supvsr	1st Hr-Phase I	On-Duty	(503) 286-5321	(360) 993-4156

Spill Management Team

Once notified, depending in the severity of the spill and the extent of the spill response required, the Spill Response Manager (QI or alternate) will call in the following Spill Management Team, as required:

NAME	JOB DESCRIPTION	RESPONSE ROLE	RESPONSE TIME	WORK TELEPHONE	HOME TELEPHONE
Troy Goodman	Manager	UC	3 hours	(206) 938-6500	(425) 427-5660
George Clark	Safety	Safety Officer	4 hours	(206) 447-3055	(206) 672-9080
Rod Gullickson	Marine Operations	Operations	3 hours	(206) 447-3052	(206) 565-4018
Tina Garrett	Operations	Operations	1 hour	(503) 240-3452	(503) 283-6841
Don Meberg	Harbor Services	Logistics	3 hours	(206) 447-3063	(206) 588-7110
Todd Prophet	CFO	Finance	3 hours	(206) 477-3052	(206) 874-4728
Alan Sullivan	Planning	Planning	3 hours	(206) 938-6500	(253) 891-8793
Pat Lamb	Legal Affairs	Legal Affairs	3 hours	(206) 622-8020	(206) 525-7269

APPENDIX C

MATERIAL SAFETY DATA SHEETS

For:

1. Bunker Fuel oil
2. Shell Industrial Fuel Oil
3. Shell Marine Fuel Oil
4. IF380
5. IF180
6. PS300
7. Marine Cutter Oil
8. Marine Diesel Oil
9. Marine Gas Oil
10. Diesel No. 2. Oil
11. Exxon Caloria Ht 43
12. Carbon Pitch Liquid

Copies of MSDS are found in Boiler Room and Portland Facility.

Attachment C-II – Oil Pollution Act Certification of the No Substantial Harm Criteria

Facility Name:_Northwest Terminal, Portland, Oregon

Facility Address: 7540 NW Saint Helens Road, Portland, OR 97210

1. Does the facility transfer oil over water to or from vessels and does the facility have a total oil storage capacity greater than or equal to 42,000 gallons?
   Yes _X_ No ___

2. Does the facility have a total oil storage capacity greater than or equal to 1 million gallons and does the facility lack secondary containment that is sufficiently large to contain the capacity of the largest aboveground oil storage tank plus sufficient freeboard to allow for precipitation within any aboveground oil storage tank area?
   Yes ___ No _X__

3. Does the facility have a total oil storage capacity greater than or equal to 1 million gallons and is the facility located at a distance such that a discharge from the facility could cause injury to fish and wildlife and sensitive environments?
   Yes ___ No __X_

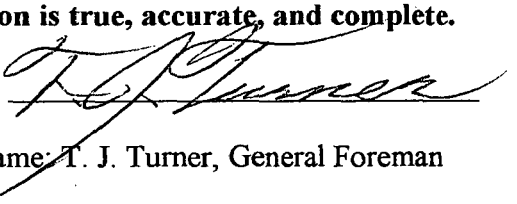
4. Does the facility have a total oil storage capacity greater than or equal to 1 million gallons and is the facility located at a distance such that a discharge from the facility would shut down a public drinking water intake ?

   Yes ___ No _X__

5. Does the facility have a total oil storage capacity greater than or equal to 1 million gallons and has the facility experienced a reportable oil discharge in an amount greater than or equal to 10,000 gallons within the last 5 years?
   Yes ___ No _X__

Certification:

I certify under penalty of law that I have personally examined and am familiar with the information submitted in this document, and that based on my inquiry of those individuals responsible for obtaining this information, I believe that the submitted information is true, accurate, and complete.

Signature: 

Printed Name: T. J. Turner, General Foreman Date: October 26, 2004

Note: The dock operations and the FRP dated 08/02, is managed by Pacific Terminal Services, Inc.

A facility that has the potential to cause substantial harm to the environment in the event of a discharge must prepare and submit a facility-specific response plan to EPA in accordance with 112.20. A description of the screening criteria for the substantial harm flowchart is provided below:

1. ***Non-Transportation-Related Facilities With a Total Oil Storage Capacity Greater Than or Equal to 42,000 Gallons Where Operations Include Over-Water Transfers of Oil.***

A non-transportation-related facility with a total oil storage capacity greater than 42,000 gallons that transfers oil over water to or from vessels must submit a response plan to EPA. Daily oil transfer operations at these types of facilities occur between barges and vessels and onshore bulk storage tanks over open water. These facilities are located adjacent to navigable water.

2. ***Lack of Adequate Secondary Containment at Facilities With a Total Oil Storage Capacity Greater Than or Equal to 1 Million Gallons.***

Any facility with a total oil storage capacity greater than or equal to 1 million gallons without secondary containment sufficiently large to contain the capacity of the largest aboveground oil storage tank within each area plus sufficient freeboard to allow for precipitation must submit a response plan to EPA. Secondary containment structures that meet the standard of good engineering practice for the purposes of this part include berms, dikes, retaining walls, curbing, culverts, gutters, or other drainage systems.

3. ***Proximity to Fish and Wildlife and Sensitive Environments at Facilities With a Total Oil Storage Capacity Greater Than or Equal to 1 Million Gallons.***

A facility with a total oil storage capacity greater than or equal to 1 million gallons must submit its response plan if it is located at a distance such that a discharge from the facility could cause injury (as defined at 40 CFR 112.2) to fish and wildlife and sensitive environments. For further description of fish and wildlife and sensitive environments, see Appendices I, II, and III to DOC / NOAA's "Guidance for Facility and Vessel Response Plans: Fish and Wildlife and Sensitive Environments" (see Appendix E to 112.20 , section 13, for availability) and the applicable Area Contingency Plan. Facility owners or operators must determine the distance at which an oil discharge could cause injury to fish and wildlife and sensitive environments using the appropriate formula presented in Attachment C-III to this appendix or a comparable formula.

4. ***Proximity to Public Drinking Water Intakes at Facilities with a Total Storage Oil Capacity Greater Than or Equal to 1 Million Gallons.***

A facility with a total storage capacity greater than or equal to 1 million gallons must submit its response plan if it is located at a distance such that a discharge from the facility would shut down a public drinking water intake, which is analogous to a public water system as described at 40 CFR 143.2(c) . The distance at which an oil discharge from an SPCC-regulated facility would shut down a public drinking water intake shall be calculated using

the appropriate formula presented in Attachment C-III to this appendix or a comparable formula.

2.5 ***Facilities That Have Experienced Reportable Oil Discharges in an Amount Greater Than or Equal to 10,000 Gallons Within the Past 5 Years and That Have a Total Oil Storage Capacity Greater Than or Equal to 1 Million Gallons.***

A facility's oil spill history within the past 5 years shall be considered in the evaluation for substantial harm. Any facility with a total oil storage capacity greater than or equal to 1 million gallons that has experienced a reportable oil discharge in an amount greater than or equal to 10,000 gallons within the past 5 years must submit a response plan to EPA.

MELTER LOADING RECAP REPORT

LOADING WEEK: 2/7/98

TONS LOADED: 1881

ACTUAL HOURS WORKED LOADING THE MELTER: 26.5

AVERAGE TONS LOADED PER HOUR WORKED: 71.0

LOADER OPERATOR BREAK DOWN

	TIME WORKED		BUCKETS	PERCENT	TONS	TONS PER
OPERATOR	MINUTES	HOURS	LOADED	OF TOTAL	LOADED	HOUR LOADED
CHRIS	795	13.25	262	.541	1017.6	76.8
BRAD	720	12.0	199	.411	773.1	64.4
JOHN	75	1.25	23	.048	90.3	72.2
			484		1881	

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BRAD	720	12.0	199	.411	773.1	64.4
JOHN	75	1.25	23	.048	90.3	72.2
			484		1881	

KOPPERS Industries, Inc.

Melter Loading and Transfer Report

Preloading Outage Measurement 26' ft. 5" in.

Bottom Temperature 400° °F

Date 2-6-98 Inventory Amount 1,975,731 16 pounds

Postloading Outage Measurement 9' ft. 3" in.

Bottom Temperature 350 °F

Date 2-12-98 Inventory Amount 5,738,216 16 pounds

TOTAL Inventory Amount Added 3,762,485 16 pounds

H.O.I 1,650 Gal
14,850 16.

Inventory After Transfer Is Completed

T-65 MELTER TANK		T-68 SHIPPING TANK
26' ft. 9" in.	MEASUREMENT	27' ft. 4" in.
395° °F	TEMPERATURE	425° °F
1,906,355 16	INVENTORY/POUNDS	2,293,434 16

Date 2-18-98

loadtran.wpd

Melter Pencil Pitch Loading Report

Preloading Outage Measurement 26' ft. 5" in. **Bottom Temperature** 400' °F

Buckets to be Loaded: KOREAN 440 **CHINESE** Ø **OTHER** Ø **TOTAL** 440

Date	Loader Name	Time Started	Start-Up Complete / Time of 1st Bucket	BUCKETS LOADED Korean	Chinese	Other	Total	Time Finished Loading	Time Shut-down Complete	HOURS WORKED Start-Up	Loading	Shut-down	Total
2-7-98	Chris	6:30	6:50	33	—	—	33	8:15		20 min	1:35		1:45
2-7-98	Brad	8:15		50			50	11:30			3:15		3:15
2-7-98	Chris	11:30		35	—	—	35	1:30			2 HR		2 HR
2-7-98	Brad	1:30		18			18	4:15	4:40		2:45	25 min	3:10
2-7-98			Break down on hopper at 25° Piece of metal in										
			Hopper screw chute at heavy chute										
2-8-98	Chris	3:20	3:40	56	DAEWOO		56	6:05		20 min	1:65		
2-8-98	BRAD	6:15	6:20	119	DAEWOO		119	11:45 pm			5 1/2 HR		5 1/2
2-9-98	Chris	10:00	10:35	61	—	—	61	1:55		35	2:00		
* 2-9	JOHN	2:00 PM	2:00 PM	23			23	4:00 PM	—	—	1:15	—	2
11	Brad			12			12				30		
2-9	Chris	10:00	5:15	26	—	—	26	6:40			85		
2-9	Chris		7:20	51	—	—	51	9:40			140		
			Case	309									
			Daewoo	180							1635 MIN.		
			5 PM	77 Togo									

136 * SPENT APPROX 45 MIN LOADING & TARPING TAYLOR
137 [illegible]

Koppers016389

2hip
upper 20 FT

T-200 VOLUME CALCULATION FORM

DATE: 12/31/02

Temperature correction

Average temperature of the pitch in the tank	392	deg. F
Less 60 F (temperature of pitch for inventory purposes)	60	deg. F
Amount of temperature to be corrected	332	deg. F
Times - the correction factor for pitch	0.00028	
The temperature correction	0.09296	
Plus the number 1 - to make a whole number	1.00000	
The correction factor to be used	1.09296	deg. F

Tank measurement and calculations

Tank measurement in feet - based on 36,525 gals. per foot	47.02	feet	1704496.5	gallons
Divided by the correction factor from above			1.09296	
Gallons for inventory purposes			1559523.2	gallons
Times - 11 pounds per gallon of pitch @ 60 F			11	#'s/gal.
Total tank inventory			17,154,755	pounds
Less Intalco				pounds
Koppers tank inventory			17,154,755	pounds

ship
Lower
4 FT

T-200 VOLUME CALCULATION FORM

DATE: 12/31/02

Temperature correction

Average temperature of the pitch in the tank	395	deg. F
Less 60 F (temperature of pitch for inventory purposes)	60	deg. F
Amount of temperature to be corrected	335	deg. F
Times - the correction factor for pitch	0.00028	
The temperature correction	0.0938	
Plus the number 1 - to make a whole number	1.00000	
The correction factor to be used	1.09380	deg. F

Tank measurement and calculations

Tank measurement in feet - based on 36,525 gals. per foot	47.02	feet	1704496.5	gallons
Divided by the correction factor from above			1.09380	
Gallons for inventory purposes			1558325.6	gallons
Times - 11 pounds per gallon of pitch @ 60 F			11	#'s/gal.
Total tank inventory			17,141,581	pounds
Less Intalco				pounds
Koppers tank inventory			17,141,581	pounds

T-200 VOLUME CALCULATION FORM

DATE:

Temperature correction

Average temperature of the pitch in the tank	396	deg. F
Less 60 F (temperature of pitch for inventory purposes)	60	deg. F
Amount of temperature to be corrected	336	deg. F
Times - the correction factor for pitch	0.00028	
The temperature correction	0.09408	
Plus the number 1 - to make a whole number	1.00000	
The correction factor to be used	1.09408	deg. F

Tank measurement and calculations

Tank measurement in feet - based on 36,525 gals. per foot	47.02	feet	1704496.5	gallons
Divided by the correction factor from above			1.09408	
Gallons for inventory purposes			1557926.8	gallons
Times - 11 pounds per gallon of pitch @ 60 F			11	#'s/gal.
Total tank inventory			17,137,194	pounds
Less Intalco				pounds
Koppers tank inventory			17,137,194	pounds

SEAPORT
MARINE SURVEYS, INC.

Serving the Ports of Alaska, The Pacific Northwest, Northern California and the Mississippi River System

Capt. Peter J. Morrison
Cellular Phone: (503) 519-7347
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Vancouver, WA 98665
USA

Office & 24 Hour: (503) 285-2246
Office: (360) 574-7463
Fax: (360) 574-7284
Email: Survey@seaportmarine.com

CERTIFICATE OF WEIGHT

VESSEL: M/V Osprey Arrow V140

LOCATION: Koppers Industries
Port of Portland
Portland, Oregon

DATES OF DISCHARGE: December 24, 2002

THIS IS TO CERTIFY THAT the undersigned marine surveyor did attend the subject vessel prior to and during discharge. The following quantities were received in Portland, Oregon:

QUANTITY

Port:	By Vessel:	By Shore:
Portland, Oregon:	5,077.731 M/Tons	5044.404 M/Tons
Total:	**5,077.731 M/Tons**	**5044.404 M/Tons**

SURVEY MADE AND THIS REPORT ISSUED WITHOUT PREJUDICE.

By: Peter Brauns Bs NS
Marine Surveyor

December 28, 2002

Seaport Marine Surveys, Inc. and the surveyor signing this report agree to use their best efforts in behalf of those for whom this survey is made, but it is expressly understood and agreed that this survey is undertaken and this report issued with the understanding that neither shall be liable for any errors or omissions, whether due to active negligence or otherwise, in excess of the actual charge made for this survey, and that any and all persons interested in or to be affected hereby accept this report on that basis

SEAPORT
MARINE SURVEYS, INC.
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Cellular Phone: (503) 519-7347
email: pjm@seaportmarine.com
Cellular Phone: (503) 519-7346
email: pb@seaportmarine.com

Capt. Peter J. Morrison MAIMS

Peter Brauns Bs. NS.

CERTFICATE OF WEIGHT
SHORE TANK NO. 200

Vessel:	Osprey Arrow	**Voyage No.**	128
Request of:	Koppers Industries	**Location:**	Koppers Industries
Commodity:	Liquid Pencil Pitch	**Port:**	Port of Portland

DATE	TIME	TEMP (F^0)	DENSITY	GAUGE	GALLONS	M^3	M/TONS	S/TONS
24-Dec	4:30	400	1.222720	17.26	615321	2329.24	2848.014	3139.394
24-Dec	18:45	396	1.223734	47.02	1703766	6449.46	7892.418	8699.891
Total:							**5044.404**	**5560.497**
Line Displacement:							**0.000**	**0.000**
Grand Total							**5044.404**	**5560.497**

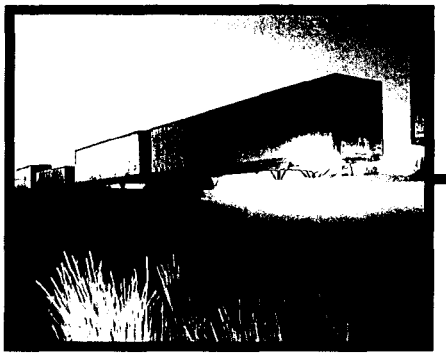
SEAPORT MARINE SURVEYS, INC.

By: Peter Brauns Bs. NS
Marine Surveyor

Koppers016394

KOPPERS

2003



Hazardous Materials Transportation

Trainer's Manual

2003

ANSWERS for Case Studies
Case Study I – Small Sample Package Transported By Air

WHAT ARE THE RULES THAT WERE KNOWINLGY VIOLATED? WHO VIOLATED THOSE RULES? WHAT ARE THE FINES PER VIOLATION??

VIOLATION	WHO?	SECTION	FINE
Offering a shipment for transportation by air that is not in compliance with the regulations	Tom	173.1	up to $27,500
No hazard label	Tom	172.400	$5,000
No marking (shipping name/ UN#)	Tom	172.301(a)	$3,000-$6,000
No shipping document	Tom	172.201	$3,000-$6,000
No Emergency Response Information	Tom	172.602	$3,000
No certification	Tom	172.204	$1,000
Not properly trained	Koppers/Tom	172.702	$2,400

Suggestions:

Determine if the material is regulated for transportation.

NAPHTHALENE, CRUDE, 4.1, UN1334, PGIII (NOT A HAZARDOUS SUBSTANCE (RQ=100 LB.))

What are the exceptions for "limited quantities" by ground and by air?

173.151 labeling (ground only), specification packaging, placarding, max per inner, 5 kg (11 pounds), max per package 30 kg (66 lb)

What are the compliance procedures if the material is regulated for transportation?

Classify, package, mark, label, document, placard

Answers for Case Studies
Case Study II – Loading Of A Crude Coke Oven Tar Tank Car

WHAT WERE THE VIOLATIONS?

VIOLATION	SECTION
No hazardous materials training	172.702
Improper display of placards (3 class 9 placards)	172.502(c), 172.516(a)
Improper marking (3082 on white panel)	172.302(a), 172.332(b)(1)
Failure to perform a proper inspection	173.31(d)(2))
Releasing a tankcar that is not in proper condition for transportation	173.31(d)(1)
Failure to determine that all closures and all fastenings securing them were properly tightened in place by means of a suitable tool	173.31(d)(1)(iv)

Suggestions:

Crude Coke Oven Tar is a regulated material
RQ OTHER REGULATED SUBSTANCES,LIQUID,N.O.S (CONTAINS BENZO(A)PYRENE, BENZO(A)ANTHRACENE
CLASS 9 NA3082 PG III.

What are the compliance procedures?
Classify, package, mark, label, document, placard

What are the loading procedures?
See section 173.31.

Answers for Case Studies
Case Study III – Unloading a Tank Car of Creosote

WHAT ARE THE VIOLATIONS AND WOULD KOPPERS FACE CRIMINAL PENALTIES DUE TO NEGLIGENCE?

VIOLATION	SECTION
Failure to properly secure a tankcar for shipment	174.67(k)
Failure to properly mark a package (handwritten "3082")	172.332(b)
Failure to provide a shipping paper	172.200, 173.29
Failure to provide written emergency response information	172.602, 173.29

Mike may be held accountable in addition to Koppers for negligence for not properly tightening the bolts.

Suggestions:

Creosote is regulated for transportation.

RQ ENVIRONMENTALLY HAZARDOUS SUBSTANCES, LIQUID, N.O.S. (CONTAINS BENZO(A)ANTHRACENE,BENZO(B)FLUORANTHENE)
9 UN3082 PG III

What are the compliance procedures?

Classify, package, mark, label, document, placard

What are the unloading procedures?

See 174.67

Answers for Case Studies
Case Study IV – Sample of Coal Tar Creosote

WHAT ARE THE VIOLATIONS AND WHO IS AT FAULT?

VIOLATION	WHO?	SECTION
No hazmat training	Koppers/Mary	172.702,
Failure to package hazardous materials in accordance with the regulations.	Mary	173.1(b)
Failure to mark proper shipping name and UN # on package	Mary	172.301
Failure to provide package orientation marking	Mary	172.312
Failure to provide complete shipping description in the correct order on the shipping document	Mary	172.202
Failure to date the shipping document	Mary	172.201(e)
Failure to certify the shipment	Mary	172.204

Suggestions:

Determine if the Coal Tar Creosote is regulated for transportation.
RQ ENVIRONMENTALLY HAZARDOUS SUBSTANCES, LIQUID, N.O.S.(CREOSOTE) 9 UN3082 PG III

What are the compliance procedures?
Classify, package, mark, label, document, placard

What marks and labels are required?
RQ Environmentally hazardous substance liquid nos (creosote) UN3082,
Class 9 label
orientation arrows.
name and address

What is wrong with the shipping document?
See above.

Koppers Incorporated
Hazardous Materials Transportation Seminar
Agenda
Spring 2003

7:30 am	Continental Breakfast
7:45 am	Welcome and Introduction
8:00 am	Overview of Hazardous Materials Regulations
8:15 am	Shipper's Responsibilities
	Six Step Compliance Procedure
	General Awareness Training (Tape)
8:45 am	Case Studies
	Sample of Naphthalene
	Loading of a Railcar (Crude Coke Oven Tar)
	Unloading of a Railcar (Creosote)
	Sample of Coal Tar Creosote
9:30 am	Break
9:45 am	Classification of Hazardous Materials
	The Nine Hazard Classes
	Additional Hazard Designations
	Use of the Hazardous Materials Table
10:30 am	Selection of Shipping Description
	Koppers' Products and their Shipping Descriptions
	Naphthalene, Phthalic Anhydride, Refined Chemical Oil, Coal Tar Creosote
11:15 am	Exercise
11:45 am	Break for Lunch
12:45 pm	Selection of Packaging
	Non-bulk Packaging
	Bulk Packaging
1:15 pm	Function Specific Training
	Shipping Papers and Emergency Response Information
	Koppers' Bills of Lading
	Marking
	Labeling
	Placarding
2:15 pm	Break
2:30 pm	Tankcar Loading and Unloading
2:45 pm	Security
3:00 pm	Case Study Exercise
3:30 pm	Review of Case Study
4:15 pm	Quiz
4:30 pm	Review Quiz
4:45 pm	Adjourn
5:00 pm	Trainer Review of In-Plant Training Materials (Trainers Only)
5:30 pm	Adjourn/Departures

Presented by: The Compliance Center Inc.

Koppers Incorporated
Hazardous Materials Transportation Seminar
Spring 2003
Table of Contents

Section I List of Overheads

Section II Koppers' Product List
- Hazardous Materials Table - 49 CFR 172.101
- Koppers Hazardous Products

Section III Material Safety Data Sheets

Section IV Selection of Packaging
- Exceptions (Limited Quantities)
- Non-bulk Packaging
- Bulk Packaging

Section V Shipping Papers
- 49 CFR 172 Subpart C – Shipping Papers
- 49 CFR 172 Subpart G – Emergency Response Information
- Examples of Completed Straight Bill of Lading – Short Form

Section VI Marking/Labeling/Placarding
- 49 CFR 172 Subpart D – Marking
- 49 CFR 172 Subpart E – Labeling
- 49 CFR 172 Subpart D – Placarding

Section VII Tankcar Loading/Unloading
- 49 CFR 173.31 – Use of Tankcars
- 49 CFR 174 Subpart C – General Handling and Loading Requirements
- Pamphlet 34 – Recommended Methods
- Koppers Corporate Procedures for Tankcar Loading, Unloading and Attendance

Section VIII Trainers' Information
- 49 CFR 172 Subpart H – Training

Section IX Work Projects
- Case Studies
- DOT Guidelines for Civil Penalties

Section X Student Notes
- Performance Packaging Marking Guide
- Hazardous Materials Placarding Guide for Road and Rail

Presented by: The Compliance Center Inc.

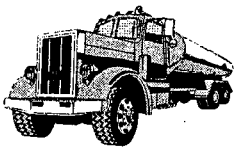
Section I
List of Overheads

Koppers016402

SHIPPING HAZARDOUS MATERIALS

A Recurrent Training Course in 49CFR

KOPPERS



Presented by:
ICC The Compliance Center Inc.
2150 Liberty Dr., Niagara Falls, NY 14304
1-800-767-7231

1

KOPPERS 2003

Course Objectives

- Become familiar with Koppers Hazardous Materials
- Learn to comply with the requirements for shipping Hazardous Materials
- Meet the DOT HAZMAT recurrent training requirements

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KOPPERS 2003

Agenda

- Overview of Hazardous Materials Regulations
- Compliance Procedures
- Case Studies
- Classes and Identification of Hazardous Materials
- Koppers Product List
- Selection of Packaging
- Shipping Papers
- Marking, Labeling & Placarding
- Tank Car Operations
- Security
- Review of Case Studies

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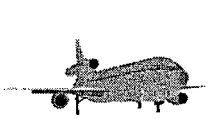
What Laws Affect Transportation of Hazardous Materials?

US DOT Reg. 49 CFR	All modes within USA
ICAO Technical Instructions	International air transport
IATA Dangerous Goods Reg.	Commercial air transport
IMDG Code	International sea transport
TDG Act and Regulations	Shipments to/from Canada
NOMs	Shipments to/from Mexico



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Hazardous Materials Regulations

- The Hazardous Materials Regulations were created in order to:
  - Prevent accidents, leaks and spills
  - Help emergency responders
  - Ensure that HAZMAT employees are aware of hazards of materials

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Regulatory Requirements for Shippers

- Administrative Requirements
  - Annual Registration
  - Employee Training
  - Security Plans
- Shipping Requirements
  - Hazard Identification
  - Proper Packaging
  - Hazard Communication

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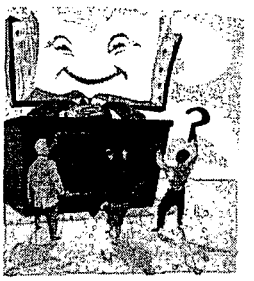
Penalties

- **Civil Penalties** *(107.329(a))*
  - Fines from $250 to $27,500 per violation per day
- **Criminal Penalties** *(107.333)*
  - Fines up to $500,000 per violation
  - Up to five years in prison
- **Injunctive Action** *(107.337)*
  - Shipments stopped or seized



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DOT Penalty Guidelines

Violation	Section	Baseline Assessment
Failure to register as carrier or shipper	107.608	$1,000 ; increasing by $500 per year
Shipping papers	172.200 - 172.205	$3000 - $6,000
ER Information	172.600-172.604	$800 - $6,000
Marking, labeling and placarding	172.300-172.338	$800 - $9,000
Training	172.700-172.704	$1500 and up
Marking of overpacks	173.25	$3,000
Using non-specification packaging	Various	$5,000 - $9,000
Offering unsafe package that leaks	173.24(b)	$6,000 - $12,000
Transporting unsecured load	177.834(a) & (g)	$3,000

Appendix A to Part 107

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Enforcement Authorities

Research and Special Programs Administration	RSPA	Creates regulations Authority over package manufacturers and shippers
Federal Highway Administration	FHWA	Highway shipments
State DOT's		Highway shipments (intrastate)
Federal Railroad Administration	FRA	Rail shipments
Federal Air Administration	FAA	Air shipments
United States Coast Guard	USCG	Shipment by vessel

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Administrative Requirements

- HAZMAT employers must:
  - Register with DOT, if necessary
    - Annual fee of $300 ($150 for small business)*
    - Motor carrier must carry copy of current Registration Certification
  - Train all HAZMAT employees
    - Recurrent training every three years
  - Develop and adhere to a security plan by September, 25, 2003, if:
    - Required to register
    - Offering or transporting select agents regulated by the CDC

* Starting in 2006-2007: $1,000 or $275 for small business

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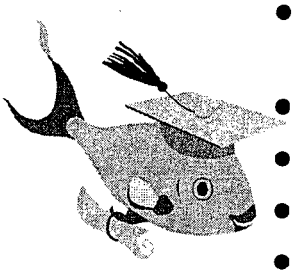
Training Requirements
for Shippers

- **Types of Training:**



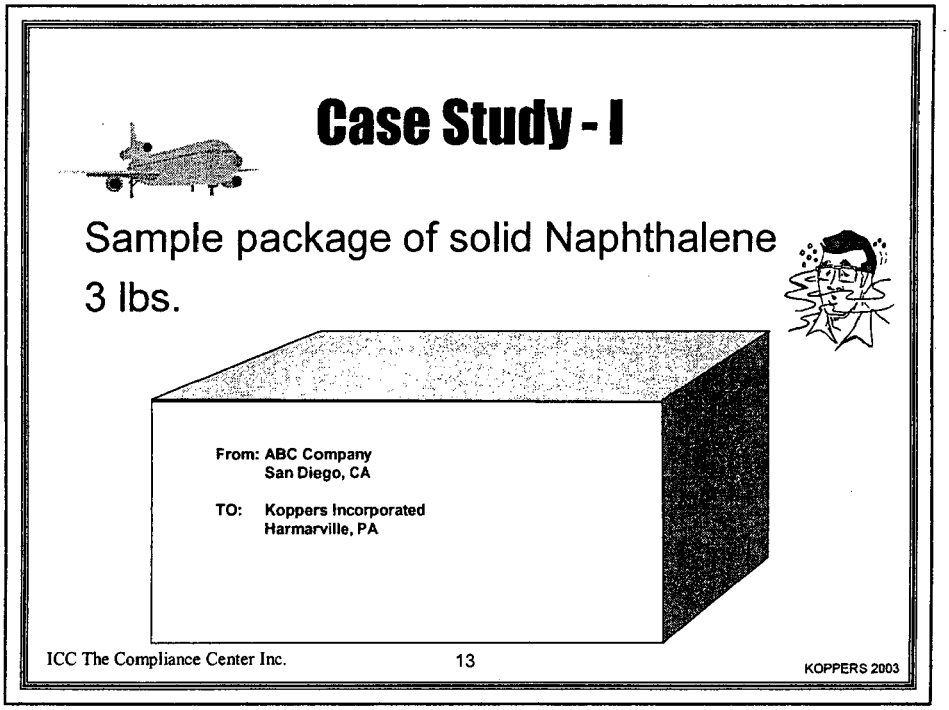
  - general awareness/ familiarization training
  - function-specific training
  - safety training
  - security awareness training
  - in-depth security training
  - driver training

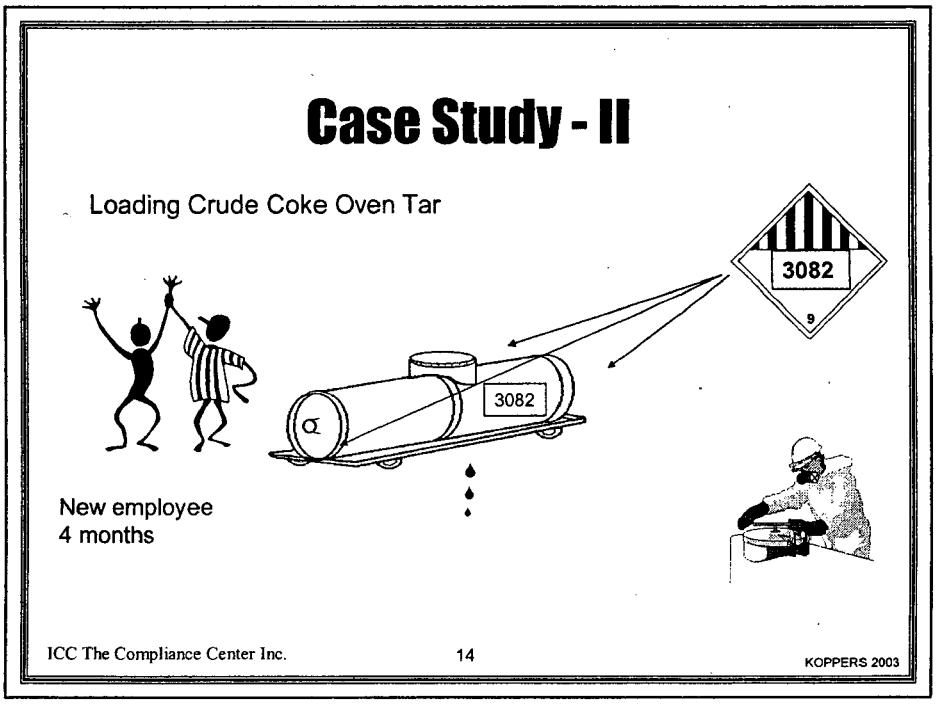
(172.700)

Training Compliance Dates

- Time limits for training HAZMAT employees are:
  - new employee - within 90 days
  - HAZMAT function changed - within 90 days
- May perform HAZMAT functions under **direct** supervision of trained employee before completing training (up to 90 days)
- Security Awareness training:
  - New employee – within 90 days
  - Current employees – with first scheduled recurrent training after 3/25/03
- In-depth security training (if security plan is required)
  - By December 22, 2003

(172.704)


Case Study - I
Sample package of solid Naphthalene
3 lbs.
From: ABC Company
San Diego, CA
TO: Koppers Incorporated
Harmarville, PA
ICC The Compliance Center Inc.
13
KOPPERS 2003


Case Study - II
Loading Crude Coke Oven Tar
3082
9
3082
New employee
4 months
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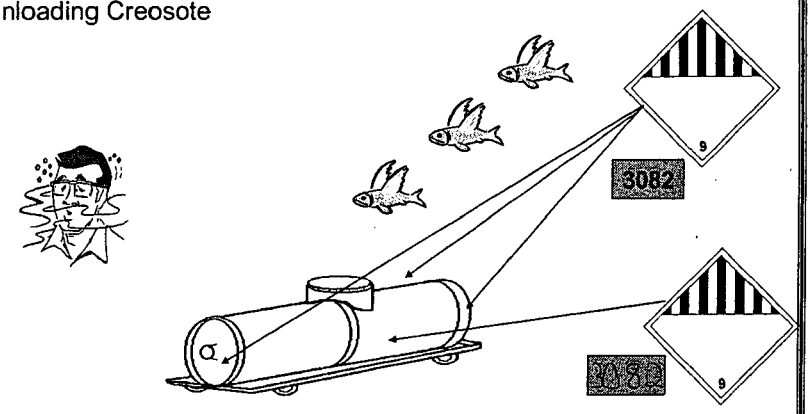
14
KOPPERS 2003

Case Study - III

Unloading Creosote



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Case Study - IV

STRAIGHT BILL OF LADING – SHORT FORM
ORIGINAL – NOT NEGOTIABLE

RECEIVED, subject to the classifications and lawfully filed tariffs in effect on the date of issue of this Bill of Lading

Koppers Incorporated

FROM: AT: DATE:

BIll of Lading Number
KII-04R3100402-1

Freight Basis

Ship To: Number One Customer
123 Right Now
Somewhere, IN 12934

Name

Carrier / Vehicle #
Sold To

Shippers Order #
N/A

Customers P.O. Number
N/A

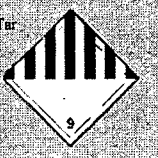
Package, No. and Kind	HM	DOT SHIPPING NAME/HAZARD CLASS (IF APPLICABLE)	DESCRIPTION OF ARTICLES, SPECIAL MARKS & EXCEPTIONS	WEIGHT (Subject to Correction)
1 box		Crude coke oven tar, class 9		10 pounds

EMERGENCY CONTACT: CALL CHEMTREC 1-800-424-9300 OR 1-202-483-7616 FAX 1-800-345-

See below

To: Number One Customer
123 Right Now
Somewhere, IN 12934

Crude Coke Oven Tar



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Six Steps to Safe Shipping

1. Classification - hazard identification and selection of shipping description
2. Packaging – selection and assembly
3. Shipping papers - including emergency response information
4. Marking of Packages
5. Labeling of Packages
6. Placarding

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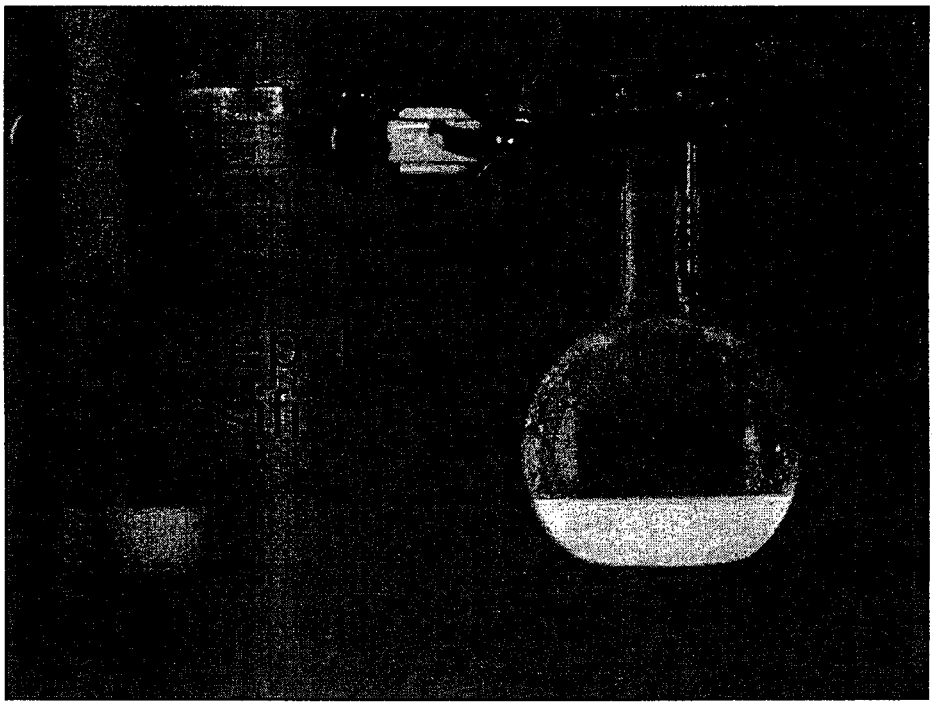
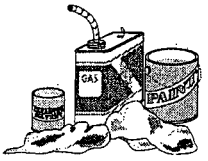


What Are Hazardous Materials?

- ***HAZARDOUS MATERIAL*** means a substance or material, which has been determined by the Secretary of Transportation to be capable of posing an unreasonable risk to health, safety and property when transported in commerce, and which has been so designated....



(171.8)

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Basic Shipping Description

The ***basic shipping description*** consists of:

- ☑ **S**hipping name
- ☑ **H**azard class(es)
- ☑ **I**dentification number (UN or NA)
- ☑ **P**acking group

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Hazard Classes

- Class 1 - Explosives
- Class 2 - Compressed Gases
- Class 3 - Flammable Liquids
- Class 4 - Flammable Solids
- Class 5 - Oxidizers and Organic Peroxides
- Class 6 - Toxic (Poisonous) and Infectious Materials
- Class 7 - Radioactive
- Class 8 - Corrosive Materials
- Class 9 - Miscellaneous Hazardous Materials

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Packing Groups

- Packing groups measure degree of danger:
  - Packing Group I - Great Danger
  - Packing Group II - Medium Danger
  - Packing Group III - Minor Danger

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Class 1 - Explosives

- Division 1.1 - Mass Explosion Hazard
- Division 1.2 - Projection Hazard
- Division 1.3 - Fire Hazard
- Division 1.4 - Insignificant Hazard
- Division 1.5 - Very Insensitive Explosives
- Division 1.6 - Extremely Insensitive Explosives

Also Compatibility Groups

(173.50)

Class 2 - Compressed Gases

- Division 2.1 - Flammable Gas
- Division 2.2 - Non-Flammable Gas
- Division 2.3 - Toxic Gas

(173.115)

Class 3 - Flammable Liquids

- Any liquid with flash point of 60.5°C (141°F) or lower
- Liquid with flash points 37.8°C (100°F) or higher, **intentionally heated** and transported at or above flash point in **bulk packaging**

(173.120(a))

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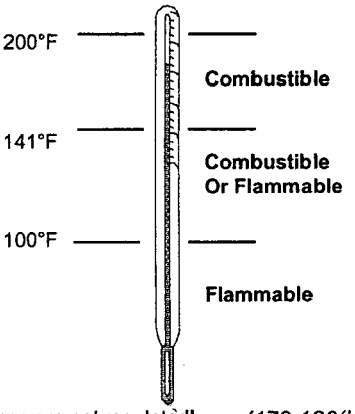
Combustible Liquids

- Any liquids with a Flash point > 60.5°C (141°F) and < 93°C (200°F)
- Flammable liquids with flashpoints of 37.8°C (100°F) may be re-classified as combustible.



NOTE: Combustible Liquids in non-bulk packagings are not regulated!

(173.120(b))

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Class 4 - Flammable Solids

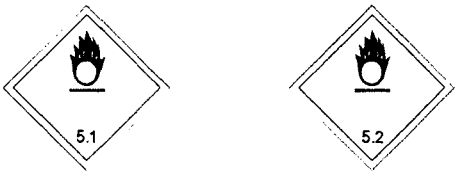
- Division 4.1 - Flammable Solids
- Division 4.2 - Spontaneously Combustible Materials
- Division 4.3 - Dangerous When Wet

(173.124)

ICC The Compliance Center Inc. 27 KOPPERS 2003

Class 5 - Oxidizers and Organic Peroxides

- Division 5.1 - Oxidizing Substances
- Division 5.2 - Organic Peroxides



(173.127, 173.128)

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Section 172.101 - Hazardous Materials Table

Sym-bols (1)	Hazardous materials descriptions and proper shipping names (2)	Hazard class or Division (3)	Identifi-cation numbers (4)	PG (5)	Label codes (6)
G	Corrosive liquid, acidic, organic, n.o.s.	8	UN3265	I	8
G	Corrosive liquid, acidic, organic, n.o.s.	8	UN3265	II	8
G	Corrosive liquid, acidic, organic, n.o.s.	8	UN3265	III	8
G	Environmentally hazardous substances, liquid, n.o.s.	9	UN3082	III	9
	Elevated temperature liquid, n.o.s., *at or above 100 C and below its flash point (including molten metals, molten salts, etc.)*	9	UN3257	III	9
+, I	Methanol	3	UN1230	II	3, 6.1
D	Methanol	3	UN1230	II	3
	Naphthalene, molten	4.1	UN2304	III	4.1
+	Sulfuryl chloride	8	UN1834	I	8, 6.1

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KOPPERS MATERIAL SAFETY DATA SHEETS

Section XII - Transport Information

- Shipping Name
- Hazard Class
- Identification Number
- Packing Group
- Product Name
- Marking/Placard Information
- Packaging Information

ICC The Compliance Center Inc. 48 KOPPERS 2003

Class 6 - Toxic and Infectious Substances

- Division 6.1
  - Toxic (Poisonous) liquids and solids
  - Packing Group III - May be marked on or beside label or placard, or "Keep Away from Food" may be used until 10/01/03

May be worded with "TOXIC", "POISON" or "PGIII"

- Division 6.2
  - Infectious Substances

(173.132, 173.134)

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Class 7 - Radioactive Materials

- Radioactive materials are materials that have a specific activity greater than 0.002 microcuries per gram.

(173.403)

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Class 8 - Corrosives

- A liquid or solid that causes visible destruction or irreversible alterations in human skin tissue at the site of contact; *or*
- A liquid that has a severe corrosion rate on steel or aluminum

Label

Placard

(173.136)

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Class 9 - Miscellaneous Hazardous Material

- Named material (e.g. asbestos)
- Material which could cause extreme discomfort during air transport due to its noxious, anesthetic or other properties
- Materials with no other class, but which are
  - Environmentally hazardous substances
  - Hazardous wastes
  - Marine pollutants
  - Elevated temperature materials

(173.140)

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Other Designations

- DOT also regulates the following hazards:
  - Hazardous Substances (RQ's)
  - Marine pollutants
  - Elevated temperature materials
  - Materials toxic (poison) by inhalation (TIH's or PIH's))

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Hazardous Substances

- A "Hazardous Substance" must be identified with the letters "RQ" when:
  - Contains an ingredient listed as a hazardous substance in Appendix A to Section 172.101; AND
  - Individual packages contain a "Reportable Quantity" or more of the listed ingredient

(171.8)

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Appendix A - Table 172.101 Reportable Quantities

Hazardous Substance	Reportable Quantity (RQ) Pounds (Kilograms)
Benzo(a)pyrene	1 (0.454)
Creosote	1 (0.454)
Naphthalene	100 (45.4)
Phthalic anhydride	5000 (2270)

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Low Concentrations of Hazardous Substances

- The RQ (Hazardous Substance) designation does *not* apply to materials with concentrations less than the following:

RQ Pounds (kilograms)	Concentration by weight	
	Percent	PPM
5000 (2270)	10	100,000
1000 (454)	2	20,000
100 (45.4)	0.2	2,000
10 (4.54)	0.02	200
1 (0.454)	0.002	20

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Marine Pollutants

- A product must be identified as a Marine Pollutant if it:
  - Contains 10% or more of a chemical listed as a Marine Pollutant in Appendix B; or
  - Contains 1% or more of a chemical listed as a Severe Marine Pollutant (PP) in Appendix B; AND
  - Is shipped BY WATER or IN BULK

(171.4, 171.8)

Appendix B - Table 172.101 Marine Pollutants

S.M.P. (1)	Marine Pollutant (2)
.....	Chlorotoluenes (meta-;para-)
.....PP.....	Hexachlorobutadiene
.....PP.....	Osmium Tetroxide
.....	Trichlorobenzenes, liquid

Section 172.101 - Hazardous Materials Table

Sym-bols (1)	Hazardous materials descriptions and proper shipping names (2)	Hazard class or Division (3)	Identifi-cation numbers (4)	PG (5)	Label codes (6)
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G	Corrosive liquid, acidic, organic, n.o.s.	8	UN3265	II	8
G	Corrosive liquid, acidic, organic, n.o.s.	8	UN3265	III	8
G	Environmentally hazardous substances, liquid, n.o.s.	9	UN3082	III	9
	Elevated temperature liquid, n.o.s., *at or above 100 C and below its flash point (including molten metals, molten salts, etc.)*	9	UN3257	III	9
+, I	Methanol	3	UN1230	II	3, 6.1
D	Methanol	3	UN1230	II	3
	Naphthalene, molten	4.1	UN2304	III	4.1
+	Sulfuryl chloride	8	UN1834	I	8, 6.1

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Symbols - Column 1

- "+" - Fixes shipping name, hazard class and packing group
- "A" - Regulated only for air transport, or if a hazardous waste or a hazardous substance
- "D" - Suitable for domestic transportation
- "I" - Suitable for international/domestic transportation
- "W" - Regulated only for transportation by vessel,or if a hazardous waste or a hazardous substance
- "G" - Requires addition of technical name(s)

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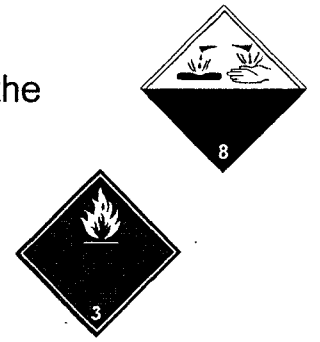
Multiple Hazards

Some materials may have more than one hazard

- The first hazard is called the ***primary hazard***;
- Other hazards are called ***subsidiary hazard*** or ***secondary hazard***



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Using the Hazardous Materials Table

- The Hazardous Materials Table (Table 172.101) provides specific information on
  - Shipping names
  - Hazard class
  - Identification numbers
  - Packing Group
  - Labeling requirements
  - Special provisions
  - Packaging authorizations *(172.101)*

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Materials Toxic by Inhalation

- Materials must be identified as "Toxic Inhalation Hazards" if they are:
  - Poison gases, Hazard Zone A, B, C or D; OR
  - Liquids of Division 6.1 with toxic vapor in PG I, Hazard Zone A or B; OR
  - Identified as an inhalation hazard by special provision in Table 172.101

(171.8, 173.133)

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Toxic - Inhalation Hazard Label and Placard

- Package does not need "Inhalation marking" if displayed on placard
- TIH labels not required for international shipment if in freight containers displaying identification numbers and TIH Placards

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Removed from Appendix B

- Effective October 1, 2001, 94 entries were removed from Appendix B. These include:
  - Coal tar
  - Coal tar naphtha
  - Creosote (wood tar)
  - Cresols (o-, m-, p-)
  - Methylnaphthalenes, liquid
  - Naphthalene, crude or refined
  - Naphthalene, molten

(HM-215D, June 21, 2001, 66 FR 33413)

Elevated Temperature Materials

- BULK materials must be identified as "Elevated temperature" ("HOT") if they are:
  - Liquids transported at 100°C (212°F) or greater
  - Liquids with flashpoints of 37.8°C (100°F) or greater, transported above their flashpoints; or
  - Solids transported at 240°C (464°F) or greater

(171.8)

Naphthalene, Crude
Commodity No. 69000001

Section XII

Packaged in Tank Car and Tank Truck

RQ Naphthalene, Molten 4.1 UN2304 PG III

Placarded: Flammable Solid

(Section VI-RQ=100 lb.)

Phthalic Anhydride, Molten
Commodity No. 70000001

Section XII

Packaged in Tank Car and Tank Truck

RQ Elevated Temperature Liquid , N.O.S. (Phthalic Anhydride), 9, UN3257, PGIII

Placarded: Class 9

(Section VI-RQ=5,000 lb.)

Refined Chemical Oil
Commodity No. 20402001

Section XII

Packaged in Barge, Tank Car and Tank Truck

RQ Corrosive Liquid, Acidic, Organic, N.O.S. (contains Naphthalene, Methylnaphthalenes), 8, UN3265, PG III

Placarded: Corrosive

(Section VI-RQ=100 lb.)

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Coal Tar Creosote
Commodity No. 17300001

Section XII

Packaged in Barge, Tank Car and Tank Truck

RQ Environmentally Hazardous Substances, Liquid, N.O.S. (Creosote) 9 UN3082 PGIII

Placarded: Class 9

(Section VI- RQ=1 lb.)

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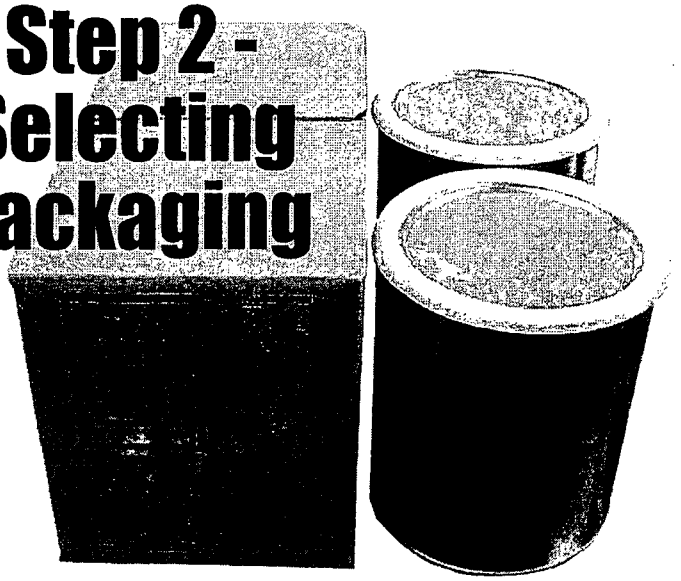
Step 2 - Selecting Packaging



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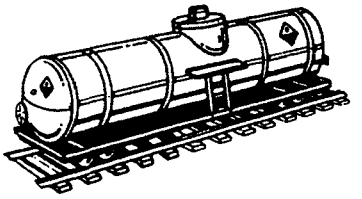
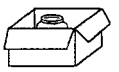
Types of Packaging

- Bulk packaging
  - Volume > 450 Liters (119 Gallons)



- Non-bulk packaging

Single packaging



Combination packaging

Composite packaging

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General Packaging Requirements

- General standards for packaging can be found in Sections 173.24, 173.24a and 173.24b, including:
  - Compatibility
    - Between packaging and contents
    - Between different chemicals in same package
  - Closures must be secure, leakproof, upright
  - Outage for liquids
  - Cushioning for inner packagings
  - Observe marked filling limits

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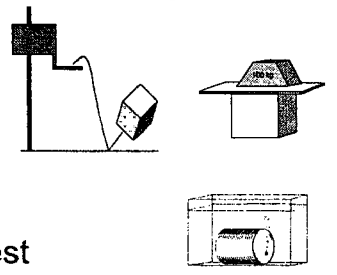
Design Qualification Tests for Non-Bulk Packagings

- Drop Test
- Stacking Test
- Cobb test
- Vibration standard
- Leakproofness Test
- Hydrostatic Pressure Test
- Retesting period for design
- Testing carried out on complete package



(178.600)

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Packaging Certification Marks

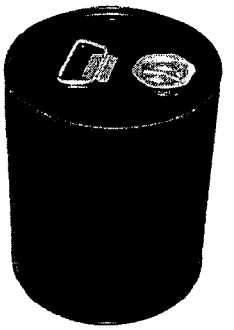
- Special certification marks identify:
  - Single packaging and Composite packagings
    - For solids only
    - For liquids and solids
  - Combination packagings
  - Intermediate Bulk Containers (IBC's)

ICC The Compliance Center Inc. 57 *(178.500)* KOPPERS 2003

Packaging Certification Marks Single Packagings

- Suitable for **liquids** and solids:

(un) **1A1/Y1.4/100/03 USA/+DD4071**



- Solids only:

(un) **1A2/Z400/S/03 USA/+DD4072**

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Package Certification Marks Combination Packagings

- Combination Packaging

(un) 4G/Y16/S/03
USA/+DD0432

- Variation 2 Packaging

(un) 4GV/X8/S/03
USA/+DD0433

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Section 172.101 - Hazardous Materials Table

Hazardous materials descriptions and proper shipping names (2)	Special Provisions (7)	(8) Packaging (§173.***) Exceptions (8A)	Non-Bulk (8B)	Bulk (8C)	(9) Quantity limitations Passenger aircraft / rail (9A)	Cargo aircraft only (9B)	(10) Vessel stowage Location (10A)	Other (10B)
Corrosive liquid, acidic, organic, n.o.s.	IB3,T7,TP1, TP28	154	203	241	5 L	60 L	A	40
Elevated temperature liquid, n.o.s.	IB1,T3,TP3, TP29	None	None	247	Forbidden	Forbidden	A	85
Environmentally hazardous substances, liquid, n.o.s.	8,IB1,T4, TP1,TP29	155	203	241	No limit	No limit	A	
Methanol	IB2,T7,TP2	150	202	242	1 L	60 L	B	40
Naphthalene, molten	A1,IB1,T1, TP3	151	213	241	Forbidden.	Forbidden.	C	
Sulfuryl chloride	1,A3,B6,B9, B10,B14, B30, B74, B77, N34, T22,TP2, TP12,TP38, TP44	None	226	244	Forbidden	Forbidden	C	40

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Special Provision Codes Column 7

- "Numbers only" - Multi-modal (bulk/non-bulk)
- "A"- Air only
- "B"- Bulk (other than IBCs or IM portable tanks)
- "IB" - IBC packing instructions
- "IP" - IBC special provisions
- "N"- Non-bulk packaging
- "T"- portable tank instructions
- "TP" - Portable tank special provision
- "W" - Water only

(172.102)

Special Provisions

8	A hazardous substance that is not a hazardous waste may be shipped under the shipping description "Other Regulated Substance, Liquid or solid n.o.s., ...
T4	minimum requirements for portable tanks used
T7	minimum requirements for portable tanks used
TP1	additional requirements for use of portable tank
TP29	additional requirements for use of portable tank

(172.102)

Section 172.101 - Hazardous Materials Table

Hazardous materials descriptions and proper shipping names (2)	Special Provisions (7)	(8) Packaging (§173.***) Ex-ceptions (8A)	Non-Bulk (8B)	Bulk (8C)	(9) Quantity limitations Passen-ger aircraft / rail (9A)	Cargo aircraft only (9B)	(10) Vessel stowage Loca-tion (10A)	Other (10B)
Corrosive liquid, acidic, organic, n.o.s.	IB3,T7,TP1, TP28	154	203	241	5 L	60 L	A	40
Elevated temperature liquid, n.o.s.	IB1,T3,TP3, TP29	None	None	247	Forbid-den	Forbidden	A	85
Environmentally hazardous substances, liquid, n.o.s.	8,IB1,T4, TP1,TP29	155	203	241	No limit	No limit	A	
Methanol	IB2,T7,TP2	150	202	242	1 L	60 L	B	40
Naphthalene, molten	A1,IB1,T1, TP3	151	213	241	Forbid-den.	Forbidden.	C	
Sulfuryl chloride	1,A3,B6,B9, B10,B14, B30, B74, B77, N34, T22,TP2, TP12,TP38, TP44	None	226	244	Forbid-den	Forbidden	C	40

ICC The Compliance Center Inc. 63 KOPPERS 2003

Packaging Exception 173.155

- Limited Quantities of Class 9 are excepted from:
  - Labeling (unless transported by air)
  - Specification packaging
  - Placarding
- Packaging Requirements
  - Liquids: inner packaging not over 5.0 L (1.3 gallons), in a strong outer packaging
  - Solids: inner packagings not over 5.0 kg (11 lb.), in a strong outer packaging
  - Gross weight of package may not exceed 30 kg

ICC The Compliance Center Inc. 64 KOPPERS 2003

Section 172.101 - Hazardous Materials Table

Hazardous materials descriptions and proper shipping names (2)	Special Provisions (7)	(8) Packaging (§173.***) Ex-ceptions (8A)	Non-Bulk (8B)	Bulk (8C)	(9) Quantity limitations Passen-ger aircraft / rail (9A)	Cargo aircraft only (9B)	(10) Vessel stowage Loca-tion (10A)	Other (10B)
Corrosive liquid, acidic, organic, n.o.s.	IB3,T7,TP1, TP28	154	203	241	5 L	60 L	A	40
Elevated temperature liquid, n.o.s.	IB1,T3,TP3, TP29	None	None	247	Forbid-den	Forbidden	A	85
Environmentally hazardous substances, liquid, n.o.s.	8,IB1,T4, TP1,TP29	155	203	241	No limit	No limit	A	
Methanol	IB2,T7,TP2	150	202	242	1 L	60 L	B	40
Naphthalene, molten	A1,IB1,T1, TP3	151	213	241	Forbid-den.	Forbidden.	C	
Sulfuryl chloride	1,A3,B6,B9, B10,B14, B30, B74, B77, N34, T22,TP2, TP12,TP38, TP44	None	226	244	Forbid-den	Forbidden	C	40

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Packing Authorization 173.203

OUTER PACKAGING

Steel drum	-	1A1, 1A2
Aluminum drum	-	1B1, 1B2
Metal drum, other	-	1N1, 1N2
Plywood drum	-	1D
Fiber drum	-	1G
Plastic drum	-	1H1, 1H2
Wooden barrel	-	2C2
Steel jerrican	-	3A1, 3A2
Plastic jerrican	-	3H1, 3H2
Steel box	-	4A1, 4A2
Aluminum box	-	4B1, 4B2
Natural wood box	-	4C1, 4C2
Plywood box	-	4D
Recon. wood box	-	4C1, 4C2
Fiberboard box	-	4G
Exp. plastic box	-	4H1
Solid plastic box	-	4H2

INNER PACKAGING

Glass or earthenware receptacles
Plastic receptacles
Metal receptacles
Glass ampoules

SINGLE PACKAGING

Steel drum	-	1A1, 1A2
Aluminum drum	-	1B1, 1B2
Metal drum, other	-	1N1, 1N2
Plywood drum	-	1D
Fiber drum	-	1G (w. liner)
Plastic drum	-	1H1, 1H2
Wooden barrel	-	2C1
Steel jerrican	-	3A1, 3A2
Plastic jerrican	-	3H1, 3H2
Composite packaging Cylinders		

ICC The Compliance Center Inc. 66 KOPPERS 2003

Section 172.101 - Hazardous Materials Table

Hazardous materials descriptions and proper shipping names (2)	Special Provisions (7)	(8) Packaging (§173.***) Ex-ceptions (8A)	Non-Bulk (8B)	Bulk (8C)	(9) Quantity limitations Passen-ger aircraft / rail (9A)	Cargo aircraft only (9B)	(10) Vessel stowage Loca-tion (10A)	Other (10B)
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Elevated temperature liquid, n.o.s.	IB1,T3,TP3, TP29	None	None	247	Forbid-den	Forbidden	A	85
Environmentally hazardous substances, liquid, n.o.s.	8.IB1,T4, TP1,TP29	155	203	241	No limit	No limit	A	
Methanol	IB2,T7,TP2	150	202	242	1 L	60 L	B	40
Naphthalene, molten	A1,IB1,T1, TP3	151	213	241	Forbid-den.	Forbidden.	C	
Sulfuryl chloride	1,A3,B6,B9, B10,B14, B30, B74, B77, N34, T22,TP2, TP12,TP38, TP44	None	226	244	Forbid-den	Forbidden	C	40

ICC The Compliance Center Inc. 67 KOPPERS 2003

Packing Authorization 173.241

- Rail cars
  - Class DOT 103, 104, 105, 109, 111, 112, 114, 115 or 120 tank car tanks and non-specification AAR Class 203W, 206W and 211W tank car tanks
- Motor vehicles:
  - Specification MC 300 - 307, 310, 311, 312, 330, 331, DOT 406, 407, and 412 cargo tank motor vehicles; non-DOT spec cargo tank motor vehicles suitable for transport of liquids
- Portable tanks:
  - DOT 51, 56, 57 and 60 portable tanks, IMO 101 and IMO 102 portable tanks…
- Intermediate Bulk Containers:
  - As allowed by IB code in column 7 of §172.101

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Bulk Package Markings - Rail Cars

- Certification Marks
  - Each tank car must be marked in accordance with Appendix C of the AAR specifications for tank cars.
  - The specification marking is both stamped into the head of the tank and stenciled on the sides of the car.

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70 KOPPERS 2003

First ... The Basic Description

- ☑ **Shipping name**
- ☑ **Hazard class and division** (subsidiary class optional for domestic shipment)
- ☑ **Identification number** (UN or NA)
- ☑ **Packing Group** (I, II or III)

PLUS

- ☑ **Total Quantity**

e.g. "Paint, 3, UN1263, II – 20 gallons"
"Paint, 3, UN1263, II – 1 tankcar"

- ☑ **Date accepted by initial carrier** *(172.201)* *(172.202)*

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Then ... Any Additional Requirements?

Refer to 172.203 for additional requirements

- ☐ **DOT-E exemption number** *(172.203(a))*
- ☐ **Limited Quantity** *(172.203(b))*
- ☐ **Hazardous substances** (RQ's) *(172.203(c))*
- ☐ **"Residue, last contained"** *(172.203(e))*
  - Mandatory only for rail
- ☐ **Technical name(s)** *(172.203(k))*

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More... Additional Requirements

- ☐ **Marine Pollutants** (bulk or vessel) *(172.203(l))*
- ☐ **Poison (Toxic) Inhalation Hazards** *(172.203(m)(3))*
- ☐ **"HOT"** *(172.203(n))*
- ☐ **Wastes** *(172.205)*

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Finally - Shipper's Certification

"This is to certify the above-named materials are properly classified, described, packaged, marked and labeled, and are in proper condition for transportation according to the applicable regulations of the Department of Transport."

(172.204)

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Hazardous and Non-Hazardous Materials

- You can list hazardous and non-hazardous materials on the **same shipping paper**, if you do **one** of the following:
  - Enter all hazardous materials first
  - Highlight the hazardous materials information or use a contrasting color
  - Mark an "X" or an "RQ" in column headed "Hazardous Materials" or "HM"

(172.201(a)(1))

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Emergency Response Information

- Written information, including:
  - Basic Description of the hazardous material
  - Immediate hazards to health
  - Risks of fire or explosion
  - Immediate precautions in case of an accident
  - Procedures in case of fire
  - Methods for handling spills and leaks
  - Preliminary first aid
- 24-hour telephone number
  - Chemtrec 1-800-424-9300

(172.600)

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Sample Shipping Paper

TO:	FROM:
Koppers Incorporated 3900 S. Laramie Ave. Hawthorne, IL 60650	Koppers Incorporated Highway 41 South Galesburg, IL 61401

HM	Description of Goods	Quantity
X	Acetone solution, 3, UN1090, II	110 gallons
RQ	Environmentally hazardous substances, liquid, n.o.s. (creosote), 9, UN3082, PG III	2500 gallons
	Paint, latex	5 Liters

This is to certify that the above-named materials are properly classified, described, packaged, marked and labeled, and are in proper condition for transportation according to the applicable regulations of the Department of Transport.

EMERGENCY CONTACT: J. Doe February 2, 2003
1-800-424-9300

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Sample Koppers' Shipping Paper

STRAIGHT BILL OF LADING – SHORT FORM
ORIGINAL – NOT NEGOTIABLE

RECEIVED, subject to the classifications and tariffs filed in effect on the date of issue of this Bill of Lading

FROM: KOPPERS INCORPORATED AT: FOLLANSBEE, WV DATE: 4/11/03

Bill of Lading Number: KII-0483100403-1

Freight Bank: PREPAID

Ship To: KOPPERS INCORPORATED
RAILROAD & UTILITY PRODUCTS
DENVER, CO 80216

Shippers Order #: N/A

Customers P.O. Number: N/A

Packages No. and Kind	HM	DOT SHIPPING NAME/HAZARD CLASS (IF APPLICABLE)	DESCRIPTION OF ARTICLES, SPECIAL MARKS & EXCEPTIONS	WEIGHT (Subject to Correction)
1 TC	RQ	ENVIRONMENTALLY HAZARDOUS SUBSTANCES, LIQUID, N.O.S. (CREOSOTE) 9, UN3082, PGII		

EMERGENCY CONTACT: CALL CHEMTREC 1-800-424-9300 OR 1-703-527-3887 FAX 1-800-242-7428

Koppers Industries, Inc.
436 Seventh Avenue
Pittsburgh, PA 15219-1800

Agent

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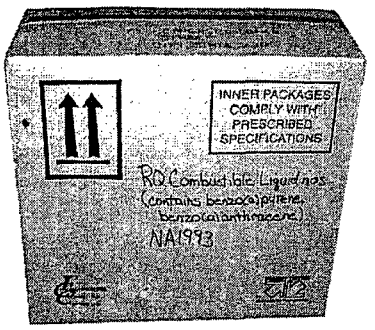
Step 4 – Marking Packages



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Markings

- Markings are used to provide warnings and identification, and must be:
  - Legible
  - Easily visible
  - In English

(172.304)

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First ... Required Marks

- Each non-bulk package must display:
  - ☑**Shipping Name**
  - ☑**Identification Number** (UN or NA)
  - ☑**Name and Address** of shipper or consignee

(172.301)

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Then ... Any Additional Markings?

- ☐ **Technical name(s)** *(172.301(b))*
- ☐ **Orientation marks** (liquids in inner packaging) *(172.312)*
- ☐ **Hazardous Substances** (RQ's) *(172.324)*
- ☐ **"Inhalation Hazard"** *(172.313(b))*
- ☐ **Marine pollutant** *(172.322(a))*
- ☐ **DOT exemption number**, if applicable *(172.301(f))*
- ☐ **Packaging Specification markings**

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Step 5 – Labeling Packages

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Hazard Labels

- Labels are listed in Column 6 of the HMT, for
  - primary hazard
  - subsidiary hazard (if applicable)
    - effective 6/21/01, may display class number
    - may use subsidiary labels without the class number until 10/1/05 (for domestic ground transportation only).
- Labels must meet standards for:
  - size
  - design
  - color
  - durability

(172.402(b), 172.407)

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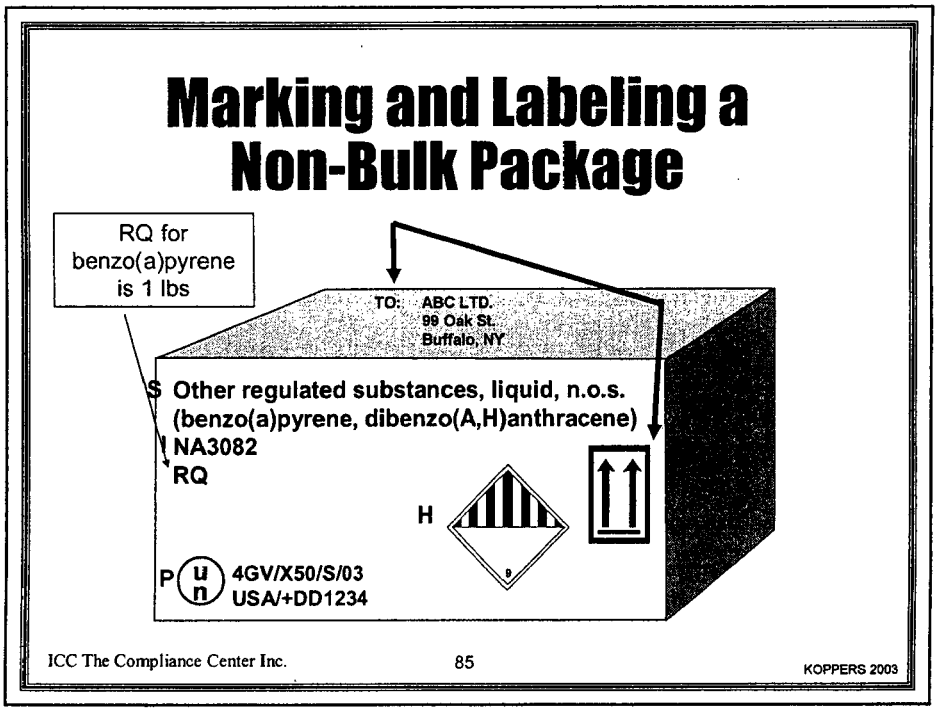
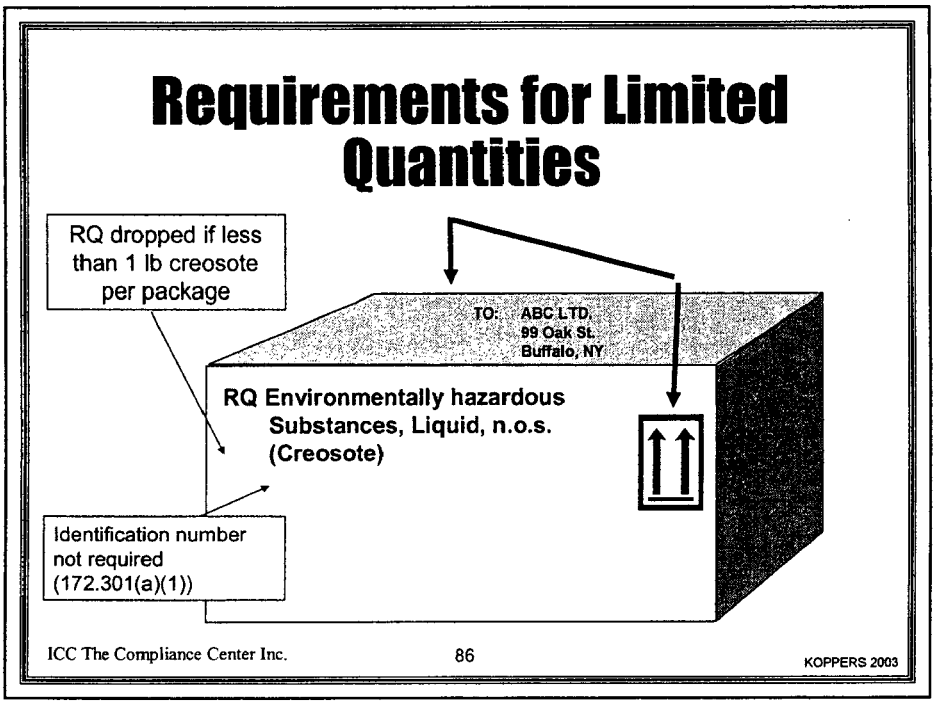
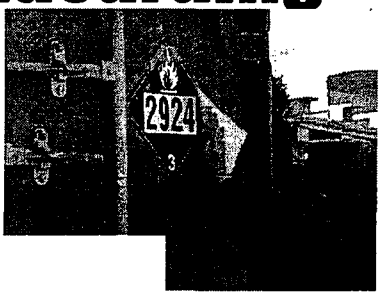
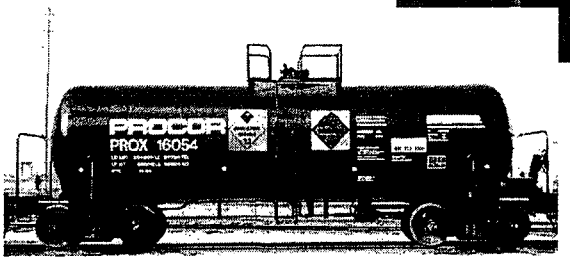

Marking and Labeling a Non-Bulk Package
RQ for benzo(a)pyrene is 1 lbs
TO: ABC LTD.
99 Oak St.
Buffalo, NY
S Other regulated substances, liquid, n.o.s.
(benzo(a)pyrene, dibenzo(A,H)anthracene)
NA3082
RQ
H
P
4GV/X50/S/03
USA/+DD1234
ICC The Compliance Center Inc.
85
KOPPERS 2003


Requirements for Limited Quantities
RQ dropped if less than 1 lb creosote per package
TO: ABC LTD.
99 Oak St.
Buffalo, NY
RQ Environmentally hazardous Substances, Liquid, n.o.s.
(Creosote)
Identification number not required
(172.301(a)(1))
ICC The Compliance Center Inc.
86
KOPPERS 2003

Step 6 - Placarding





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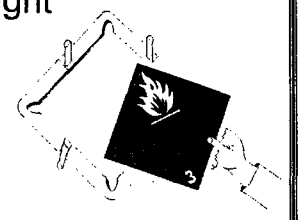
Requirements for Placards

- Placards must:
  - Be securely attached, in upright (diamond) position
  - Meet specifications for size, color, design and durability
  - Be removed when no longer applicable



(172.516)

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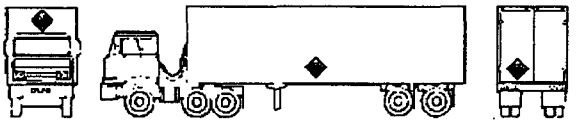
Displaying Placards

- On vehicles, placards must be visible from all four sides



- Certain bulk containers 1000 gallons or less need placards on only two sides

(172.516, 172.514)

Basic Placarding Rule

- **<u>Any</u> <u>quantity</u> of hazardous material must be placarded**
- Bulk packages (including residues) - basic rule applies
- Non-bulk packages
  - table 1 - basic rule applies
  - table 2 - exception:
    - placards not required for < 1001 pounds (454 kg) gross aggregate weight of materials covered by table 2

(172.504)

Dangerous Placard

- Substitutes for two or more required placards from table 2
- Exception:
  - if 1000 kg (2205 lb) or more of one class from table 2 is loaded at one facility, the placard for that class must be displayed

(172.504(b))

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TABLE 1

- Explosives (1.1, 1.2, 1.3)
- Poison Gas (2.3)
- Dangerous When Wet (4.3)
- Temperature-controlled organic peroxides (5.2)
- Poisons by Inhalation (6.1, Hazard Zone A and B)
- Radioactives (7, Yellow Category III only)

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TABLE 2

- Explosives (1.4, 1.5, 1.6)
- Flammable and Non-Flammable Gas (2.1 or 2.2)
- Flammable Liquids (3)
- Combustible Liquids *(bulk only)*
- Flammable Solids (4.1)
- Spontaneous Combustible (4.2)
- Oxidizers (5.1)
- Organic Peroxides (5.2) (*other than temperature controlled*)
- Poisons and Keep Away From Food (6.1, *except for PIH's in Hazard Zone A or B*)
- Corrosives (8)
- Miscellaneous Hazardous Materials (9)

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Placarding Exceptions

- Placards are *not* required for the following:
  - Infectious substances (6.2) *(172.500(b)(1))*
  - ORM-D Materials (Consumer Commodity) and Limited Quantities *(172.500(b)(2) and (b)(3))*
  - **Class 9, Domestic shipment *(172.504(f)(9))***
  - Subsidiary Hazards *(172.505)* - except for:
    - TIH Materials
    - Division 4.3
    - uranium hexafluoride
- However, placards may be displayed even when not required, if rules otherwise followed *(172.502(c))*

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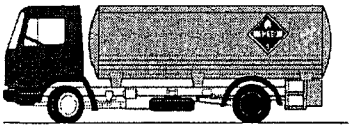
Placarding Bulk Shipments

- Bulk packages must be placarded if any hazardous material or residue present
- Identification number must be shown on placard, orange panel or white square-on point configuration
- "Combustible" placard
  - Mandatory for rail



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Other Required Marks for Bulk Packaging

- ☐ **Identification number** *(172.302(a))*
  - On each side, if ≥ 3,785 L (1000 gal)
  - Two opposing sides, if < 3,785 L
- ☐ **"HOT"** *(172.325)*
- ☐ **"Marine Pollutant"** *(172.322(b))*
- ☐ **"Inhalation Hazard"** *(172.313(a))*
- ☐ **Shipping name** *(172.326, 172.328, 172.330)*
  - Portable tanks, cargo tanks, multi-unit tank car tanks
- ☐ **Test and inspection date**
- ☐ **Owner or Lessee's name** *(172.326)*

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Identification Numbers

- Identification numbers must be shown on placards, orange panels or white square-on-point configuration for:
  - Bulk shipments
  - Vehicles containing bulk packages
  - Shipments of 4,000 kg or more of non-bulk goods with ONE identification number
  - Shipments of more than 1,000 kg of PIH's in Hazard Zone A or B

General Loading Requirements for Tank Cars

- May not offer tank car containing a hazardous material or a residue until determined that the tank is in proper condition for transportation
- Inspection
  - Tank shell and heads
  - Pipes, valves, fittings and gaskets
  - Missing or loose nuts, bolts or elements
  - Closures properly tightened by use of a bar, wrench or other suitable tool
  - Protective housings properly secured
  - Pressure relief devices, including gaskets
  - Required markings (including legibility)
  - Inspection dates
- Follow Koppers' Corporate Procedure on Tankcar Loading/Unloading, and Attendance

(173.31(d))

General Unloading Requirements for Tank Cars

- Attended by reliable person
- Brakes set and wheels blocked
- Caution signs placed on tracks or cars
- Relieve pressure before opening manway covers or valve caps (venting, cooling, etc.)
- Open manway cover by loosening slightly to ensure pressure is released
- Secure unloading connections before opening valves
- After unloading, all valves must be secured tool tight, using the appropriate tool
- Follow Koppers' Corporate Procedure on Tankcar Loading/Unloading, and Attendance (174.67)

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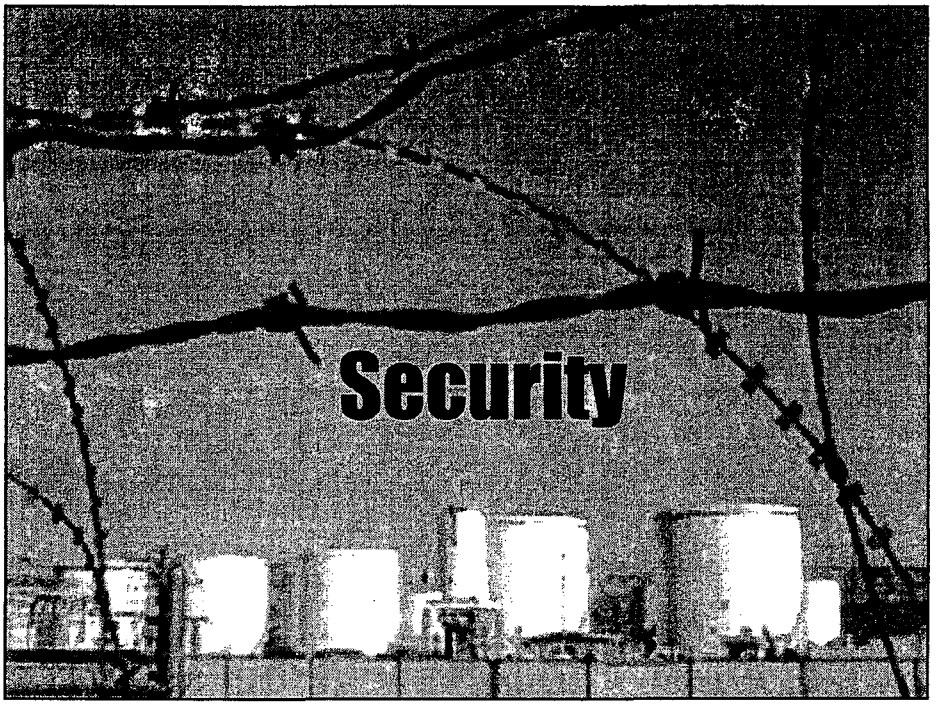

Awareness

- Hazardous materials, in the wrong hands, can be used to:
  - cause explosions in building
  - cause fires in highway tunnels
  - contaminate the air
  - contaminate the water supply
  - cause fires and explosions at storage facilities

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Vulnerability Assessments

- Vulnerability assessments should be conducted by shippers and carriers of hazardous materials.
- Shippers should analyze:
  - nature of the surrounding area
  - nature and quantity of hazardous materials
  - physical barriers to entry of the facility
  - means of detecting intrusion
  - methods of screening new hazmat employees

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Recommended Industry Guidelines for Security of Hazardous Materials

- Keep storage areas locked
- Keep an updated and accurate inventory
- Inspect storage areas on a regular basis
- Perform security spot checks of personnel and vehicles
- Watch for unusual purchases or odd behavior
- Restrict access of non-employees
- Lock all equipment

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Security During Transportation

- Plan routes carefully:
  - choose the shortest route
  - avoid high population areas, tunnels and bridges
  - choose well lit rest stops where the driver can see the vehicle while eating
- Know your customers
- Report suspicious activity
- Report lost or stolen shipments
- Report delays, deviations from planned route or timetable

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What Can You Do To Increase Security?

- BE AWARE
- Report suspicious activities
- Report unauthorized personnel
- Follow the Company Security Plan
- For more information on hazardous materials transportation security see: http://hazmat.dot.gov/rmsef.htm

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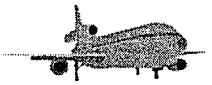
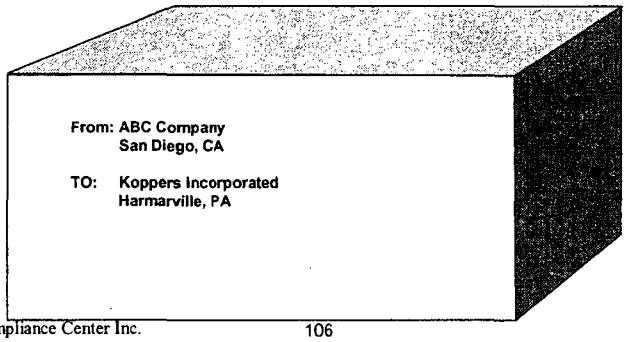
Case Study - I



Sample package of solid Naphthalene



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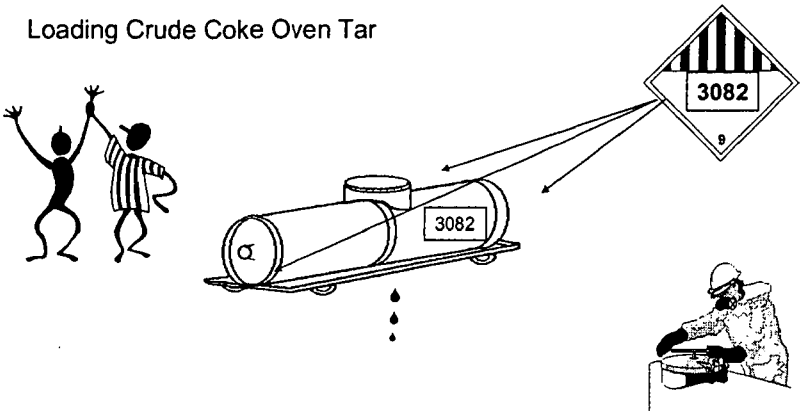
Case Study - II

Loading Crude Coke Oven Tar



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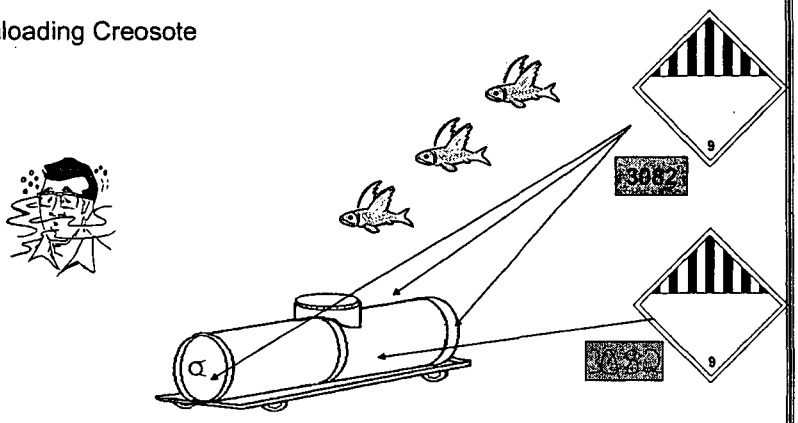
Case Study - III

Unloading Creosote



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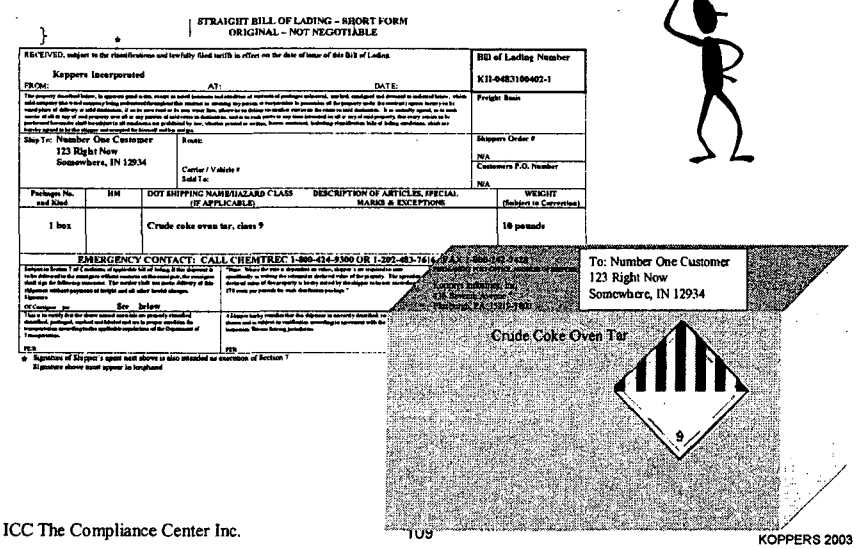
Case Study - IV



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Final Summary

- You must know the BASIC DESCRIPTION of a material to ship it properly
- UNDERSTAND the hazards of the materials you handle
- Always use only safe, AUTHORIZED packaging
- If you have questions, ASK SOMEONE!
  - Koppers:
  - ICC The Compliance Center Inc. 1-800-767-7231

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Section II
KOPPERS Product List

Koppers016458

§172.101 Hazardous Materials Table—Continued

Symbols (1)	Hazardous Materials Descriptions and Proper Shipping Names (2)	Hazard Class or Division (3)	Identification Numbers (4)	PG (5)	Label Codes (6)[1]	Special Provisions (7)	(8) Packaging (§173.***) Exceptions (8A)	Non-bulk (8B)	Bulk (8C)	(9) Quantity Limitations Passenger Aircraft/ Rail (9A)	Cargo Aircraft Only (9B)	(10) Vessel Stowage Location (10A)	Other (10B)	ERG Guide # (11)
	Chlorosilanes, corrosive, flammable, n.o.s.	8	UN2986	II	8, 3	IB2, T11, TP2, TP27	None	202	243	1 L	30 L	C	40	155
	Chlorosilanes, corrosive, n.o.s.	8	UN2987	II	8	B2, IB2, T14, TP2, TP27	154	202	242	1 L	30 L	C	40	156
	Chlorosilanes, flammable, corrosive, n.o.s.	3	UN2985	II	3, 8	IB1, T11, TP2, TP13, TP27	None	201	243	1 L	5 L	B	40	155
	Chlorosilanes, water-reactive, flammable, corrosive, n.o.s.	4.3	UN2988	I	4.3, 3, 8	A2, T10, TP2, TP7, TP13	None	201	244	Forbidden	1 L	D	21, 28, 40, 49, 100	139
+, R4	**Chlorosulfonic acid** *(with or without sulfur trioxide)*	8	UN1754	I	8, 6.1	2, A3, A6, A10, B9, B10, B14, B32, B74, T20, TP2, TP12, TP38, TP45	None	227	244	Forbidden	Forbidden	C	40	137
P	**Chlorotoluenes**	3	UN2238	III	3	B1, IB3, T2, TP1	150	203	242	60 L	220 L	A		130
	Chlorotoluidines *liquid*	6.1	UN2239	III	6.1	IB3, T7, TP1, TP28	153	203	241	60 L	220 L	A		153
	Chlorotoluidines *solid*	6.1	UN2239	III	6.1	IB8, IP3, T4, TP1	153	213	240	100 kg	200 kg	A		153
	Chlorotrifluoromethane and trifluoromethane azeotropic mixture *or* **Refrigerant gas R 503** *with approximately 60 percent chlorotrifluoromethane*	2.2	UN2599		2.2		306	304	314, 315	75 kg	150 kg	A		126
	Chlorotrifluoromethane *or* **Refrigerant gas R 13**	2.2	UN1022		2.2		306	304	314, 315	75 kg	150 kg	A		126
R2	**Chromic acid solution**	8	UN1755	II	8	B2, IB2, T8, TP2, TP12	154	202	242	1 L	30 L	C	40	154
R2	**Chromic acid solution**	8	UN1755	III	8	IB3, T4, TP1, TP12	154	203	241	5 L	60 L	C	40	154
	Chromic anhydride, see **Chromium trioxide, anhydrous**													
	Chromic fluoride, solid	8	UN1756	II	8	IB8, IP2, IP4	154	212	240	15 kg	50 kg	A	26	154
	Chromic fluoride, solution	8	UN1757	II	8	B2, IB2, T7, TP2	154	202	242	1 L	30 L	A		154
	Chromic fluoride, solution	8	UN1757	III	8	IB3, T4, TP1	154	203	241	5 L	60 L	A		154
	Chromium nitrate	5.1	UN2720	III	5.1	A1, A29, IB8, IP3	152	213	240	25 kg	100 kg	A		141
	Chromium oxychloride	8	UN1758	I	8	A3, A6, A7, B10, N34, T10, TP2, TP12	None	201	243	0.5 L	2.5 L	C	40, 66, 74, 89, 90	137
R2	**Chromium trioxide, anhydrous**	5.1	UN1463	II	5.1, 8	IB8, IP4	None	212	242	5 kg	25 kg	A		141
	Chromosulfuric acid	8	UN2240	I	8	A3, A6, A7, B4, B6, N34, T10, TP2, TP12, TP13	None	201	243	0.5 L	2.5 L	B	40, 66, 74, 89, 90	154
	Chromyl chloride, see **Chromium oxychloride**													
	Cigar and cigarette lighters, charged with fuel, see **Lighters for cigars, cigarettes,** *etc*													
	Coal briquettes, hot	Forbidden												
	Coal gas, compressed	2.3	UN1023		2.3, 2.1	3	None	302	314, 315	Forbidden	25 kg	D	40	119
	Coal tar distillates, flammable	3	UN1136	II	3	IB2, T4, TP1	150	202	242	5 L	60 L	B		128
	Coal tar distillates, flammable	3	UN1136	III	3	B1, IB3, T4, TP1, TP29	150	203	242	60 L	220 L	A		128
	Coal tar dye, corrosive, liquid, n.o.s, see **Dyes, liquid** *or* **solid, n.o.s.** *or* **Dye intermediates, liquid** *or* **solid, corrosive, n.o.s.**													
	Coating solution *(includes surface treatments or coatings used for industrial or other purposes such as vehicle undercoating, drum or barrel lining)*	3	UN1139	I	3	T11, TP1, TP8, TP27	150	201	243	1 L	30 L	E		127
	Coating solution *(includes surface treatments or coatings used for industrial or other purposes such as vehicle undercoating, drum or barrel lining)*	3	UN1139	II	3	IB2, T4, TP1, TP8	150	202	242	5 L	60 L	B		127
	Coating solution *(includes surface treatments or coatings used for industrial or other purposes such as vehicle undercoating, drum or barrel lining)*	3	UN1139	III	3	B1, IB3, T2, TP1	150	203	242	60 L	220 L	A		127
	Cobalt naphthenates, powder	4.1	UN2001	III	4.1	A19, IB8, IP3	151	213	240	25 kg	100 kg	A		133
	Cobalt resinate, precipitated	4.1	UN1318	III	4.1	A1, A19, IB6	151	213	240	25 kg	100 kg	A		133
	Coke, hot	Forbidden												
	Collodion, see **Nitrocellulose** *etc*													

[1] **Label Codes:** 1.1, 1.2, 1.3, 1.4, 1.5, and 1.6—EXPLOSIVE; 2.1—FLAMMABLE GAS; 2.2—NON-FLAMMABLE GAS; 2.3—POISON GAS; 3—FLAMMABLE LIQUID; 4.1—FLAMMABLE SOLID; 4.2—SPONTANEOUSLY COMBUSTIBLE; 4.3—DANGEROUS WHEN WET; 5.1—OXIDIZER; 5.2—ORGANIC PEROXIDE; 6.1 (PGI, Zone A and B inhalation hazard)—POISON INHALATION HAZARD; 6.1 (PGI, other than Zone A and B, PGII or PGIII)—POISON; 6.1 (PGIII) see §172.504(f)(10) for alternate placard; 6.2—INFECTIOUS SUBSTANCE; 7—RADIOACTIVE; 8—CORROSIVE; 9—CLASS 9

Koppers016459

§172.101 Hazardous Materials Table—Continued

Symbols (1)	Hazardous Materials Descriptions and Proper Shipping Names (2)	Hazard Class or Division (3)	Identification Numbers (4)	PG (5)	Label Codes (6)[1]	Special Provisions (7)	(8) Packaging (§173.***) Exceptions (8A)	Non-bulk (8B)	Bulk (8C)	(9) Quantity Limitations Passenger Aircraft/ Rail (9A)	Cargo Aircraft Only (9B)	(10) Vessel Stowage Location (10A)	Other (10B)	ERG Guide # (11)
P, R2	**Copper chloride**	8	UN2802	III	8	IB8, IP3	154	213	240	25 kg	100 kg	A		154
P, R2	**Copper cyanide**	6.1	UN1587	II	6.1	IB8, IP2, IP4	None	204	242	25 kg	100 kg	A	26	151
	Copper selenate, see **Selenates** *or* **Selenites**													
	Copper selenite, see **Selenates** *or* **Selenites**													
	Copper tetramine nitrate	Forbidden												
A, W	**Copra**	4.2	UN1363	III	4.2	IB8, IP3, IP6	None	213	241	Forbidden	Forbidden	A	13, 19, 48, 119	135
	Cord, detonating, *flexible*	1.1D	UN0065	II	1.1D	102	63(a)	62	None	Forbidden	Forbidden	07		112
	Cord, detonating, *flexible*	1.4D	UN0289	II	1.4D		None	62	None	Forbidden	75 kg	06		114
	Cord detonating *or* **Fuse detonating** *metal clad*	1.2D	UN0102	II	1.2D		None	62	None	Forbidden	Forbidden	07		112
	Cord, detonating *or* **Fuse, detonating** *metal clad*	1.1D	UN0290	II	1.1D		None	62	None	Forbidden	Forbidden	07		112
	Cord, detonating, mild effect *or* **Fuse, detonating, mild effect** *metal clad*	1.4D	UN0104	II	1.4D		None	62	None	Forbidden	75 kg	06		114
	Cord, igniter	1.4G	UN0066	II	1.4G		None	62	None	Forbidden	75 kg	06		114
	Cordeau detonant fuse, see **Cord, detonating,** *etc;* **Cord, detonating,** *flexible*													
	Cordite, see **Powder, smokeless**													
G	**Corrosive liquid, acidic, inorganic, n.o.s.**	8	UN3264	I	8	B10, T14, TP2, TP27	None	201	243	0.5 L	2.5 L	B	40	154
G	**Corrosive liquid, acidic, inorganic, n.o.s.**	8	UN3264	II	8	B2, IB2, T11, TP2, TP27	154	202	242	1 L	30 L	B	40	154
G	**Corrosive liquid, acidic, inorganic, n.o.s.**	8	UN3264	III	8	IB3, T7, TP1, TP28	154	203	241	5 L	60 L	A	40	154
G	**Corrosive liquid, acidic, organic, n.o.s.**	8	UN3265	I	8	B10, T14, TP2, TP27	None	201	243	0.5 L	2.5 L	B	40	153
G	**Corrosive liquid, acidic, organic, n.o.s.**	8	UN3265	II	8	B2, IB2, T11, TP2, TP27	154	202	242	1 L	30 L	B	40	153
G	**Corrosive liquid, acidic, organic, n.o.s.**	8	UN3265	III	8	IB3, T7, TP1, TP28	154	203	241	5 L	60 L	A	40	153
G	**Corrosive liquid, basic, inorganic, n.o.s.**	8	UN3266	I	8	B10, T14, TP2, TP27	None	201	243	0.5 L	2.5 L	B	40	154
G	**Corrosive liquid, basic, inorganic, n.o.s.**	8	UN3266	II	8	B2, IB2, T11, TP2, TP27	154	202	242	1 L	30 L	B	40	154
G	**Corrosive liquid, basic, inorganic, n.o.s.**	8	UN3266	III	8	IB3, T7, TP1, TP28	154	203	241	5 L	60 L	A	40	154
G	**Corrosive liquid, basic, organic, n.o.s.**	8	UN3267	I	8	B10, T14, TP2, TP27	None	201	243	0.5 L	2.5 L	B	40	153
G	**Corrosive liquid, basic, organic, n.o.s.**	8	UN3267	II	8	B2, IB2, T11, TP2, TP27	154	202	242	1 L	30 L	B	40	153
G	**Corrosive liquid, basic, organic, n.o.s.**	8	UN3267	III	8	IB3, T7, TP1, TP28	154	203	241	5 L	60 L	A	40	153
G	**Corrosive liquid, self-heating, n.o.s.**	8	UN3301	I	8, 4.2	B10	None	201	243	0.5 L	2.5 L	D		136
G	**Corrosive liquid, self-heating, n.o.s.**	8	UN3301	II	8, 4.2	B2, IB1	154	202	242	1 L	30 L	D		136
G	**Corrosive liquids, flammable, n.o.s.**	8	UN2920	I	8, 3	B10, T14, TP2, TP27	None	201	243	0.5 L	2.5 L	C	25, 40	132
G	**Corrosive liquids, flammable, n.o.s.**	8	UN2920	II	8, 3	B2, IB2, T11, TP2, TP27	None	202	243	1 L	30 L	C	25, 40	132
G	**Corrosive liquids, n.o.s.**	8	UN1760	I	8	A7, B10, T14, TP2, TP27	None	201	243	0.5 L	2.5 L	B	40	154
G	**Corrosive liquids, n.o.s.**	8	UN1760	II	8	B2, IB2, T11, TP2, TP27	154	202	242	1 L	30 L	B	40	154
G	**Corrosive liquids, n.o.s.**	8	UN1760	III	8	IB3, T7, TP1, TP28	154	203	241	5 L	60 L	A	40	154
G	**Corrosive liquids, oxidizing, n.o.s.**	8	UN3093	I	8, 5.1		None	201	243	Forbidden	2.5 L	C	89	140
G	**Corrosive liquids, oxidizing, n.o.s.**	8	UN3093	II	8, 5.1	IB2	None	202	243	1 L	30 L	C	89	140
G	**Corrosive liquids, toxic, n.o.s.**	8	UN2922	I	8, 6.1	A7, B10, T14, TP2, TP13, TP27	None	201	243	0.5 L	2.5 L	B	40	154
G	**Corrosive liquids, toxic, n.o.s.**	8	UN2922	II	8, 6.1	B3, IB2, T7, TP2	None	202	243	1 L	30 L	B	40	154
G	**Corrosive liquids, toxic, n.o.s.**	8	UN2922	III	8, 6.1	IB3, T7, TP1, TP28	154	203	241	5 L	60 L	B	40	154
G	**Corrosive liquids, water-reactive, n.o.s.**	8	UN3094	I	8, 4.3		None	201	243	Forbidden	1 L	E		138
G	**Corrosive liquids, water-reactive, n.o.s.**	8	UN3094	II	8, 4.3		None	202	243	1 L	5 L	E		138
G	**Corrosive solid, acidic, inorganic, n.o.s.**	8	UN3260	I	8	IB7, IP1	None	211	242	1 kg	25 kg	B		154
G	**Corrosive solid, acidic, inorganic, n.o.s.**	8	UN3260	II	8	IB8, IP2, IP4	154	212	240	15 kg	50 kg	B		154
G	**Corrosive solid, acidic, inorganic, n.o.s.**	8	UN3260	III	8	IB8, IP3	154	213	240	25 kg	100 kg	A		154

[1] **Label Codes:** 1.1, 1.2, 1.3, 1.4, 1.5, and 1.6—EXPLOSIVE; 2.1—FLAMMABLE GAS; 2.2—NON-FLAMMABLE GAS; 2.3—POISON GAS; 3—FLAMMABLE LIQUID; 4.1—FLAMMABLE SOLID; 4.2—SPONTANEOUSLY COMBUSTIBLE; 4.3—DANGEROUS WHEN WET; 5.1—OXIDIZER; 5.2—ORGANIC PEROXIDE; 6.1 (PGI, Zone A and B inhalation hazard)—POISON INHALATION HAZARD; 6.1 (PGI, other than Zone A and B, PGII or PGIII)—POISON; 6.1 (PGIII) see §172.504(f)(10) for alternate placard; 6.2—INFECTIOUS SUBSTANCE; 7—RADIOACTIVE; 8—CORROSIVE; 9—CLASS 9

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§172.101 Hazardous Materials Table—Continued

Symbols (1)	Hazardous Materials Descriptions and Proper Shipping Names (2)	Hazard Class or Division (3)	Identification Numbers (4)	PG (5)	Label Codes (6)[1]	Special Provisions (7)	(8) Packaging (§173.***) Exceptions (8A)	Non-bulk (8B)	Bulk (8C)	(9) Quantity Limitations Passenger Aircraft/ Rail (9A)	Cargo Aircraft Only (9B)	(10) Vessel Stowage Location (10A)	Other (10B)	ERG Guide # (11)
	Disodium trioxosilicate	8	UN3253	III	8	IB8, IP3	154	213	240	25 kg	100 kg	A		154
G	**Dispersant gases, n.o.s.** *see* **Refrigerant gases, n.o.s.**													
	Divinyl ether, stabilized	3	UN1167	I	3	T11, TP2	None	201	243	1 L	30 L	E	40	131P
	Dodecyltrichlorosilane	8	UN1771	II	8	A7, B2, B6, IB2, N34, T7, TP2, TP13	None	202	242	Forbidden	30 L	C	40	156
	Dry ice, *see* **Carbon dioxide, solid**													
G	**Dyes, liquid, corrosive, n.o.s. or Dye intermediates, liquid, corrosive, n.o.s.**	8	UN2801	I	8	11, B10, T14, TP2, TP27	None	201	243	0.5 L	2.5 L	A		154
G	**Dyes, liquid, corrosive, n.o.s. or Dye intermediates, liquid, corrosive, n.o.s.**	8	UN2801	II	8	11, B2, IB2, T11, TP2, TP27	154	202	242	1 L	30 L	A		154
G	**Dyes, liquid, corrosive, n.o.s. or Dye intermediates, liquid, corrosive, n.o.s.**	8	UN2801	III	8	11, IB3, T7, TP1, TP28	154	203	241	5 L	60 L	A		154
G	**Dyes, liquid, toxic, n.o.s.** *or* **Dye intermediates, liquid, toxic, n.o.s.**	6.1	UN1602	II	6.1	IB2	None	202	243	5 L	60 L	A		151
G	**Dyes, liquid, toxic, n.o.s.** *or* **Dye intermediates, liquid, toxic, n.o.s.**	6.1	UN1602	III	6.1	IB3	153	203	241	60 L	220 L	A		151
G	**Dyes, solid, corrosive, n.o.s.** *or* **Dye intermediates, solid, corrosive, n.o.s.**	8	UN3147	I	8	IB7, IP1	None	211	242	1 kg	25 kg	A		154
G	**Dyes, solid, corrosive, n.o.s.** *or* **Dye intermediates, solid, corrosive, n.o.s.**	8	UN3147	II	8	IB8, IP2, IP4	154	212	240	15 kg	50 kg	A		154
G	**Dyes, solid, corrosive, n.o.s.** *or* **Dye intermediates, solid, corrosive, n.o.s.**	8	UN3147	III	8	IB8, IP3	154	213	240	25 kg	100 kg	A		154
G	**Dyes, solid, toxic, n.o.s.** *or* **Dye intermediates, solid, toxic, n.o.s.**	6.1	UN3143	I	6.1	A5, IB7, IP1, T14, TP2, TP27	None	211	242	5 kg	50 kg	A		151
G	**Dyes, solid, toxic, n.o.s.** *or* **Dye intermediates, solid, toxic, n.o.s.**	6.1	UN3143	II	6.1	IB8, IP2, IP4	None	212	242	25 kg	100 kg	A		151
G	**Dyes, solid, toxic, n.o.s.** *or* **Dye intermediates, solid, toxic, n.o.s.**	6.1	UN3143	III	6.1	IB8, IP3	153	213	240	100 kg	200 kg	A		151
	Dynamite, see **Explosive, blasting, type A**													
	Electrolyte (acid or alkali) for batteries, see **Battery fluid, acid** *or* **Battery fluid, alkali**													
	Elevated temperature liquid, flammable, n.o.s., *with flash point above 37.8 C, at or above its flash point*	3	UN3256	III	3	IB1, T3, TP3, TP29	None	None	247	Forbidden	Forbidden	A		128
	Elevated temperature liquid, n.o.s., *at or above 100 C and below its flash point (including molten metals, molten salts, etc.)*	9	UN3257	III	9	IB1, T3, TP3, TP29	None	None	247	Forbidden	Forbidden	A	85	128
	Elevated temperature solid, n.o.s., *at or above 240 C, see §173.247(h)(4)*	9	UN3258	III	9		247(h)(4)	None	247	Forbidden	Forbidden	A	85	171
	Engines, internal combustion, *flammable gas powered*	9	UN3166		9	135	220	220	220	Forbidden	No limit	A		128
	Engines, internal combustion, *flammable liquid powered*	9	UN3166		9	135	220	220	220	No limit	No limit	A		128
G	**Environmentally hazardous substances, liquid, n.o.s.**	9	UN3082	III	9	8, IB3, T4, TP1, TP29	155	203	241	No limit	No limit	A		171
G	**Environmentally hazardous substances, solid, n.o.s.**	9	UN3077	III	9	8, B54, IB8, N20	155	213	240	No limit	No limit	A		171
P	**Epibromohydrin**	6.1	UN2558	I	6.1, 3	T14, TP2, TP13	None	201	243	Forbidden	Forbidden	D	40	131
+, P, R3	**Epichlorohydrin**	6.1	UN2023	II	6.1, 3	IB2, T7, TP2, TP13	None	202	243	5 L	60 L	A	40	131P
	1,2-Epoxy-3-ethoxypropane	3	UN2752	III	3	B1, IB3, T2, TP1	150	203	242	60 L	220 L	A		127
	Esters, n.o.s.	3	UN3272	II	3	IB2, T7, TP1, TP8, TP28	150	202	242	5 L	60 L	B		127
	Esters, n.o.s.	3	UN3272	III	3	B1, IB3, T4, TP1, TP29	150	203	242	60 L	220 L	A		127
	Etching acid, liquid, n.o.s., see **Hydrofluoric acid, solution** *etc*													
	Ethane	2.1	UN1035		2.1		306	304	302	Forbidden	150 kg	E	40	115
D	**Ethane-Propane mixture, refrigerated liquid**	2.1	NA1961		2.1	T75, TP5	None	316	314, 315	Forbidden	Forbidden	D	40	115
	Ethane, refrigerated liquid	2.1	UN1961		2.1	T75, TP5	None	None	315	Forbidden	Forbidden	D	40	115
	Ethanol amine dinitrate	Forbidden												
	Ethanol *or* **Ethyl alcohol** *or* **Ethanol solutions** *or* **Ethyl alcohol solutions**	3	UN1170	II	3	24, IB2, T4, TP1	150	202	242	5 L	60 L	A		127

[1] **Label Codes:** 1.1, 1.2, 1.3, 1.4, 1.5, and 1.6—EXPLOSIVE; 2.1—FLAMMABLE GAS; 2.2—NON-FLAMMABLE GAS; 2.3—POISON GAS; 3—FLAMMABLE LIQUID; 4.1—FLAMMABLE SOLID; 4.2—SPONTANEOUSLY COMBUSTIBLE; 4.3—DANGEROUS WHEN WET; 5.1—OXIDIZER; 5.2—ORGANIC PEROXIDE; 6.1 (PGI, Zone A and B inhalation hazard)—POISON INHALATION HAZARD; 6.1 (PGI, other than Zone A and B, PGII or PGIII)—POISON; 6.1 (PGIII) see §172.504(f)(10) for alternate placard; 6.2—INFECTIOUS SUBSTANCE; 7—RADIOACTIVE; 8—CORROSIVE; 9—CLASS 9

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§172.101 Hazardous Materials Table—Continued

Symbols (1)	Hazardous Materials Descriptions and Proper Shipping Names (2)	Hazard Class or Division (3)	Identification Numbers (4)	PG (5)	Label Codes (6)[1]	Special Provisions (7)	(8) Packaging (§173.***) Exceptions (8A)	Non-bulk (8B)	Bulk (8C)	(9) Quantity Limitations Passenger Aircraft/ Rail (9A)	Cargo Aircraft Only (9B)	(10) Vessel Stowage Location (10A)	Other (10B)	ERG Guide # (11)
	Mine rescue equipment containing carbon dioxide, see **Carbon dioxide**													
	Mines *with bursting charge*	1.1F	UN0136	II	1.1F			62	None	Forbidden	Forbidden	08		112
	Mines *with bursting charge*	1.1D	UN0137	II	1.1D			62	None	Forbidden	Forbidden	03		112
	Mines *with bursting charge*	1.2D	UN0138	II	1.2D			62	None	Forbidden	Forbidden	03		112
	Mines *with bursting charge*	1.2F	UN0294	II	1.2F			62	None	Forbidden	Forbidden	08		112
	Mixed acid, see **Nitrating acid, mixtures** *etc*													
	Mobility aids, see **Battery powered equipment** *or* **Battery powered vehicle'**													
D	**Model rocket motor**	1.4C	NA0276	II	1.4C	51	None	62	None	Forbidden	75 kg	06		114
D	**Model rocket motor**	1.4S	NA0323	II	1.4S	51	None	62	None	25 kg	100 kg	05		114
	Molybdenum pentachloride	8	UN2508	III	8	IB8, IP3, T4, TP1	154	213	240	25 kg	100 kg	C	40	156
	Monochloroacetone (unstabilized)	Forbidden												
	Monochloroethylene, see **Vinyl chloride, stabilized**													
	Monoethanolamine, see **Ethanolamine, solutions**													
R3	*Monoethylamine, see* **Ethylamine**													
	Morpholine	8	UN2054	II	8, 3	T10, TP2	None	201	243	.5 L	2.5 L	C	25,40	132
	Morpholine, aqueous, mixture, see **Corrosive liquids, n.o.s.**													
P	**Motor fuel anti-knock compounds** *see* **Motor fuel anti-knock mixtures**													
+, P	**Motor fuel anti-knock mixtures**	6.1	UN1649	II	6.1, 3	14, B9, B90, T14, TP2, TP13	None	201	244	Forbidden	30 L	D	25, 40	131
	Motor spirit, *see* **Gasoline**													
	Muriatic acid, see **Hydrochloric acid**													
	Musk xylene, *see* **5-tert-Butyl-2,4,6-trinitro-m-xylene**													
	Naphtha see **Petroleum distillates n.o.s.**													
R3	**Naphthalene, crude** *or* **Naphthalene, refined**	4.1	UN1334	III	4.1	A1, IB8, IP3	151	213	240	25 kg	100 kg	A		133
	Naphthalene diozonide	Forbidden												
R3	**alpha-Naphthylamine**	6.1	UN2077	III	6.1	IB8, IP3, T3, TP1	153	213	240	100 kg	200 kg	A		153
R1	**beta-Naphthylamine**	6.1	UN1650	II	6.1	IB8, IP2, IP4, T7, TP2	None	212	242	25 kg	100 kg	A		153
R3	**Naphthalene, molten**	4.1	UN2304	III	4.1	A1, IB1, T1, TP3	151	213	241	Forbidden	Forbidden	C		133
	Naphthylamineperchlorate	Forbidden												
R3	**Naphthylthiourea**	6.1	UN1651	II	6.1	IB8, IP2, IP4	None	212	242	25 kg	100 kg	A		153
	Naphthylurea	6.1	UN1652	II	6.1	IB8, IP2, IP4	None	212	242	25 kg	100 kg	A		153
	Natural gases (with high methane content), see **Methane,** *etc. (UN 1971, UN 1972)*													
	Neohexane, see **Hexanes**													
	Neon, compressed	2.2	UN1065		2.2		306	302	302	75 kg	150 kg	A		121
	Neon, refrigerated liquid *(cryogenic liquid)*	2.2	UN1913		2.2	T75, TP5	320	316	None	50 kg	500 kg	B		120
	New explosive or explosive device, see §§173.51 and 173.56													
R2	**Nickel carbonyl**	6.1	UN1259	I	6.1, 3	1	None	198	None	Forbidden	Forbidden	D	18, 40	131
PP, R2	**Nickel cyanide**	6.1	UN1653	II	6.1	IB8, IP2, IP4, N74, N75	None	212	242	25 kg	100 kg	A	26	151
R3	**Nickel nitrate**	5.1	UN2725	III	5.1	A1, IB8, IP3	152	213	240	25 kg	100 kg	A		140
	Nickel nitrite	5.1	UN2726	III	5.1	A1, IB8, IP3	152	213	240	25 kg	100 kg	A	56, 58	140
	Nickel picrate	Forbidden												
R3	**Nicotine**	6.1	UN1654	II	6.1	IB2	None	202	243	5 L	60 L	A		151
	Nicotine compounds, liquid, n.o.s. *or* **Nicotine preparations, liquid, n.o.s.**	6.1	UN3144	I	6.1	A4	None	201	243	1 L	30 L	B	40	151
	Nicotine compounds, liquid, n.o.s. *or* **Nicotine preparations, liquid, n.o.s.**	6.1	UN3144	II	6.1	IB2, T11, TP2, TP27	None	202	243	5 L	60 L	B	40	151
	Nicotine compounds, liquid, n.o.s. *or* **Nicotine preparations, liquid, n.o.s.**	6.1	UN3144	III	6.1	IB3, T7, TP1, TP28	153	203	241	60 L	220 L	B	40	151

[1] **Label Codes:** 1.1, 1.2, 1.3, 1.4, 1.5, and 1.6—EXPLOSIVE; 2.1—FLAMMABLE GAS; 2.2—NON-FLAMMABLE GAS; 2.3—POISON GAS; 3—FLAMMABLE LIQUID; 4.1—FLAMMABLE SOLID; 4.2—SPONTANEOUSLY COMBUSTIBLE; 4.3—DANGEROUS WHEN WET; 5.1—OXIDIZER; 5.2—ORGANIC PEROXIDE; 6.1 (PGI, Zone A and B inhalation hazard)—POISON INHALATION HAZARD; 6.1 (PGI, other than Zone A and B, PGII or PGIII)—POISON; 6.1 (PGIII) see §172.504(f)(10) for alternate placard; 6.2—INFECTIOUS SUBSTANCE; 7—RADIOACTIVE; 8—CORROSIVE; 9—CLASS 9

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§172.101 Hazardous Materials Table—Continued

Symbols (1)	Hazardous Materials Descriptions and Proper Shipping Names (2)	Hazard Class or Division (3)	Identification Numbers (4)	PG (5)	Label Codes (6)[1]	Special Provisions (7)	(8) Packaging (§173.***) Exceptions (8A)	Non-bulk (8B)	Bulk (8C)	(9) Quantity Limitations Passenger Aircraft/ Rail (9A)	Cargo Aircraft Only (9B)	(10) Vessel Stowage Location (10A)	Other (10B)	ERG Guide # (11)
PP, R4	**Osmium tetroxide**	6.1	UN2471	I	6.1	A8, IB7, IP1, N33, N34	None	211	242	5 kg	50 kg	B	40	154
D, G	**Other regulated substances, liquid, n.o.s.**	9	NA3082	III	9	IB3, T2, TP1	155	203	241	No limit	No limit	A		171
D, G	**Other regulated substances, solid, n.o.s.**	9	NA3077	III	9	B54, IB8, IP2	155	213	240	No limit	No limit	A		171
G	**Oxidizing liquid, corrosive, n.o.s.**	5.1	UN3098	I	5.1, 8		None	201	244	Forbidden	2.5 L	D	13, 56, 58, 69, 106	140
G	**Oxidizing liquid, corrosive, n.o.s.**	5.1	UN3098	II	5.1, 8	IB1	None	202	243	1 L	5 L	B	34, 56, 58, 69, 106	140
G	**Oxidizing liquid, corrosive, n.o.s.**	5.1	UN3098	III	5.1, 8	IB2	152	203	242	2.5 L	30 L	B	34, 56, 58, 69, 106	140
G	**Oxidizing liquid, n.o.s.**	5.1	UN3139	I	5.1	127, A2	None	201	243	Forbidden	2.5 L	D	56, 58, 69, 106	140
G	**Oxidizing liquid, n.o.s.**	5.1	UN3139	II	5.1	127, A2, IB2	152	202	242	1 L	5 L	B	56, 58, 69, 106	140
G	**Oxidizing liquid, n.o.s.**	5.1	UN3139	III	5.1	127, A2, IB2	152	203	241	2.5 L	30 L	B	56, 58, 69, 106	140
G	**Oxidizing liquid, toxic, n.o.s.**	5.1	UN3099	I	5.1, 6.1		None	201	244	Forbidden	2.5 L	D	56, 58, 69, 106	142
G	**Oxidizing liquid, toxic, n.o.s.**	5.1	UN3099	II	5.1, 6.1	IB1	None	202	243	1 L	5 L	B	56, 58, 95, 106	142
G	**Oxidizing liquid, toxic, n.o.s.**	5.1	UN3099	III	5.1, 6.1	IB2	152	203	242	2.5 L	30 L	B	56, 58, 95, 106	142
G	**Oxidizing solid, corrosive, n.o.s.**	5.1	UN3085	I	5.1, 8		None	211	242	1 kg	15 kg	D	13, 56, 58, 69, 106	140
G	**Oxidizing solid, corrosive, n.o.s.**	5.1	UN3085	II	5.1, 8	IB6, IP2	None	212	242	5 kg	25 kg	B	13, 34, 56, 58, 69, 106	140
G	**Oxidizing solid, corrosive, n.o.s.**	5.1	UN3085	III	5.1, 8	IB8, IP3	152	213	240	25 kg	100 kg	B	13, 34, 56, 58, 69, 106	140
G	**Oxidizing solid, flammable, n.o.s.**	5.1	UN3137	I	5.1, 4.1		None	214	214	Forbidden	Forbidden			140
G	**Oxidizing solid, n.o.s.**	5.1	UN1479	I	5.1	IB6, IP1	None	211	242	1 kg	15 kg	D	56, 58, 69, 106	140
G	**Oxidizing solid, n.o.s.**	5.1	UN1479	II	5.1	IB8, IP2, IP4	152	212	240	5 kg	25 kg	B	56, 58, 69, 106	140
G	**Oxidizing solid, n.o.s.**	5.1	UN1479	III	5.1	IB8, IP3	152	213	240	25 kg	100 kg	B	56, 58, 69, 106	140
G	**Oxidizing solid, self-heating, n.o.s.**	5.1	UN3100	II	5.1, 4.2		None	214	214	Forbidden	Forbidden			135
G	**Oxidizing solid, toxic, n.o.s.**	5.1	UN3087	I	5.1, 6.1		None	211	242	1 kg	15 kg	D	56, 58, 69, 106	141
G	**Oxidizing solid, toxic, n.o.s.**	5.1	UN3087	II	5.1, 6.1	IB6, IP2	None	212	242	5 kg	25 kg	B	56, 58, 69, 95, 106	141
G	**Oxidizing solid, toxic, n.o.s.**	5.1	UN3087	III	5.1, 6.1	IB8, IP3	152	213	240	25 kg	100 kg	B	56, 58, 69, 95, 106	141
G	**Oxidizing solid, water-reactive, n.o.s.**	5.1	UN3121		5.1, 4.3		None	214	214	Forbidden	Forbidden			144
	Oxygen and carbon dioxide mixtures, see **Carbon dioxide and oxygen mixtures**													
	Oxygen, compressed	2.2	UN1072		2.2, 5.1	A52	306	302	314, 315	75 kg	150 kg	A		122
	Oxygen difluoride, compressed	2.3	UN2190		2.3, 5.1, 8	1	None	304	None	Forbidden	Forbidden	D	13, 40, 89, 90	124
	Oxygen generator, chemical *(including when contained in associated equipment, e.g., passenger service units (PSUs), portable breathing equipment (PBE), etc).*	5.1	UN3356	II	5.1	60, A51	None	212	None	Forbidden	25 kg gross	D	56, 58, 69, 106	140
+	**Oxygen generator, chemical, spent**	9	NA3356	III	9	61	None	213	None	Forbidden	Forbidden	A		140

[1] **Label Codes:** 1.1, 1.2, 1.3, 1.4, 1.5, and 1.6—EXPLOSIVE; 2.1—FLAMMABLE GAS; 2.2—NON-FLAMMABLE GAS; 2.3—POISON GAS; 3—FLAMMABLE LIQUID; 4.1—FLAMMABLE SOLID; 4.2—SPONTANEOUSLY COMBUSTIBLE; 4.3—DANGEROUS WHEN WET; 5.1—OXIDIZER; 5.2—ORGANIC PEROXIDE; 6.1 (PGI, Zone A and B inhalation hazard)—POISON INHALATION HAZARD; 6.1 (PGI, other than Zone A and B, PGII or PGIII)—POISON; 6.1 (PGIII) see §172.504(f)(10) for alternate placard; 6.2—INFECTIOUS SUBSTANCE; 7—RADIOACTIVE; 8—CORROSIVE; 9—CLASS 9

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§172.101 Hazardous Materials Table—Continued

Symbols (1)	Hazardous Materials Descriptions and Proper Shipping Names (2)	Hazard Class or Division (3)	Identification Numbers (4)	PG (5)	Label Codes (6)[1]	Special Provisions (7)	(8) Packaging (§173.***) Exceptions (8A)	Non-bulk (8B)	Bulk (8C)	(9) Quantity Limitations Passenger Aircraft/ Rail (9A)	Cargo Aircraft Only (9B)	(10) Vessel Stowage Location (10A)	Other (10B)	ERG Guide # (11)
	Phosphorus pentoxide	8	UN1807	II	8	A7, IB8, IP2, IP4, N34	154	212	240	15 kg	50 kg	A		137
	Phosphorus sesquisulfide, *free from yellow or white phosphorus*	4.1	UN1341	II	4.1	A20, IB4, N34	None	212	240	15 kg	50 kg	B	74	139
	Phosphorus tribromide	8	UN1808	II	8	A3, A6, A7, B2, B25, IB2, N34, N43, T7, TP2	None	202	242	Forbidden	30 L	C	40	137
R4	**Phosphorus trichloride**	6.1	UN1809	I	6.1, 8	2, B9, B14, B15, B32, B74, B77, N34, T20, TP2, TP13, TP38, TP45	None	227	244	Forbidden	Forbidden	C	40	137
	Phosphorus trioxide	8	UN2578	III	8	IB8, IP3	154	213	240	25 kg	100 kg	A	12	157
	Phosphorus trisulfide, *free from yellow or white phosphorus*	4.1	UN1343	II	4.1	A20, IB4, N34	None	212	240	15 kg	50 kg	B	74	139
PP, R1	**Phosphorus, white dry** *or* **Phosphorus, white, under water** *or* **Phosphorus white, in solution** *or* **Phosphorus, yellow dry** *or* **Phosphorus, yellow, under water** *or* **Phosphorus, yellow, in solution**	4.2	UN1381	I	4.2, 6.1	B9, B26, N34, T9, TP3	None	188	243	Forbidden	Forbidden	E		136
PP, R1	**Phosphorus white, molten**	4.2	UN2447	I	4.2, 6.1	B9, B26, N34, T21, TP3, TP7, TP26	None	188	243	Forbidden	Forbidden	D		136
	Phosphorus (white or red) and a chlorate, mixtures of	Forbidden												
R4	*Phosphoryl chloride, see* **Phosphorus oxychloride**													
R5	**Phthalic anhydride** *with more than .05 percent maleic anhydride*	8	UN2214	III	8	IB8, IP3, T4, TP3	154	213	240	25 kg	100 kg	A		156
R5	**Picolines**	3	UN2313	III	3	B1, IB3, T4, TP1	150	203	242	60 L	220 L	A	40	130
	Picric acid, *see* **Trinitrophenol,** *etc*													
	Picrite, *see* **Nitroguanidine,** *etc*													
	Picryl chloride, *see* **Trinitrochlorobenzene**													
	Pine oil	3	UN1272	III	3	B1, IB3, T2, TP1	150	203	242	60 L	220 L	A		129
	alpha-Pinene	3	UN2368	III	3	B1, IB3, T2, TP1	150	203	242	60 L	220 L	A		127
	Piperazine	8	UN2579	III	8	IB8, IP3, T4, TP1	154	213	240	25 kg	100 kg	A	12	153
	Piperidine	8	UN2401	I	8, 3	T10, TP2	None	201	243	0.5 L	2.5 L	B		132
	Pivaloyl chloride, see **Trimethylacetyl chloride**													
	Plastic molding compound *in dough, sheet or extruded rope form evolving flammable vapor*	9	UN3314	III	9	32, IB8, IP6	155	221	221	100 kg	200 kg	A	85, 87	171
	Plastic solvent, n.o.s., see **Flammable liquids, n.o.s.**													
	Plastics, nitrocellulose-based, self-heating, n.o.s.	4.2	UN2006	III	4.2		None	213	None	Forbidden	Forbidden	C		135
	Poisonous gases, n.o.s., see **Compressed** *or* **liquefied gases, flammable** *or* **toxic, n.o.s.**													
	Polyalkylamines, n.o.s., see **Amines,** *etc*													
PP, R1	**Polychlorinated biphenyls, liquid**	9	UN2315	II	9	9, 81, 140, IB3, T4, TP1	155	202	241	100 L	220 L	A	95	171
PP, R1	**Polychlorinated biphenyls, solid**	9	UN2315	II	9	9, 81, 140, IB7	155	212	240	100 kg	200 kg	A	95	171
	Polyester resin kit	3	UN3269		3	40	152	225	None	5 kg	5 kg	B		127
PP	**Polyhalogenated biphenyls, liquid** *or* **Polyhalogenated terphenyls liquid**	9	UN3151	II	9	IB3	155	204	241	100 L	220 L	A	95	171
PP	**Polyhalogenated biphenyls, solid** *or* **Polyhalogenated terphenyls, solid**	9	UN3152	II	9	IB8, IP2, IP4	155	204	241	100 kg	200 kg	A	95	171
★	**Polymeric beads, expandable,** *evolving flammable vapor*	9	UN2211	III	9	32, IB8, IP6, IP7	155	221	221	100 kg	200 kg	A	85, 87	133
	Potassium	4.3	UN2257	I	4.3	A19, A20, B27, IB1, IP1, N6, N34, T9, TP3, TP7	None	211	244	Forbidden	15 kg	D		138
R1	**Potassium arsenate**	6.1	UN1677	II	6.1	IB8, IP2, IP4	None	212	242	25 kg	100 kg	A		151
R1	**Potassium arsenite**	6.1	UN1678	II	6.1	IB8, IP2, IP4	None	212	242	25 kg	100 kg	A		154
	Potassium bisulfite solution, see **Bisulfites, aqueous solutions, n.o.s.**													
	Potassium borohydride	4.3	UN1870	I	4.3	A19, N40	None	211	242	Forbidden	15 kg	E		138

[1] **Label Codes:** 1.1, 1.2, 1.3, 1.4, 1.5, and 1.6—EXPLOSIVE; 2.1—FLAMMABLE GAS; 2.2—NON-FLAMMABLE GAS; 2.3—POISON GAS; 3—FLAMMABLE LIQUID; 4.1—FLAMMABLE SOLID; 4.2—SPONTANEOUSLY COMBUSTIBLE; 4.3—DANGEROUS WHEN WET; 5.1—OXIDIZER; 5.2—ORGANIC PEROXIDE; 6.1 (PGI, Zone A and B inhalation hazard)—POISON INHALATION HAZARD; 6.1 (PGI, other than Zone A and B, PGII or PGIII)—POISON; 6.1 (PGIII) see §172.504(f)(10) for alternate placard; 6.2—INFECTIOUS SUBSTANCE; 7—RADIOACTIVE; 8—CORROSIVE; 9—CLASS 9

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Section III
Product MSDS

KOPPERS

Material Safety Data Sheet

MATERIAL SAFETY DATA SHEET — K O P P E R S

MEDICAL EMERGENCIES: 1 800 553-5631
OUTSIDE U.S.A.: 412 227-2001
GENERAL INFORMATION: 412 227-2424

KOPPERS INDUSTRIES, INC.
436 SEVENTH AVENUE
PITTSBURGH, PA. 15219-1800

CHEMTREC ASSISTANCE 1 800 424-9300
CANUTEC: 1 613 996-6666

SECTION I - PRODUCT IDENTIFICATION

PRODUCT NAME: Carbon Pitch Liquid

SYNONYM:

PRODUCT USE:

CHEMICAL FAMILY: Aromatic Hydrocarbons

FORMULA: Complex mixture including polynuclear aromatic hydrocarbons PAH's

CAS NUMBER: 65996-93-2

NFPA 704M/HMIS RATING: 2/2 HEALTH 1/1 FLAMMABILITY 1/1 REACTIVITY
0 = Least 1 = Slight 2 = Moderate 3 = High 4 = Extreme

CANADIAN PRODUCT CLASSIFICATION: Class D, Division 2, Subdivision A

SECTION II - HEALTH/SAFETY ALERT

WARNING
MAY CAUSE EYE IRRITATION AND BURNING.
MAY CAUSE SKIN IRRITATION,
A PHOTOTOXIC SKIN REACTION IN SUNLIGHT, AND SKIN DAMAGE.
MAY CAUSE RESPIRATORY TRACT IRRITATION IF INHALED.
MAY CAUSE DIGESTIVE TRACT IRRITATION IF INGESTED.
CONTACT WITH HEATED MATERIAL MAY CAUSE THERMAL BURNS.
CHRONIC OVEREXPOSURE (as defined by OSHA recommended standards)
CAN CAUSE CANCER.
TARGET ORGANS ARE THE SKIN, BLADDER, SCROTUM, LUNGS.

RISK OF CANCER DEPENDS ON DURATION AND LEVEL OF EXPOSURE.
AVOID PROLONGED OR REPEATED CONTACT
WITH SKIN OR BREATHING DUST/FUMES/VAPORS.
OBSERVE GOOD HYGIENE AND SAFETY PRACTICES WHEN HANDLING THIS PRODUCT
DO NOT USE THIS PRODUCT UNTIL MSDS HAS BEEN READ AND UNDERSTOOD
THIS PRODUCT CONTAINS A CHEMICAL KNOWN TO THE STATE OF CALIFORNIA
TO CAUSE CANCER AND REPRODUCTIVE HAZARDS.

SECTION III - HEALTH HAZARD INFORMATION

EYE: Exposure to fumes, vapors, or dust may cause irritation and burning to the eyes. Reversible symptoms may include irritation, a burning sensation, intolerance to light, redness/swelling/tearing, and possible erosion of the surface of the cornea. Contact with heated material may cause thermal burns.

SKIN: Contact with the skin can result in irritation which, when accentuated by sunlight, may result in a phototoxic skin reaction. Contact with heated material may cause thermal burns. Hot/molten pitch is a severe burn hazard. Prolonged and repeated skin contact in the absence of recommended hygiene practices may cause acne, folliculitis and more serious skin disorders such as changes in skin pigmentation, ulcerations, benign skin growths and skin cancer.

INHALATION: Inhalation of fumes, vapors, or dust may cause temporary respiratory irritation.Acute respiratory effects caused by overexposure to coal tar pitch volatiles may include coughing, sneezing, and swollen or irritated nasal mucosa or sinuses. Inhalation of fumes or vapors in significant excess of the PEL/TLV may lead to systemic symptoms such as salivation; vomiting; respiratory difficulties; headache; loss of pupillary reflexes; central nervous system (CNS) effects such as dizziness, weakness, possible loss of coordination and collapse; cyanosis; hypothermia; and convulsions.

INGESTION: Ingestion of coal tar pitch may cause irritation of the gastrointestinal tract followed by one or more of the following: nausea, vomiting, and abdominal discomfort and in extreme cases cardiovascular involvement.

SECTION IV - EMERGENCY AND FIRST AID PROCEDURES

EYE CONTACT: Immediately flush with large amounts of water for 15 minutes. Immediately seek medical aid.

SKIN CONTACT: Wash thoroughly with waterless hand cleaner. For contact with molten product, do not remove contaminated clothing. Flush skin immediately with large amounts of cold water. If possible, submerge area in cold water. Pack with ice. Seek medical aid.

INHALATION: Remove from exposure. If breathing has stopped or is difficult, administer artificial respiration or oxygen as indicated. Seek medical aid.

INGESTION: Ingestion is unlikely. If it occurs, seek medical aid.

SECTION V - FIRE AND EXPLOSION HAZARD INFORMATION

FLASH POINT & METHOD: >190C (374F) PMCC AUTOIGNITION TEMP: >399C-750F

FLAMMABLE LIMITS (% BY VOLUME/AIR): LOWER: NA UPPER: NA

EXTINGUISHING MEDIA: Use dry chemicals, carbon dioxide, sand, foam, steam, or water fog.

FIRE-FIGHTING PROCEDURES: Wear complete fire service protective equipment, including full-face MSHA/NIOSH approved self-contained breathing apparatus. Use water or water spray to cool fire-exposed containers and structures and to protect personnel. Water/fog can control unconfined pitch fires, but water may cause frothing or eruption in closed tanks.

FIRE AND EXPLOSION HAZARDS: Coal tar pitch at elevated temperatures may generate vapors that may ignite in the presence of air and a source of ignition. Burning may emit hazardous fumes/vapors which can form flammable/explosive mixtures in air and which may be in concentrations greater than the recommended PEL/TLV. Air-borne pitch dust may form explosive mixtures with air. Cloud ignition temperature is 710C (1310F) minimum. Explosion concentration (dust) is 0.035 ounces/ft3 (1000 mg/0.03 m3). Closed containers may explode when exposed to extreme heat. Liquid (molten) pitch at elevated temperatures will sustain combustion.

SENSITIVITY TO MECHANICAL IMPACT: no

SENSITIVITY TO STATIC DISCHARGE: Yes for solid pitch dust. See above Fire and Explosion Hazards

SECTION VI - SPILL, LEAK AND DISPOSAL INFORMATION

SPILL OR LEAK PROCEDURES (PRODUCT): Avoid breathing vapors or contact with skin and eyes. Remove all ignition sources. Try to stop the source of the leak if possible without hazard. Ventilate the area if spill occurs indoors. Release or spillage of solid can be treated as a coal spillage and recovery made avoiding skin and eye contact. Shovel into dry, labeled containers and secure cover. Contain runoff of fire control water. If hot liquid is spilled, contain by diking/berming with absorbent solids, such as sand, ashes, earth, or other inert material as necessary to prevent entry into sewers or open bodies of water. Avoid contact with hot liquid/fumes/vapors. Provide cleanup personnel with appropriate protective clothing. In cases involving release to the environment in the U.S., report the release to The National Response Center at 1-800-424-8802. In Canada, report releases to provincial authorities, municipal authorities, or both, as required. Due to the concentration of Benzo(a)pyrene in coal tar pitch as determined from the analyses presented in Section VII and the reportable quantity for Benzo(a)pyrene of one pound, a CERCLA (Superfund)release of approximately 7 gallons (74 pounds) of coal tar pitch

requires National Response Center notification. See Section 7 for listing of additional hazardous substances.

---------- DOT REPORTABLE QUANTITIES ----------

1 Pound Benzo(a)pyrene
1 Pound Dibenzo(a,h)anthracene

WASTE DISPOSAL: If disposing in a state other than California, dispose of as an industrial waste in accordance with local, state, and federal regulations. Place in tightly sealed labeled containers. This product contains coal tar constituents, which have been determined by IARC to be a carcinogen. According to California hazardous waste regulations, substances posing a hazard to human health because of carcinogenicity are hazardous wastes. Dispose of as a hazardous waste in the state of California. In Canada, dispose of the material in accordance with provincial regulations.

SECTION VII - RECOMMENDED EXPOSURE LIMIT/HAZARDOUS INGREDIENTS

EXPOSURE LIMIT (PRODUCT):
*For coal tar pitch volatiles, OSHA-PEL is 0.2 mg/m3 averaged over an 8 hour work shift, benzene soluble fraction of total particulate including dust, fumes and mists. # Suspected Carcinogen. ** Coal Tar Products (cyclohexane extractable fraction), including anthracene.

HAZARDOUS INGREDIENTS	CAS NUMBER	%BY WT.	EXPOSURE LIMIT (PPM;MG/M3)	
Coal Tar Pitch	65996-93-2	100	OSHA-TWA	0.2*
Acenaphthene	83-32-9	0.01-0.11	OSHA-TWA	tota dust
				res dust
			ACGIH-TLV	dust
Fluorene	86-73-7	0.01-0.09	OSHA-TWA	None
			ACGIH-TLV	None
Phenanthrene	85-01-8	0.06-0.61	OSHA-TWA	0.2*
			ACGIH-TLV	0.2*
			NIOSH-REL	0.1**
Anthracene	120-12-7	0.02-0.18	OSHA-TWA	0.2*
			ACGIH-TLV	0.2*
			NIOSH-REL	0.1**
Fluoranthene	206-44-0	0.77-1.40	OSHA-TWA	None
			ACGIH-TLV	None
Pyrene	129-00-0	0.72-1.26	OSHA-TWA	0.2*
			ACGIH-TLV	0.2*
Benzo(a)anthracene #	56-55-3	0.78-1.04	OSHA-TWA	None
			ACGIH-TLV	0.2*
			NIOSH-REL	0.1**
Chrysene	218-01-9	0.77-1.06	OSHA-TWA	0.2*
			ACGIH-TLV	0.2*
			NIOSH-REL	0.1**
Benzo(b)fluoranthene #	205-99-2	0.83-0.93	OSHA-TWA mist	5
			ACGIH-TLV mist	5
			ACGIH-STE mist	5
Benzo(j)fluoranthene #	205-82-3	0.59-0.66	OSHA-TWA	0.2*
			ACGIH-TLV	0.2*

			NIOSH-REL	0.1**
Benzo(k)fluoranthene #	207-08-9	0.55-0.62	OSHA-TWA	None
			ACGIH-TLV	None
Benzo(a)pyrene #	50-32-8	1.22-1.43	OSHA-TWA	0.2*
			NIOSH-REL	0.1**
Indeno(1,2,3-cd)pyrene #	193-39-5	0.98-1.37	OSHA-TWA	0.2*
			ACGIH-TLV	0.2*
			NIOSH-REL	0.1**
Dibenz(a,h)anthracene #	53-70-3	0.22-0.33	OSHA-TWA	0.2*
			ACGIH-TLV	0.2*
			NIOSH-REL	0.1**
Benzo(g,h,i)perylene	191-24-2	0.91-1.48	OSHA-TWA	0.2*
			ACGIH-TLV	0.2*
			NIOSH-REL	0.1**
Dibenzo(a,e)pyrene #	192-65-4	0.34-0.60	OSHA-TWA	0.2*
			ACGIH-TLV	0.2*
			NIOSH-REL	0.1**
Dibenzo(a,h)pyrene #	189-64-0	0.52-0.98	OSHA-TWA	0.2*
			ACGIH-TLV	0.2*
			NIOSH-REL	0.1**
Dibenzo(a,i)pyrene #	189-55-9	0.22-0.51	OSHA-TWA	0.2*
			ACGIH-TLV	0.2*
			NIOSH-REL	0.1**

---------- SARA TITLE III SECTION 313 CHEMICALS ----------
(SEE SECTION VII FOR CAS NUMBERS AND PERCENTAGES)

Phenanthrene
Anthracene
Fluoranthene
Benzo(a)anthracene
Chrysene
Benzo(b)fluoranthene
Benzo(j)fluoranthene
Benzo(k)fluoranthene
Benzo(a)pyrene
Indeno(1,2,3-cd)pyrene
Dibenz(a,h)anthracene
Benzo(g,h,i)perylene
Dibenzo(a,e)pyrene
Dibenzo(a,h)pyrene
Dibenzo(a,i)pyrene

SECTION VIII - PERSONAL PROTECTION INFORMATION

EYE PROTECTION: Industrial safety glasses, minimum. As necessary to comply with 29 CFR 1910.133 and work area conditions: use side shields, goggles or face shield. Chemical goggles; face shield (if handling molten material).

SKIN PROTECTION: Wear full body, industrial-type work clothing worn closed at the neck and sleeves. As required to prevent skin contact, wear chemical resistant gloves, footwear and coveralls; wear heat resistant gloves if the product is molten. Applications of certain protective creams for coal tar products and sunscreens before and during work may be beneficial and are recommended. Remove and launder contaminated clothing separately from other laundry before reuse.

Protective Materials: Permeation/degradation values of chemical mixtures cannot be predicted from pure components of chemical classes. Thus, these materials are normally best estimates based on available pure component data. A breakthrough time has been reported for generically similar gloves from different manufacturers (AIHA J.,48,941-947 1987).

RESPIRATORY PROTECTION: If ventilation does not maintain inhalation exposures below TLV(PEL), use MSHA/NIOSH approved units as per current 29 CFR1910.134 and manufacturers' "Instructions" and "Warnings". Combination filter/organic vapor cartridges or canisters may be used. Full-face piece respiratory protective units required.

VENTILATION: Provide sufficient general/local exhaust ventilation in pattern/volume to control inhalation exposures below current exposure limits and areas below flammable vapor/explosive dust concentrations.

SECTION IX - PERSONAL HANDLING INSTRUCTIONS

HANDLING: Avoid prolonged or repeated contact with skin or breathing of dusts. Observe good personal hygiene practices and recommended procedures. Application of certain protective creams (sun screens for coal tar products) before working/several times during work may be beneficial. See SECTION XIII (COMMENTS).

STORAGE: Keep in a closed, labeled container within a cool (well shaded), dry ventilated area. Protect from physical damage. Maintain good housekeeping.

OTHER: Not for use or storage in or around the home. DO NOT TAKE INTERNALLY. Do not use until manufacturer's precautions have been read/understood. Wash exposed areas promptly and thoroughly after skin contact and before eating, drinking, using tobacco products or rest rooms.

SECTION X - REACTIVITY DATA

CONDITIONS CONTRIBUTING TO INSTABILITY: None known.

INCOMPATIBILITY: Avoid contact with water when confined and in a molten state. Avoid contact with strong oxidizing agents.

HAZARDOUS REACTIONS/DECOMPOSITION/COMBUSTION PRODUCTS: Does not decompose at ambient temperatures. May emit hazardous fumes/vapors in concentrations greater than the PEL/TLV upon heating or burning. Hazardous Products of Combustion include; Carbon Monoxide (CO), carbon Dioxide (CO2), Oxides of Nitrogen (NOx), Sulfur Dioxide (SO2), and Polynuclear Aromatic Hydrocarbons (PAH's).

CONDITIONS CONTRIBUTING TO HAZARDOUS POLYMERIZATION: None

SECTION XI - PHYSICAL DATA

BOILING POINT:	>240C (>464F)	SPECIFIC GRAVITY:	1.3+/-0.04 @ 15.5C

MELTING POINT:	104-356F(40-180C)	% VOLATILE BY VOL:	NA
VAPOR PRESSURE:	none @ 20C	EVAPORATION RATE(ETHER=1):	NA
VAPOR DENSITY(AIR=1):	>1	VISCOSITY:	NA
SOLUBILITY: (WATER)	negligible	pH:	NA

VOC: NA

COEFFICIENT OF WATER/OIL DISTRIBUTION: NA

APPEARANCE/ODOR: Temperature dependent. Black solid when allowed to cool. Black viscous liquid with aromatic odor when heated.

SECTION XII - TRANSPORT INFORMATION

--------- PRODUCT PACKAGED IN TANK CAR ---------

RQ ELEVATED TEMPERATURE LIQUID, N.O.S.
(CONTAINS BENZO(A)PYRENE, DIBENZ(A,H)ANTHRACENE)
CLASS 9 UN3257 PG III
ELECTRODE BINDER
MARKED: HOT 3257

--------- PRODUCT PACKAGED IN TANK TRUCK ---------

RQ ELEVATED TEMPERATURE LIQUID, N.O.S.
(CONTAINS BENZO(A)PYRENE, DIBENZ(A,H)ANTHRACENE)
CLASS 9 UN3257 PG III
PITCH, COAL
MARKED: HOT 3257

SECTION XIII - COMMENTS

Carcinogenicity: NTP(X) IARC(X) OSHA(X) ACGIH(X). This product contains coal tar pitch. The IARC monographs (Vol.35) state that there is sufficient evidence that coal tar pitches are carcinogenetic in humans. There is also sufficient evidence that chronic occupational overexposure to coal tars may cause skin cancer. Historical studies and anecdotal reports show an association between coal tar pitch overexposure and scrotal cancer in the absence of good hygiene practices. No recent studies support an association between coal tar pitch overexposure and scrotal cancer in the workplace. Epidemiological studies of aluminum reduction workers in the Soderberg process showed an excess risk of developing bladder cancer for workers with chronic overexposure to coal tar pitch volatiles in excess of the recommended threshold limit value. Studies also suggest an excess risk of developing lung cancer among workers with chronic overexposure to coal tar pitch volatiles in excess of the recommended threshold limit value.

Mutagenicity: Available data characterizes coal tar pitch as a mutagen.

Reproductive Toxicity and Teratogenicity: None known. Although coal tar pitch does contain substances considered to be reproductive hazards by the State of California, no scientific study supports an association between coal tar pitch exposures and human reproductive hazards.

Persons More Susceptible to Exposure: Individuals with chronic respiratory disorders may be more susceptible to the effects of exposure to any airborne material. Individuals with pre-existing skin disorders may be more susceptible to irritation, dermatitis, and phototoxic reactions. Persons with a history of central nervous system (CNS) functional illness may be more susceptible to the effects when working with this product (see "Effects of Acute Exposure"above).

There are no known ingredients other than those listed above which occur at a concentration greater than 0.01 percent and are listed as a carcinogen in the IARC Monographs on the report on Carcinogens or OSHA 29 CFR 1910.1001-1004 subpart Z Toxic and Hazardous Substances (Specifically Regulated Substances).

No known ingredients which occur at greater than 0.1% are listed as a carcinogen in the IARC Monographs on the Evaluation of the Carcinogenic Risk of Chemicals to Humans, the NTP Annual Report on Carcinogens or OSHA 29 CFR 1910.1001-1047 subpart Z Toxic and Hazardous Substances (Specifically Regulated Substances).

SKIN PROTECTION (protective material): Permeation/degradation values of chemical mixtures cannot be predicted from pure components or chemical classes. Thus, these materials are normally best estimates based on available pure component data. A significant difference in chemical breakthrough time has been reported for generically similar gloves from different manufacturers (AIHA J., 48, 941-947 1987).

Do not use until manufacturer's precautions have been read/understood. Wash exposed areas promptly and thoroughly after skin contact from working with this product and before eating, drinking, using tobacco products or rest rooms.

Prepared By: Safety and Health Department

REVISION DATE: 04/02
SPECIFICATION SHEET NUMBER:
SUPPLIER INFORMATION: Same as manufacturer.

CODE NUMBER: IND00196AP0216
REPLACES SHEET: IND00196NO0015

NOTICE: While the information and recommendations set forth herein are believed to be accurate as of the date hereof, Koppers Industries makes no warranty with respect thereto and disclaims all liability from reliance thereon.

KOPPERS

Material Safety Data Sheet

MATERIAL SAFETY DATA SHEET — K O P P E R S

MEDICAL EMERGENCIES: 1 800 553-5631
OUTSIDE U.S.A.: 412 227-2001
GENERAL INFORMATION: 412 227-2424

KOPPERS INDUSTRIES, INC.
436 SEVENTH AVENUE
PITTSBURGH, PA. 15219-1800

CHEMTREC ASSISTANCE 1 800 424-9300
CANUTEC: 1 613 996-6666

SECTION I - PRODUCT IDENTIFICATION

PRODUCT NAME: Creosote (Manufacturing Use)

COMMODITY NUMBER: 17310001

SYNONYM: P1/P13 Manufacturing Use

PRODUCT USE: Wood preservative

CHEMICAL FAMILY: Coal tar distillate

FORMULA: Complex mixture of aromatic and heterocyclic hydrocarbons

CAS NUMBER: 8001-58-9

NFPA 704M/HMIS RATING: 2/2 HEALTH 1/1 FLAMMABILITY 1/1 REACTIVITY
0 = Least 1 = Slight 2 = Moderate 3 = High 4 = Extreme

CANADIAN PRODUCT CLASSIFICATION: Class D, Division 2, Subdivision A, Very Toxic Material

SECTION II - HEALTH/SAFETY ALERT

CHRONIC OVEREXPOSURE (as defined by OSHA recommended standards)
MAY CAUSE CANCER
WARNING
MAY BE FATAL IF SWALLOWED
HARMFUL TO THE SKIN OR IF INHALED
CAUSES EYE AND SKIN IRRITATION
AVOID PROLONGED OR REPEATED CONTACT

OBSERVE GOOD HYGIENE AND SAFETY PRACTICES WHEN HANDLING THIS PRODUCT
DO NOT USE THIS PRODUCT UNTIL MSDS & PRODUCT LABEL HAVE BEEN READ/UNDERSTOOD.
WARNING: THIS PRODUCT CONTAINS A CHEMICAL KNOWN TO THE STATE OF CALIFORNIA TO CAUSE CANCER.

SECTION III - HEALTH HAZARD INFORMATION

EYE: Direct contact with liquid or vapor may cause moderate irritation.

SKIN: Contact with skin can result in severe irritation which when accentuated by sunlight may result in phototoxic skin reaction. This material or similar materials when administered throughout the major portion of their lifetime has caused cancer in laboratory animals. Contact with heated material may cause thermal burns.

INHALATION: Acute overexposure to vapor may result in respiratory tract irritation. Repeated and/or prolonged contact to high concentrations of vapor may result in respiratory difficulties, central nervous system (CNS) effects characterized by headache, drowsiness, dizziness, weakness, incoordination, circulatory collapse, coma and possible death.

INGESTION: Ingestion of material may cause gastrointestinal disturbances including irritation, nausea, vomiting, abdominal pain. Systemic effects are similar to those described under INHALATION.

OTHER: See Section XIII (Comments) for additional information on health effects.

SECTION IV - EMERGENCY AND FIRST AID PROCEDURES

EYE CONTACT: Immediately flush with large amounts of water for 15 minutes. Seek medical aid.

SKIN CONTACT: Remove contaminated clothing. Wipe material from skin. Wash thoroughly with soap and water or waterless hand cleaner. If irritation persists, seek medical aid.

INHALATION: Remove from exposure. If breathing has stopped or is difficult, administer artificial respiration or oxygen as indicated. Seek medical aid.

INGESTION: If victim is conscious and alert, give 1-2 glasses of water or milk. Induce vomiting using ipecac syrup as directed on the label. After vomiting, the victim may be given a slurry of 100 g of activated charcoal in 8 oz. of water. Seek medical aid.

NOTE TO PHYSICIAN: Due to the possibility of sensitization of the myocardium following extreme acute overexposures, cardiorespiratory support should be available.

INGESTION: DO NOT INDUCE VOMITING OR GIVE ANYTHING BY MOUTH TO AN UNCONSCIOUS PERSON.

SECTION V - FIRE AND EXPLOSION HAZARD INFORMATION

FLASH POINT & METHOD: >93 C (>200 F)PMCC AUTOIGNITION TEMP: Not Deter

FLAMMABLE LIMITS (% BY VOLUME/AIR): LOWER: ND UPPER: ND

TDG FLAMMABILITY CLASSIFICATION: None

EXTINGUISHING MEDIA: Use dry chemical, carbon dioxide, foam or water spray. Water or foam may cause frothing, if molten.

FIRE-FIGHTING PROCEDURES: Wear complete fire service protective equipment, including full-face NIOSH certified Self-Contained breathing apparatus. Use water to cool fire-exposed container/structure/protect personnel. Toxic vapors may be given off in a fire.

FIRE AND EXPLOSION HAZARDS: When heated (fire conditions), vapors/decomposition products may be released forming flammable/explosive mixtures in air. Closed containers may explode when exposed to extreme heat(fire).

SENSITIVITY TO MECHANICAL IMPACT: ND

SENSITIVITY TO STATIC DISCHARGE: ND

SECTION VI - SPILL, LEAK AND DISPOSAL INFORMATION

SPILL OR LEAK PROCEDURES (PRODUCT): Stop leak if no risk involved. Stay upwind. Solidified spills: Shovel into dry containers and cover. Flush area with water. Small wet spills: Take up with sand or other noncombustible absorbent material. Flush area with water. Dike large spills for later disposal. Contain runoff from fire control and dilution water. This product released into the environment must be reported to the National Response Center (1 800-424-8802). When this product is spilled or leaked, the CERCLA reportable quantity is 1 pound.

---------- DOT REPORTABLE QUANTITIES ----------

1 pound	Creosote
1 pound	Benzo(b)fluoranthene

WASTE DISPOSAL: This product is a US EPA defined toxic waste. Dispose of as a toxic waste in accordance with local, state and federal regulations.

SECTION VII - RECOMMENDED EXPOSURE LIMIT/HAZARDOUS INGREDIENTS

EXPOSURE LIMIT (PRODUCT):

*For coal tar pitch volatiles, OSHA-PEL is 0.2 mg/m3 averaged over an 8 hour work shift, benzene soluble fraction of total particulate including dust, fumes and mists.

**skin

***OSHA-Action Level - 0.5 ppm 8-hr. TWA

#Suspected Human Carcinogen. Percent by weight are the maximum levels of constituents.

HAZARDOUS INGREDIENTS	CAS NUMBER	%BY WT.	EXPOSURE LIMIT (PPM;MG/M3)		
Creosote	8001-58-9	100%	OSHA-TWA	-	0.2*
Phenanthrene	85-01-8	14.13	OSHA-TWA		0.2*
Fluoranthene	206-44-0	7.41	None		
Pyrene	129-00-0	5.14	OSHA-TWA		0.2*
Acenaphthene	83-32-9	6	None		
Fluorene	86-73-7	4.39	None		
Naphthalene	91-20-3	16.11	OSHA-TWA	10	50
Dibenzofuran	132-64-9	3.13	None		
Anthracene	120-12-7	3.76	OSHA-TWA		0.2*
Benzo(a)anthracene	56-55-3	1.40	None		
Chrysene	218-01-9	1.22	OSHA-TWA		0.2*
Biphenyl	95-52-4	1.03	OSHA-TWA	0.2	1
Indeno(1,2,3-c,d)pyrene	193-39-5	0.12	None		
Quinoline	91-22-5	0.90	None		
Benzo(a)pyrene	50-32-8	0.39	OSHA-TWA		0.2*
Benzene	71-43-2	0.13	OSHA-TWA	1	3***
			OSHA-STEL	5	15
Benzo(g,h,i)perylene	191-24-2	0.17	None		
M & P Xylene 108-38-3&106-42-3	mixture	0.13	OSHA-TWA	100	435
Styrene	100-42-5	0.06	OSHA-TWA	100	
			OSHA-STEL	200	
Dibenzo(a,h)anthracene	53-70-3	0.04	None		
Phenol	108-95-2	0.06	OSHA-TWA	5	19**
Toluene	108-88-3	0.15	OSHA-TWA	100	
			OSHA-STEL	150	
Benzofuran (Coumarone)	271-89-6	0.19	None		
Ethylbenzene	100-41-4	0.04	OSHA-TWA	100	435
O Xylene	95-47-6	0.04	OSHA-TWA	100	435
Indene	95-13-6	1.02	None		
2 Methylnaphthalene	91-57-6	4.84	None		
1 Methylnaphthalene	90-12-0	1.80	None		
Benzo(b)fluoranthene	205-99-2	0.42	None		
Benzo(j)fluoranthene	205-82-3	0.30	None		
Benzo(k)fluoranthene	207-08-9	0.28	None		

---------- SARA TITLE III SECTION 313 CHEMICALS ----------
(SEE SECTION VII FOR CAS NUMBERS AND PERCENTAGES)

Creosote
Benzene
Toluene
Ethylbenzene
Styrene
Phenol
Anthracene
Fluoranthene
Naphthalene
Quinoline
Chrysene
Dibenzofuran
Benzo(a)pyrene
Indeno(1,2,3-c,d)pyrene
Dibenzo(a,h)anthracene
Benzo(g,h,i)perylene
Benzo(b)fluoranthene
Benzo(j)fluoranthene
Benzo(k)fluoranthene

Phenanthrene
Benzo(a)anthracene
M,O & P Xylene

SECTION VIII - PERSONAL PROTECTION INFORMATION

EYE PROTECTION: Industrial safety glasses, minimum. As necessary to comply with OSHA 1910.133 and work area conditions: use side shields, goggles or face shield. Chemical goggles; face shield (if splashing is possible).

SKIN PROTECTION: As required, chemical resistant gloves. Depending on working conditions, i.e., contact potential, wear chemical resistant protective garments such as head/neck cover, aprons, jackets, coveralls, or long sleeved shirts and long pants, boots,long pants, chemical resistant overshoes, etc. See Section XIII - Comments for additional information on skin protection recommendations.

RESPIRATORY PROTECTION: Not required under normal use conditions. If ventilation does not maintain inhalation exposures below TLV(PEL), use NIOSH certified air purifying respirators equipped with combination filter/organic vapor cartridge in accordance with OSHA Respiratory Protection Standard 1910.134 and manufacture's "Instructions" and "Warnings".

VENTILATION: Provide sufficient general/local exhaust ventilation in pattern/volume to control inhalation exposures below current exposure limits and areas below flammable vapor concentrations. Local exhaust is necessary for use in enclosed or confined spaces. See OSHA 29 CFR 1910.146 Permit Required Confined Space.

SECTION IX - PERSONAL HANDLING INSTRUCTIONS

HANDLING: Avoid prolonged or repeated breathing of vapors, mists or fumes. Avoid prolonged or repeated contact with skin or eyes. Observe good personal hygiene practices and recommended procedures. Application of certain skin creams (sun screen in conjunction with a general purpose protective cream) - before working/several times during work may be beneficial.

STORAGE: Keep in a closed, labeled container. Protect from physical damage. Keep containers closed when material is not in use. Maintain good housekeeping.

OTHER: Not for use or storage in or around the home. DO NOT TAKE INTERNALLY. Do not use until manufacturer's precautions and product label have been read and understood. Wash exposed areas promptly and thoroughly after skin contact and before eating, drinking, using tobacco products or rest rooms.

SECTION X - REACTIVITY DATA

CONDITIONS CONTRIBUTING TO INSTABILITY: Overheating

INCOMPATIBILITY: none known

HAZARDOUS REACTIONS/DECOMPOSITION/COMBUSTION PRODUCTS: Oxides of carbon

CONDITIONS CONTRIBUTING TO HAZARDOUS POLYMERIZATION: none

SECTION XI - PHYSICAL DATA

BOILING POINT: >180 C (>355 F)

SPECIFIC GRAVITY: 1.060 g/ml @ 20C*

MELTING POINT: NA

% VOLATILE BY VOL: NA

VAPOR PRESSURE: 0.42mm Hg @70f

EVAPORATION RATE(ETHER=1): slow

VAPOR DENSITY(AIR=1):>1

VISCOSITY: 7.4 @ 70f

SOLUBILITY: slight (WATER)

pH: ND

VOC: 475 g/l

COEFFICIENT OF WATER/OIL DISTRIBUTION: slightly H2O soluble

APPEARANCE/ODOR: brown to black liquid with creosote or tarry odor

*Specific Gravity + 8.76 lb/gal

SECTION XII - TRANSPORT INFORMATION

--------- PRODUCT PACKAGED IN BARGE ---------

RQ ENVIRONMENTALLY HAZARDOUS SUBSTANCES, LIQUID, N.O.S.
(CONTAINS BENZO(A)ANTHRACENE,BENZO(B)FLUORANTHENE)
CLASS 9 UN3082 PG III

STCC: COAL TAR CREOSOTE, OR DISTILLATE, OR SOLUTION

PLACARDED: CLASS 9

--------- PRODUCT PACKAGED IN TANK CAR ---------

RQ ENVIRONMENTALLY HAZARDOUS SUBSTANCES, LIQUID, N.O.S.
(CONTAINS BENZO(A)ANTHRACENE,BENZO(B)FLUORANTHENE)
CLASS 9 UN3082 PG III

STCC: COAL TAR CREOSOTE, OR DISTILLATE, OR SOLUTION

PLACARDED: CLASS 9

--------- PRODUCT PACKAGED IN TANK TRUCK ---------

RQ ENVIRONMENTALLY HAZARDOUS SUBSTANCES, LIQUID, N.O.S.
(CONTAINS BENZO(A)ANTHRACENE,BENZO(B)FLUORANTHENE)

CLASS 9 UN3082 PG III

PLACARDED: CLASS 9

--------- PRODUCT PACKAGED IN DRUM (TIGHT HEAD) ---------

RQ ENVIRONMENTALLY HAZARDOUS SUBSTANCES, LIQUID, N.O.S.
(CONTAINS BENZO(A)ANTHRACENE, BENZO(B)FLUORANTHENE)
CLASS 9 UN3082 PG III

PLACARDED: CLASS 9

SECTION XIII - COMMENTS

Persons with pre-existing disease in or a history of ailments involving the skin or blood-forming organs may be at a greater risk of developing adverse health effects when exposed to this material.

The IARC monographs (Vol. 35) states that there is sufficient evidence for the carcinogenicity of creosote in experimental animals. The NTP Annual Report on Carcinogens states that creosote oils are carcinogenic in experimental animals. Creosote does not appear in the OSHA Subpart Z Table.

Epidemiological studies of workers in the woodtreating industry have shown no significant health effects due to occupational exposure to creosote. The application of a commercially available sun-blocking lotion is recommended to greatly reduce the phototoxicity of coal tar derived materials associated sun burning. The sun block should be applied prior to the application of a protective cream and should have a sun protection factor(SPF) greater than 15. Application of a general purpose protective cream or a cream specifically formulated for protection coal tar based products from contacting skin before working/several times during work may be beneficial.

EPA Reg. No. 61468-6.

Coal Tar Creosote (Pressure Applications) is an EPA registered pesticide regulated by the Federal Insecticide Fungicide Rodenticide Act (FIFRA) and failure to follow the label directions is a violation of Federal Law. The label addresses issues of personal hygiene practices, personal protective equipment use, the use, care and disposal of protective clothing and material handling precautions. Please refer to the label for more details.

This product containes benzene. The IARC monographs (vol. 29) states that there is sufficient evidence for the carcinogenicity in humans and limited evidence for the carcinogenicity in animals. Benzene is also listed in the NTP Annual Report on Carcinogens and in the OSHA Subpart Z Table (Specifically Regulated Substances).

Reviewed and revised May 2001.

No known ingredients which occur at greater than 0.1%, other than those listed above, are listed as a carcinogen in the IARC Monographs on the Evaluation of the Carcinogenic Risk of Chemicals to Humans, the NTP Annual Report on Carcinogens or OSHA 29 CFR 1910.1001-1047 subpart Z Toxic and Hazardous Substances (Specifically Regulated Substances).

SKIN PROTECTION (protective material): Permeation/degradation values of chemical mixtures cannot be predicted from pure components or chemical classes. Thus, these materials are normally best estimates based on available pure component data. A significant difference in chemical breakthrough time has been reported for generically similar gloves from different manufacturers (AIHA J., 48, 941-947 1987).

Do not use until manufacturer's precautions have been read/understood. Wash exposed areas promptly and thoroughly after skin contact from working with

this product and before eating, drinking, using tobacco products or rest rooms.

Prepared By: Safety and Health Department

REVISION DATE: 05/01
SPECIFICATION SHEET NUMBER: TP-1203-10
COMMODITY NUMBER: 17310001

CODE NUMBER: IND00211MY0107
REPLACES SHEET: IND00211AP0106

SUPPLIER INFORMATION: Same as manufacturer.

NOTICE: While the information and recommendations set forth herein are believed to be accurate as of the date hereof, Koppers Industries makes no warranty with respect thereto and disclaims all liability from reliance thereon.

KOPPERS

Material Safety Data Sheet

MATERIAL SAFETY DATA SHEET — K O P P E R S

MEDICAL EMERGENCIES: 1 800 553-5631
OUTSIDE U.S.A.: 412 227-2001
GENERAL INFORMATION: 412 227-2424

KOPPERS INDUSTRIES, INC.
436 SEVENTH AVENUE
PITTSBURGH, PA. 15219-1800

CHEMTREC ASSISTANCE 1 800 424-9300
CANUTEC: 1 613 996-6666

SECTION I - PRODUCT IDENTIFICATION

PRODUCT NAME: Coal Tar Creosote (Pressure Applications)

SYNONYM: P1/P13

PRODUCT USE: Wood preservative

CHEMICAL FAMILY: Coal tar distillate

FORMULA: Complex mixture of aromatic and heterocyclic hydrocarbons

CAS NUMBER: 8001-58-9

NFPA 704M/HMIS RATING: 2/2 HEALTH 1/1 FLAMMABILITY 1/1 REACTIVITY
0 = Least 1 = Slight 2 = Moderate 3 = High 4 = Extreme

CANADIAN PRODUCT CLASSIFICATION: Class D, Division 2, Subdivision A, Very Toxic Material

SECTION II - HEALTH/SAFETY ALERT

CHRONIC OVEREXPOSURE (as defined by OSHA recommended standards)
MAY CAUSE CANCER
WARNING
MAY BE FATAL IF SWALLOWED
HARMFUL TO THE SKIN OR IF INHALED
CAUSES EYE AND SKIN IRRITATION
AVOID PROLONGED OR REPEATED CONTACT
OBSERVE GOOD HYGIENE AND SAFETY PRACTICES WHEN HANDLING THIS PRODUCT
DO NOT USE THIS PRODUCT UNTIL MSDS & PRODUCT LABEL HAVE BEEN READ/UNDERSTOOD.

WARNING: THIS PRODUCT CONTAINS A CHEMICAL KNOWN TO THE STATE OF CALIFORNIA TO CAUSE CANCER.

SECTION III - HEALTH HAZARD INFORMATION

EYE: Direct contact with liquid or vapor may cause moderate irritation.

SKIN: Contact with skin can result in severe irritation which when accentuated by sunlight may result in phototoxic skin reaction. This material or similar materials when administered throughout the major portion of their lifetime has caused cancer in laboratory animals. Contact with heated material may cause thermal burns.

INHALATION: Acute overexposure to vapor may result in respiratory tract irritation. Repeated and/or prolonged contact to high concentrations of vapor may result in respiratory difficulties, central nervous system (CNS) effects characterized by headache, drowsiness, dizziness, weakness, incoordination, circulatory collapse, coma and possible death.

INGESTION: Ingestion of material may cause gastrointestinal disturbances including irritation, nausea, vomiting, abdominal pain. Systemic effects are similar to those described under INHALATION.

OTHER: See Section XIII (Comments) for additional information on health effects.

SECTION IV - EMERGENCY AND FIRST AID PROCEDURES

EYE CONTACT: Immediately flush with large amounts of water for 15 minutes. Seek medical aid.

SKIN CONTACT: Remove contaminated clothing. Wipe material from skin. Wash thoroughly with soap and water or waterless hand cleaner. If irritation persists, seek medical aid.

INHALATION: Remove from exposure. If breathing has stopped or is difficult, administer artificial respiration or oxygen as indicated. Seek medical aid.

INGESTION: If victim is conscious and alert, give 1-2 glasses of water or milk. Induce vomiting using ipecac syrup as directed on the label. After vomiting, the victim may be given a slurry of 100 g of activated charcoal in 8 oz. of water. Seek medical aid.

NOTE TO PHYSICIAN: Due to the possibility of sensitization of the myocardium following extreme acute overexposures, cardiorespiratory support should be available.

INGESTION: DO NOT INDUCE VOMITING OR GIVE ANYTHING BY MOUTH TO AN UNCONSCIOUS PERSON.

SECTION V - FIRE AND EXPLOSION HAZARD

INFORMATION

FLASH POINT & METHOD: >93 C (>200 F) PMCC AUTOIGNITION TEMP: Not Deter

FLAMMABLE LIMITS (% BY VOLUME/AIR): LOWER: ND UPPER: ND

TDG FLAMMABILITY CLASSIFICATION: None

EXTINGUISHING MEDIA: Use dry chemical, carbon dioxide, foam or water spray. Water or foam may cause frothing, if molten.

FIRE-FIGHTING PROCEDURES: Wear complete fire service protective equipment, including full-face NIOSH certified Self-Contained breathing apparatus. Use water to cool fire-exposed container/structure/protect personnel. Toxic vapors may be given off in a fire.

FIRE AND EXPLOSION HAZARDS: When heated (fire conditions), vapors/decomposition products may be released forming flammable/explosive mixtures in air. Closed containers may explode when exposed to extreme heat(fire).

SENSITIVITY TO MECHANICAL IMPACT: ND

SENSITIVITY TO STATIC DISCHARGE: ND

SECTION VI - SPILL, LEAK AND DISPOSAL INFORMATION

SPILL OR LEAK PROCEDURES (PRODUCT): Stop leak if no risk involved. Stay upwind. Solidified spills: Shovel into dry containers and cover. Flush area with water. Small wet spills: Take up with sand or other noncombustible absorbent material. Flush area with water. Dike large spills for later disposal. Contain runoff from fire control and dilution water. This product released into the environment must be reported to the National Response Center (1 800-424-8802). When this product is spilled or leaked, the CERCLA reportable quantity is 1 pound.

---------- DOT REPORTABLE QUANTITIES ----------

1 pound	Creosote
1 pound	Benzo(b)fluoranthene

WASTE DISPOSAL: This product is a US EPA defined toxic waste. Dispose of as a toxic waste in accordance with local, state and federal regulations.

SECTION VII - RECOMMENDED EXPOSURE LIMIT/HAZARDOUS INGREDIENTS

EXPOSURE LIMIT (PRODUCT):

*For coal tar pitch volatiles, OSHA-PEL is 0.2 mg/m3 averaged over an 8

hour work shift, benzene soluble fraction of total particulate including dust, fumes and mists.

**skin

***OSHA-Action Level - 0.5 ppm 8-hr. TWA

#Suspected Human Carcinogen. Percent by weight are the maximum levels of constituents.

HAZARDOUS INGREDIENTS	CAS NUMBER	%BY WT.	EXPOSURE LIMIT (PPM;MG/M3)		
Creosote	8001-58-9	100%	OSHA-TWA	-	0.2*
Phenanthrene	85-01-8	14.13	OSHA-TWA		0.2*
Fluoranthene	206-44-0	7.41	None		
Pyrene	129-00-0	5.14	OSHA-TWA		0.2*
Acenaphthene	83-32-9	6	None		
Fluorene	86-73-7	4.39	None		
Naphthalene	91-20-3	16.11	OSHA-TWA	10	50
Dibenzofuran	132-64-9	3.13	None		
Anthracene	120-12-7	3.76	OSHA-TWA		0.2*
Benzo(a)anthracene	56-55-3	1.40	None		
Chrysene	218-01-9	1.22	OSHA-TWA		0.2*
Biphenyl	95-52-4	1.03	OSHA-TWA	0.2	1
Indeno(1,2,3-c,d)pyrene	193-39-5	0.12	None		
Quinoline	91-22-5	0.90	None		
Benzo(a)pyrene	50-32-8	0.39	OSHA-TWA		0.2*
Benzene	71-43-2	0.13	OSHA-TWA	1	3***
			OSHA-STEL	5	15
Benzo(g,h,i)perylene	191-24-2	0.17	None		
M & P Xylene 108-38-3&106-42-3	mixture	0.13	OSHA-TWA	100	435
Styrene	100-42-5	0.06	OSHA-TWA	100	
			OSHA-STEL	200	
Dibenzo(a,h)anthracene	53-70-3	0.04	None		
Phenol	108-95-2	0.06	OSHA-TWA	5	19**
Toluene	108-88-3	0.15	OSHA-TWA	100	
			OSHA-STEL	150	
Benzofuran (Coumarone)	271-89-6	0.19	None		
Ethylbenzene	100-41-4	0.04	OSHA-TWA	100	435
O Xylene	95-47-6	0.04	OSHA-TWA	100	435
Indene	95-13-6	1.02	None		
2 Methylnaphthalene	91-57-6	4.84	None		
1 Methylnaphthalene	90-12-0	1.80	None		
Benzo(b)fluoranthene	205-99-2	0.42	None		
Benzo(j)fluoranthene	205-82-3	0.30	None		
Benzo(k)fluoranthene	207-08-9	0.28	None		

---------- SARA TITLE III SECTION 313 CHEMICALS ----------
(SEE SECTION VII FOR CAS NUMBERS AND PERCENTAGES)

Creosote
Benzene
Toluene
Ethylbenzene
Styrene
Phenol
Anthracene
Fluoranthene
Naphthalene
Quinoline
Phenanthrene
Benzo(a)anthracene
Chrysene
Dibenzofuran
Benzo(a)pyrene
Indeno(1,2,3-c,d)pyrene
Dibenzo(a,h)anthracene
Benzo(g,h,i)perylene
Benzo(b)fluoranthene
Benzo(j)fluoranthene
Benzo(k)fluoranthene

M,O & P Xylene

SECTION VIII - PERSONAL PROTECTION INFORMATION

EYE PROTECTION: Industrial safety glasses, minimum. As necessary to comply with OSHA 1910.133 and work area conditions: use side shields, goggles or face shield. Chemical goggles; face shield (if splashing is possible).

SKIN PROTECTION: As required, chemical resistant gloves. Depending on working conditions, i.e., contact potential, wear chemical resistant protective garments such as head/neck cover, aprons, jackets, coveralls, or long sleeved shirts and long pants, boots,long pants, chemical resistant overshoes, etc. See Section XIII - Comments for additional information on skin protection recommendations.

RESPIRATORY PROTECTION: Not required under normal use conditions. If ventilation does not maintain inhalation exposures below TLV(PEL), use NIOSH certified air purifying respirators equipped with combination filter/organic vapor cartridge in accordance with OSHA Respiratory Protection Standard 1910.134 and manufacture's "Instructions" and "Warnings".

VENTILATION: Provide sufficient general/local exhaust ventilation in pattern/volume to control inhalation exposures below current exposure limits and areas below flammable vapor concentrations. Local exhaust is necessary for use in enclosed or confined spaces. See OSHA 29 CFR 1910.146 Permit Required Confined Space.

SECTION IX - PERSONAL HANDLING INSTRUCTIONS

HANDLING: Avoid prolonged or repeated breathing of vapors, mists or fumes. Avoid prolonged or repeated contact with skin or eyes. Observe good personal hygiene practices and recommended procedures. Application of certain skin creams (sun screen in conjunction with a general purpose protective cream) - before working/several times during work may be beneficial.

STORAGE: Keep in a closed, labeled container. Protect from physical damage. Keep containers closed when material is not in use. Maintain good housekeeping.

OTHER: Not for use or storage in or around the home. DO NOT TAKE INTERNALLY. Do not use until manufacturer's precautions and product label have been read and understood. Wash exposed areas promptly and thoroughly after skin contact and before eating, drinking, using tobacco products or rest rooms.

SECTION X - REACTIVITY DATA

CONDITIONS CONTRIBUTING TO INSTABILITY: Overheating

INCOMPATIBILITY: none known

HAZARDOUS REACTIONS/DECOMPOSITION/COMBUSTION PRODUCTS: Oxides of carbon

CONDITIONS CONTRIBUTING TO HAZARDOUS POLYMERIZATION: none

SECTION XI - PHYSICAL DATA

BOILING POINT:	>180 C (>355 F)	SPECIFIC GRAVITY:	1.060 g/ml @ 20C*
MELTING POINT:	NA	% VOLATILE BY VOL:	NA
VAPOR PRESSURE:	0.42mm Hg @70f	EVAPORATION RATE(ETHER=1):	slow
VAPOR DENSITY(AIR=1):	>1	VISCOSITY:	7.4 @ 70f
SOLUBILITY: (WATER)	slight	pH:	ND

VOC: 475 g/l

COEFFICIENT OF WATER/OIL DISTRIBUTION: slightly H2O soluble

APPEARANCE/ODOR: brown to black liquid with creosote or tarry odor
*Specific Gravity + 8.76 lb/gal

SECTION XII - TRANSPORT INFORMATION

--------- PRODUCT PACKAGED IN BARGE ---------

RQ ENVIRONMENTALLY HAZARDOUS SUBSTANCES, LIQUID, N.O.S.
(CREOSOTE)
CLASS 9 UN3082 PG III

PLACARDED: CLASS 9

--------- PRODUCT PACKAGED IN TANK CAR ---------

RQ ENVIRONMENTALLY HAZARDOUS SUBSTANCES, LIQUID, N.O.S.
(CREOSOTE)
CLASS 9 UN3082 PG III

STCC: COAL TAR CREOSOTE, OR DISTILLATE, OR SOLUTION

PLACARDED: CLASS 9

--------- PRODUCT PACKAGED IN TANK TRUCK ---------

RQ ENVIRONMENTALLY HAZARDOUS SUBSTANCES, LIQUID, N.O.S.
(CREOSOTE)
CLASS 9 UN3082 PG III

PLACARDED: CLASS 9

--------- PRODUCT PACKAGED IN DRUM (TIGHT HEAD) ---------

RQ ENVIRONMENTALLY HAZARDOUS SUBSTANCES, LIQUID, N.O.S.
(CREOSOTE)
CLASS 9 UN3082 PG III
MARINE POLLUTANT
PLACARDED: CLASS 9

--------- PRODUCT PACKAGED IN PAIL (REMOVABLE HEAD) ---------

RQ ENVIRONMENTALLY HAZARDOUS SUBSTANCES, LIQUID, N.O.S.
(CREOSOTE)
CLASS 9 UN3082 PG III
MARINE POLLUTANT
PLACARDED: CLASS 9

SECTION XIII - COMMENTS

Persons with pre-existing disease in or a history of ailments involving the skin or blood-forming organs may be at a greater risk of developing adverse health effects when exposed to this material.

The IARC monographs (Vol. 35) states that there is sufficient evidence for the carcinogenicity of creosote in experimental animals. The NTP Annual Report on Carcinogens states that creosote oils are carcinogenic in experimental animals. Creosote does not appear in the OSHA Subpart Z Table.

Epidemiological studies of workers in the woodtreating industry have shown no significant health effects due to occupational exposure to creosote. The application of a commercially available sun-blocking lotion is recommended to greatly reduce the phototoxicity of coal tar derived materials associated sun burning. The sun block should be applied prior to the application of a protective cream and should have a sun protection factor(SPF) greater than 15. Application of a general purpose protective cream or a cream specifically formulated for protection coal tar based products from contacting skin before working/several times during work may be beneficial.

EPA Reg. No. 61468-1.

Coal Tar Creosote (Pressure Applications) is an EPA registered pesticide regulated by the Federal Insecticide Fungicide Rodenticide Act (FIFRA) and failure to follow the label directions is a violation of Federal Law. The label addresses issues of personal hygiene practices, personal protective equipment use, the use, care and disposal of protective clothing and material handling precautions. Please refer to the label for more details.

This product containes benzene. The IARC monographs (vol. 29) states that there is sufficient evidence for the carcinogenicity in humans and limited evidence for the carcinogenicity in animals. Benzene is also listed in the NTP Annual Report on Carcinogens and in the OSHA Subpart Z Table (Specifically Regulated Substances).

Reviewed and revised May 2001.

No known ingredients which occur at greater than 0.1%, other than those listed above, are listed as a carcinogen in the IARC Monographs on the Evaluation of the Carcinogenic Risk of Chemicals to Humans, the NTP Annual Report on Carcinogens or OSHA 29 CFR 1910.1001-1047 subpart Z Toxic and Hazardous Substances (Specifically Regulated Substances).

SKIN PROTECTION (protective material): Permeation/degradation values of chemical mixtures cannot be predicted from pure components or chemical classes. Thus, these materials are normally best estimates based on available pure component data. A significant difference in chemical breakthrough time has

been reported for generically similar gloves from different manufacturers (AIHA J., 48, 941-947 1987).

Do not use until manufacturer's precautions have been read/understood. Wash exposed areas promptly and thoroughly after skin contact from working with this product and before eating, drinking, using tobacco products or rest rooms.

Prepared By: Safety and Health Department

REVISION DATE: 05/01
CODE NUMBER: IND00003MY0139
SPECIFICATION SHEET NUMBER: TP-1203-10
REPLACES SHEET: IND00003AP0138
SUPPLIER INFORMATION: Same as manufacturer.

NOTICE: While the information and recommendations set forth herein are believed to be accurate as of the date hereof, Koppers Industries makes no warranty with respect thereto and disclaims all liability from reliance thereon.

KOPPERS

Material Safety Data Sheet

MATERIAL SAFETY DATA SHEET K O P P E R S

MEDICAL EMERGENCIES: 1 800 553-5631
OUTSIDE U.S.A.: 412 227-2001
GENERAL INFORMATION: 412 227-2424

KOPPERS INDUSTRIES, INC.
436 SEVENTH AVENUE
PITTSBURGH, PA. 15219-1800

CHEMTREC ASSISTANCE 1 800 424-9300
CANUTEC: 1 613 996-6666

SECTION I - PRODUCT IDENTIFICATION

PRODUCT NAME: Crude Coke Oven Tar

SYNONYM: Centrifuge Tar

PRODUCT USE: Distilled to produce naphthalene, creosote & pitch

CHEMICAL FAMILY: Polynuclear aromatic hydrocarbons

FORMULA: Complex mixture of hydrocarbons

CAS NUMBER: 65996-89-6

NFPA 704M/HMIS RATING: 2/2 HEALTH 2/2 FLAMMABILITY 1/1 REACTIVITY
0 = Least 1 = Slight 2 = Moderate 3 = High 4 = Extreme

CANADIAN PRODUCT CLASSIFICATION: Class D, Division 2, Subdivision A, Very Toxic Material - Class B, Division 3, Combustible Liquid

SECTION II - HEALTH/SAFETY ALERT

CHRONIC OVEREXPOSURE (as defined by OSHA recommended standards)
MAY CAUSE CANCER
WARNING
HARMFUL TO THE SKIN, OR IF INHALED OR SWALLOWED
CAUSES EYE AND SKIN IRRITATION
AVOID PROLONGED AND/OR REPEATED CONTACT INCLUDING VAPORS
OBSERVE GOOD HYGIENE AND SAFETY PRACTICES WHEN HANDLING THIS PRODUCT
DO NOT USE THIS PRODUCT UNTIL MSDS HAS BEEN READ AND UNDERSTOOD

SECTION III - HEALTH HAZARD INFORMATION

EYE: Overexposure to vapor can result in irritation and/or corneal changes. Direct eye contact may cause irritation. Contact with heated material may cause thermal burns.

SKIN: Contact with skin can result in irritation which when accentuated by sunlight may result in a phototoxic skin reaction. Repeated and/or prolonged contact may cause more serious skin disorders including cancer. Contact with heated material may cause thermal burns. See Section XIII for additional information.

INHALATION: Overexposure to vapor may result in respiratory tract irritation. Repeated and/or prolonged contact to high concentrations of vapor may result in respiratory difficulties, central nervous system (CNS) effects and possible cardiovascular collapse.

INGESTION: Ingestion of material are unlikely, but may cause gastrointestinal disturbances including irritation, nausea, vomiting, abdominal pain.

OTHER: See Section XIII (Comments) for additional information on health effects.

SECTION IV - EMERGENCY AND FIRST AID PROCEDURES

EYE CONTACT: Immediately flush with large amounts of water for 15 minutes. Immediately seek medical aid.

SKIN CONTACT: Wash thoroughly with waterless hand cleaner. For contact with molten product, do not remove contaminated clothing. Flush skin immediately with large amounts of cold water. If possible, submerge area in cold water. Pack with ice. Seek medical aid.

INHALATION: Remove from exposure. If breathing has stopped or is difficult, administer artificial respiration or oxygen as indicated. Seek medical aid.

INGESTION: If victim is conscious and alert, give 1-2 glasses of water or milk. Induce vomiting using ipecac syrup as directed on the label. After vomiting, the victim may be given a slurry of 100 g of activated charcoal in 8 oz. of water. Seek medical aid.

SECTION V - FIRE AND EXPLOSION HAZARD INFORMATION

FLASH POINT & METHOD: >65C (>150F) PMCC AUTOIGNITION TEMP: ND

FLAMMABLE LIMITS (% BY VOLUME/AIR): LOWER: ND UPPER: ND

TDG FLAMMABILITY CLASSIFICATION: None

EXTINGUISHING MEDIA: Use dry chemical, carbon dioxide, foam or water spray. Water or foam may cause frothing, if molten.

FIRE-FIGHTING PROCEDURES: Wear complete fire service protective equipment, including full-face MSHA/NIOSH approved self-contained breathing apparatus. Use water to cool fire-exposed container/structure/protect personnel. Toxic vapors may be given off in a fire.

FIRE AND EXPLOSION HAZARDS: When heated (fire conditions), vapors/decomposition products may be released forming flammable/explosive mixtures in air. Closed containers may explode when exposed to extreme heat(fire).

SENSITIVITY TO MECHANICAL IMPACT: ND

SENSITIVITY TO STATIC DISCHARGE: ND

SECTION VI - SPILL, LEAK AND DISPOSAL INFORMATION

SPILL OR LEAK PROCEDURES (PRODUCT): Stop leak if no risk involved. Stay upwind. Solidified spills: Shovel into dry containers and cover. Flush area with water. Small wet spills: Take up with sand or other noncombustible absorbent material. Flush area with water. Dike large spills for later disposal. Contain runoff from fire control and dilution water.

---------- DOT REPORTABLE QUANTITIES ----------

10 lbs. Benzene

WASTE DISPOSAL: Dispose of in accordance with local, state, and federal regulations. If disposing in a state other than California, dispose of as an industrial waste in accordance with local, state, and federal regulations. This product contains coal tar constituents, which have been determined by IARC to be a carcinogen. According to California hazardous waste regulations, substances posing a hazard to human health because of carcinogenicity are hazardous wastes. Dispose of as a hazardous waste in the state of California.

SECTION VII - RECOMMENDED EXPOSURE LIMIT/HAZARDOUS INGREDIENTS

EXPOSURE LIMIT (PRODUCT):

*For coal tar pitch volatiles, OSHA-PEL is 0.2 mg/m3 averaged over an 8 hour work shift, benzene soluble fraction of total particulate including dust, fumes and mists.

**skin

***OSHA Action Level - 0.5 ppm 8-hr. TWA

#Suspected Human Carcinogen

HAZARDOUS INGREDIENTS	CAS NUMBER	%BY WT.	EXPOSURE LIMIT (PPM;MG/M3)

Coal Tar Pitch	65996-89-6		OSHA-TWA	-	*
Benzene	71-43-2	<1	ACGIH-TWA	10	32**,
			OSHA-TWA	1	***
			OSHA-STEL	5	-
			NIOSH-TWA	0.1	-
			NIOSH-STE	1	-
Indene	95-13-6	<5	ACGIH-TWA	10	48
			OSHA-TWA	10	45
Naphthalene	92-20-3	<20	ACGIH-TWA	10	52
			ACGIH-STE	15	79
			OSHA-TWA	10	50
			OSHA-STEL	15	75
			NIOSH-TWA	10	50
			NIOSH-STE	15	75
Cresol	1319-77-3	<5	ACGIH-TWA	5	22**
			OSHA-TWA	5	22**
			NIOSH-TWA	2.3	10
Benz(a)anthracene	56-55-3	0.78	NONE		
Benzo(b)fluoranthene+	205-99-2		NONE		
Benzo(k)fluoranthene+	207-08-9		NONE		
Benzo(j)fluoranthene+	205-82-3		NONE		
7,12-Dimethylbenz(a)anthracene	57-97-6	2.37	NONE		
Dibenzo(a,h)anthracene	53-70-3	0.15	NONE		
Indeno(1,2,3-cd)pyrene	193-39-5	0.57	NONE		
Phenanthrene	85-01-8	<2	NONE		
Benzo(a)phenanthrene	218-01-9	1.25	NONE		
Benzo(a)pyrene	50-32-8	0.95	NONE		
Benzo(g,h,i)perylene+	191-24-2		NONE		
7-H Dibenzo(c,g)carbazole	194-59-2	0.53	NONE		
Dibenzo(a,l)pyrene	191-30-0	0.29	NONE		
Dibenz(a,h)acridine	226-36-8	0.46	NONE		
Dibenzo(a,h)pyrene	189-64-0	0.15	NONE		
Dibenzo(a,e)pyrene	192-65-4	0.16	NONE		
Dibenz(a,j)acridine	224-42-0	0.42	NONE		
1-Nitropyrene	5522-43-0	0.15	NONE		

---------- SARA TITLE III SECTION 313 CHEMICALS ----------
(SEE SECTION VII FOR CAS NUMBERS AND PERCENTAGES)

Naphthalene
Cresol
Benzene
Benz(a)anthracene
Benzo(b)fluoranthene/Benzo(k)fluoranthene
Benzo(j)fluoranthene
Benzo(a)pyrene
Dibenzo(a,h)anthracene
Indeno(1,2,3-cd)pyrene
Phenanthrene
Benzo(a)phenanthrene
7,12-Dimethylbenz(a)anthracene
7-H Dibenzo(c,g)carbazole
Dibenzo(a,l)pyrene
Dibenz(a,h)acridine
Dibenzo(a,e)pyrene
Dibenz(a,j)acridine
1-Nitropyrene

SECTION VIII - PERSONAL PROTECTION INFORMATION

EYE PROTECTION: Industrial safety glasses, minimum. As necessary to comply with 29 CFR 1910.133 and work area conditions: use side shields, goggles or face shield.

SKIN PROTECTION: As required, industrial resistant flexible-type gloves. Depending on working conditions, i.e., contact potential, wear impervious protective garments such as head/neck cover, aprons, jackets, pants, coveralls, boots,etc. See "Guidelines" noted previously. Wear industrial-type work clothing and safety footwear. See Sec. XIII-Comments for additional information on skin protection recommendations.

RESPIRATORY PROTECTION: Not required under normal use conditions. If ventilation does not maintain inhalation exposures below TLV(PEL), use MSHA/NIOSH approved units as per current 29 CFR1910.134 and manufacturers' "Instructions" and "Warnings". Combination filter/organic vapor cartridges or canisters may be used.

VENTILATION: Provide sufficient general/local exhaust ventilation in pattern/volume to control inhalation exposures below current exposure limits and areas below flammable vapor concentrations.

SECTION IX - PERSONAL HANDLING INSTRUCTIONS

HANDLING: Avoid prolonged or repeated breathing of vapors, mists or fumes. Avoid prolonged or repeated contact with skin or eyes. Observe good personal hygiene practices and recommended procedures. Application of certain protective creams (sun screens for coal tar products) before working/several times during work may be beneficial.

STORAGE: Store in areas/buildings designed to comply with OSHA 1910.106. Keep in a closed, labeled container within a cool (well shaded), dry ventilated area. Protect from physical damage. Keep containers closed when material is not in use. Maintain good housekeeping.

OTHER: Not for use or storage in or around the home. DO NOT TAKE INTERNALLY. Do not use until manufacturer's precautions have been read/understood. Wash exposed areas promptly and thoroughly after skin contact and before eating, drinking, using tobacco products or rest rooms.

SECTION X - REACTIVITY DATA

CONDITIONS CONTRIBUTING TO INSTABILITY: None known

INCOMPATIBILITY: None known

HAZARDOUS REACTIONS/DECOMPOSITION/COMBUSTION PRODUCTS: Toxic fumes may be emitted when burned.

CONDITIONS CONTRIBUTING TO HAZARDOUS POLYMERIZATION: None

SECTION XI - PHYSICAL DATA

BOILING POINT:	>100C (>212F) IBP	SPECIFIC GRAVITY:	>1.050
MELTING POINT:	NA	% VOLATILE BY VOL:	Neglig.
VAPOR PRESSURE:	<5mm Hg	EVAPORATION RATE(ETHER=1):	<1 Butylacet
VAPOR DENSITY(AIR=1):	>1	VISCOSITY:	ND
SOLUBILITY: (WATER)	Negligible	pH:	ND

VOC: NA

COEFFICIENT OF WATER/OIL DISTRIBUTION: negligible water*

APPEARANCE/ODOR: Black viscous liquid with aromatic odor.
*solubility

SECTION XII - TRANSPORT INFORMATION

--------- PRODUCT PACKAGED IN BARGE ---------

RQ OTHER REGULATED SUBSTANCES,LIQUID,N.O.S.
(CONTAINS BENZO(A)PYRENE, BENZO(A)ANTHRACENE
CLASS 9 NA3082 PG III

TAR, COAL
PLACARDED: CLASS 9

--------- PRODUCT PACKAGED IN TANK CAR ---------

RQ OTHER REGULATED SUBSTANCES,LIQUID,N.O.S.
(CONTAINS BENZO(A)PYRENE, BENZO(A)ANTHRACENE
CLASS 9 NA3082 PG III

TAR, COAL
PLACARDED: CLASS 9

--------- PRODUCT PACKAGED IN TANK TRUCK ---------

RQ OTHER REGULATED SUBSTANCES,LIQUID,N.O.S.
(CONTAINS BENZO(A)PYRENE, BENZO(A)ANTHRACENE
CLASS 9 NA3082 PG III

TAR, COAL
PLACARDED: CLASS 9

SECTION XIII - COMMENTS

This product contains coal tar pitch. The IARC monographs (Vol. 35) state that there is sufficient evidence that coal tar pitches are carcinogenic in humans and that there is sufficient evidence that occupational exposure to coal tars as it occurs during the destructive distillation of coal is causally associated with the occurrence of skin cancers in humans. It is also listed in NTP Report on Carcinogens & in OSHA Subpart Z.

Persons with a history of liver/kidney/skin/CNS/respiratory disease/blood forming organs or exposure to materials harmful to these systems are at a greater than normal risk of developing adverse effects when working with this product.

This product contains benzene. The IARC monographs (Vol. 29) states that there is sufficient evidence for the carcinogenicity in humans and limited evidence for the carcinogenicity in animals. Benzene is also listed in the NTP Annual Report on Carcinogens and in the OSHA Subpart Z Table (Specifically Regulated Substances).

May be absorbed through the skin including mucous membranes and eye either by airborne mist, or more particularly, by direct contact. Skin contact should be avoided. To the extent necessary, the use of gloves, coveralls, goggles or other appropriate personal protective equipment, engineering controls or work practices should be utilized to prevent or reduce skin absorption.

No known ingredients which occur at greater than 0.1%, other than those listed above, are listed as a carcinogen in the IARC Monographs on the Evaluation of the Carcinogenic Risk of Chemicals to Humans, the NTP Annual Report on Carcinogens or OSHA 29 CFR 1910.1001-1047 subpart Z Toxic and Hazardous Substances (Specifically Regulated Substances).

SKIN PROTECTION (protective material): Permeation/degradation values of chemical mixtures cannot be predicted from pure components or chemical classes. Thus, these materials are normally best estimates based on available pure component data. A significant difference in chemical breakthrough time has been reported for generically similar gloves from different manufacturers (AIHA J., 48, 941-947 1987).

Do not use until manufacturer's precautions have been read/understood. Wash exposed areas promptly and thoroughly after skin contact from working with this product and before eating, drinking, using tobacco products or rest rooms.

Prepared By: Safety and Health Department

REVISION DATE: 08/99
SPECIFICATION SHEET NUMBER: none
SUPPLIER INFORMATION: Same as manufacturer.

CODE NUMBER: IND00011AU9923
REPLACES SHEET: IND00011DE9722

NOTICE: While the information and recommendations set forth herein are believed to be accurate as of the date hereof, Koppers Industries makes no warranty with respect thereto and disclaims all liability from reliance thereon.

KOPPERS

Material Safety Data Sheet

MATERIAL SAFETY DATA SHEET

K O P P E R S

MEDICAL EMERGENCIES: 1 800 553-5631
OUTSIDE U.S.A.: 412 227-2001
GENERAL INFORMATION: 412 227-2424

KOPPERS INDUSTRIES, INC.
436 SEVENTH AVENUE
PITTSBURGH, PA. 15219-1800

CHEMTREC ASSISTANCE 1 800 424-9300
CANUTEC: 1 613 996-6666

SECTION I - PRODUCT IDENTIFICATION

PRODUCT NAME: Naphthalene

SYNONYM:

PRODUCT USE:

CHEMICAL FAMILY: Aromatic hydrocarbon

FORMULA: C10H8

CAS NUMBER: 91-20-3

NFPA 704M/HMIS RATING: 2/2 HEALTH 2/2 FLAMMABILITY 0/0 REACTIVITY
0 = Least 1 = Slight 2 = Moderate 3 = High 4 = Extreme

CANADIAN PRODUCT CLASSIFICATION: Class B, Division 4 Flammable Solid - Class D, Division 2, Subdivision B Toxic Material

SECTION II - HEALTH/SAFETY ALERT

DANGER
FLAMMABLE LIQUID AND VAPOR
HARMFUL IF INHALED
HARMFUL IF ABSORBED THROUGH SKIN
MAY BE FATAL IF SWALLOWED
AVOID PROLONGED AND/OR REPEATED CONTACT INCLUDING VAPORS
OBSERVE GOOD HYGIENE AND SAFETY PRACTICES WHEN HANDLING THIS PRODUCT
DO NOT USE THIS PRODUCT UNTIL MSDS HAS BEEN READ AND UNDERSTOOD

SECTION III - HEALTH HAZARD INFORMATION

EYE: Vapors, fumes or direct contact may result in irritation, conjunctivitis an corneal injury upon prolonged contact. Exposure to high concentrations of fumes may cause lens opacity.

SKIN: Prolonged direct contact may produce skin irritation and hypersensitivity dermatitis. Systemic absorption through skin is possible.

INHALATION: Vapors may produce airway irritation, headache, nausea, confusion, sometimes vomiting, loss of appetite, extensive sweating, dysuria (painful urination), hematuria (blood in urine) and hemolysis (destruction of red blood cells).

INGESTION: Unlikely. However, ingestion causes irritation of the mouth and stomach. Systemic poisoning involving the gastrointestinal tract, kidneys and blood-forming tissue leading to nausea, vomiting, oliguria, hematuria, anemia and jaundice. Severe poisoning may cause Central Nervous System (CNS) excitation, coma, convulsions and death.

OTHER: Individuals with pre-existing disease in, or a history of ailments involving eyes, mucous membranes, skin, blood-forming tissues or blood, liver or lungs may be at greater risk of adverse health effects when exposed to this material.

SECTION IV - EMERGENCY AND FIRST AID PROCEDURES

EYE CONTACT: Immediately flush with large amounts of water for 15 minutes. Seek medical aid.

SKIN CONTACT: Immediately flush area with large amounts of water. Remove contaminated clothing. If persistent irritation occurs, seek medical aid.

INHALATION: Remove from exposure. If breathing has stopped or is difficult, administer artificial respiration or oxygen as indicated. Seek medical aid.

INGESTION: DO NOT ATTEMPT TO GIVE ANYTHING BY MOUTH TO AN UNCONSCIOUS PERSON. If victim is conscious and alert, give 1-2 glasses of water or milk. Induce vomiting using ipecac syrup as directed on the label. After vomiting, the victim may be given a slurry of 100 g of activated charcoal in 8 oz. of water.

NOTE TO PHYSICIAN: Individuals with erythrocytic glucose-6-phosphate dehydrogenase deficiency may be particularly susceptible to possible hemolytic effects.

SECTION V - FIRE AND EXPLOSION HAZARD INFORMATION

FLASH POINT & METHOD: 190 F/88 C Closed Cup AUTOIGNITION TEMP: 979F,526C

FLAMMABLE LIMITS (% BY VOLUME/AIR): LOWER: 0.9 UPPER: 5.9

TDG FLAMMABILITY CLASSIFICATION: Class 4, Division 1

EXTINGUISHING MEDIA: Use dry chemical, carbon dioxide, foam or water spray. Water or foam may cause frothing, if molten.

FIRE-FIGHTING PROCEDURES: Wear complete fire service protective equipment, including full-face MSHA/NIOSH approved self-contained breathing apparatus. Use water to cool fire-exposed container/structure/protect personnel. Toxic vapors may be given off in a fire.

FIRE AND EXPLOSION HAZARDS: When heated (fire conditions), vapors/decomposition products may be released forming flammable/explosive mixtures in air. Closed containers may explode when exposed to extreme heat(fire). Avoid direct contact between water spray or foam and molten product. Addition of small amts. of water will cause violent foaming/explosion.

SENSITIVITY TO MECHANICAL IMPACT: ND

SENSITIVITY TO STATIC DISCHARGE: ND

SECTION VI - SPILL, LEAK AND DISPOSAL INFORMATION

SPILL OR LEAK PROCEDURES (PRODUCT): Stop leak if no risk involved. Stay upwind. Solidified spills: Shovel into dry containers and cover. Small wet spills: Take up with sand or other noncombustible absorbent material. Flush area with water. Dike large spills for later disposal. Contain runoff from fire control and dilution water. This product released into the environment must be reported to the National Response Center (1 800-424-8802). When this product is spilled or leaked, the reportable quantity is 100 lb. or more.

---------- DOT REPORTABLE QUANTITIES ----------

100 lbs. Naphthalene

WASTE DISPOSAL: Dispose of as an industrial waste in accordance with local, state and federal regulations.

SECTION VII - RECOMMENDED EXPOSURE LIMIT/HAZARDOUS INGREDIENTS

HAZARDOUS INGREDIENTS	CAS NUMBER	%BY WT.	EXPOSURE LIMIT (PPM;MG/M3)		
Naphthalene	91-20-3	95-100	ACGIH-TWA	10	52
			ACGIH-STE	15	79
			OSHA-TWA	10	50

---------- SARA TITLE III SECTION 313 CHEMICALS ----------
(SEE SECTION VII FOR CAS NUMBERS AND PERCENTAGES)

Naphthalene

SECTION VIII - PERSONAL PROTECTION INFORMATION

EYE PROTECTION: Industrial safety glasses, minimum. As necessary to comply with 29 CFR 1910.133 and work area conditions: use side shields, goggles or face shield.

SKIN PROTECTION: As required, industrial grade fabric-type gloves. If molten, thermal resistent protective items. Wear industrial-type work clothing and safety footwear.Permeation/degradation values of chemical mixtures cannot be predicted from pure components or chemical classes. Thus, these materials are normally best estimates based on available pure component data. A significant difference in chemical breakthrough time has been reported for generically similar gloves from different manufacturers (AIHA J., 48, 941-947 1987).

RESPIRATORY PROTECTION: Not required under normal use conditions. If ventilation does not maintain inhalation exposures below TLV(PEL), use MSHA/NIOSH approved units as per current 29 CFR1910.134 and manufacturers' "Instructions" and "Warnings". Combination filter/organic vapor cartridges or canisters may be used.

VENTILATION: Provide sufficient general/local exhaust ventilation in pattern/volume to control inhalation exposures below current exposure limits and areas below flammable vapor concentrations. Local exhaust is necessary for use in enclosed or confined spaces. See OSHA 29 CFR 1910.146 Permit Required Confined Space.

SECTION IX - PERSONAL HANDLING INSTRUCTIONS

HANDLING: Avoid prolonged or repeated breathing of vapors, mists or fumes. Avoid prolonged or repeated contact with skin or eyes. Observe good personal hygiene practices and recommended procedures. Avoid skin and eye contact with molten material. Handle and use in accordance with OSHA 29CFR1910.106/local codes.

STORAGE: Store in areas/buildings designed to comply with OSHA 1910.106. Keep in a closed, labeled container within a cool (well shaded), dry ventilated area. Protect from physical damage. Keep containers closed when material is not in use. Maintain good housekeeping.

OTHER: Not for use or storage in or around the home. DO NOT TAKE INTERNALLY. Do not use until manufacturer's precautions have been read/understood. Wash exposed areas promptly and thoroughly after skin contact and before eating, drinking, using tobacco products or rest rooms.

SECTION X - REACTIVITY DATA

CONDITIONS CONTRIBUTING TO INSTABILITY: Avoid contact of water with molten naphthalene above 110 C as violent foaming or an explosion may occur

INCOMPATIBILITY: Avoid contact with strong oxidizing agents. Explosive reaction with dinitrogen peroxide. Melted naphthalene will attack some forms of plastic.

HAZARDOUS REACTIONS/DECOMPOSITION/COMBUSTION PRODUCTS: Flammable vapors are emitted during sublimation. Burning naphthalene can produce toxic fumes including carbon monoxide.

CONDITIONS CONTRIBUTING TO HAZARDOUS POLYMERIZATION: None

SECTION XI - PHYSICAL DATA

BOILING POINT:	218 C (424 F)	SPECIFIC GRAVITY:	1.162 @ 4C
MELTING POINT:	78-80C/172-176F	% VOLATILE BY VOL:	99+
VAPOR PRESSURE:	0.05mm Hg@20C/68F	EVAPORATION RATE(ETHER=1):	<1
VAPOR DENSITY(AIR=1):	4.42	VISCOSITY:	ND
SOLUBILITY: (WATER)	0.003% by wt./H2O	pH:	neutral

VOC: NA

COEFFICIENT OF WATER/OIL DISTRIBUTION: neg. H2O solubility

APPEARANCE/ODOR: Crystalline solid with coal tar or mothball odor

SECTION XII - TRANSPORT INFORMATION

--------- PRODUCT PACKAGED IN TANK CAR ---------

RQ NAPHTHALENE, MOLTEN
CLASS 4.1 UN2304 PG III

.

NAPHTHALENE, CRUDE
PLACARDED: FLAMMABLE SOLID

--------- PRODUCT PACKAGED IN TANK TRUCK ---------

RQ NAPHTHALENE, MOLTEN
CLASS 4.1 UN2304 PG III

.

NAPHTHALENE, CRUDE
PLACARDED: FLAMMABLE SOLID

SECTION XIII - COMMENTS

No known ingredients which occur at greater than 0.1% are listed as a carcinogen in the IARC Monographs on the Evaluation of the Carcinogenic Risk of Chemicals to Humans, the NTP Annual Report on Carcinogens or OSHA 29 CFR 1910.1001-1047 subpart Z Toxic and Hazardous Substances (Specifically Regulated Substances).

Do not use until manufacturer's precautions have been read/understood. Wash exposed areas promptly and thoroughly after skin contact from working with this product and before eating, drinking, using tobacco products or rest rooms.

Prepared By: Safety and Health Department

REVISION DATE: 03/02
SPECIFICATION SHEET NUMBER: 6/80 MSDS
SUPPLIER INFORMATION: Same as manufacturer.

CODE NUMBER: IND00277NO0101
REPLACES SHEET: NA

NOTICE: While the information and recommendations set forth herein are believed to be accurate as of the date hereof, Koppers Industries makes no warranty with respect thereto and disclaims all liability from reliance thereon.

KOPPERS

Material Safety Data Sheet

MATERIAL SAFETY DATA SHEET

K O P P E R S

MEDICAL EMERGENCIES: 1 800 553-5631
OUTSIDE U.S.A.: 412 227-2001
GENERAL INFORMATION: 412 227-2424

KOPPERS INDUSTRIES, INC.
436 SEVENTH AVENUE
PITTSBURGH, PA. 15219-1800

CHEMTREC ASSISTANCE 1 800 424-9300
CANUTEC: 1 613 996-6666

SECTION I - PRODUCT IDENTIFICATION

PRODUCT NAME: Phthalic Anhydride

SYNONYM: none

PRODUCT USE: Reacts readily to produce esters SEE SECT. XIII

CHEMICAL FAMILY: aromatic acid anhydride

FORMULA: C8H4O3

CAS NUMBER: 85-44-9

NFPA 704M/HMIS RATING: 3/3 HEALTH 1/1 FLAMMABILITY 0/0 REACTIVITY
0 = Least 1 = Slight 2 = Moderate 3 = High 4 = Extreme

CANADIAN PRODUCT CLASSIFICATION: Class D, Division 2, Subdivision A, Very Toxic Material

SECTION II - HEALTH/SAFETY ALERT

DANGER
MOLTEN MATERIAL CAUSES THERMAL BURNS
MAY CAUSE ALLERGIC RESPIRATORY REACTION
MAY CAUSE ALLERGIC SKIN REACTION
CAUSES SEVERE EYE AND SKIN IRRITATION
HARMFUL IF INHALED
HARMFUL IF SWALLOWED
EFFECTS MAY BE DELAYED
AVOID SKIN CONTACT

OBSERVE GOOD HYGIENE AND SAFETY PRACTICES WHEN HANDLING THIS PRODUCT
DO NOT USE THIS PRODUCT UNTIL MSDS HAS BEEN READ AND UNDERSTOOD

SECTION III - HEALTH HAZARD INFORMATION

EYE: Direct contact or contact with dust or vapor may cause severe irritation with conjunctivitis and tearing. The conjunctivitis may be persistent, but permanent damage is not expected.

SKIN: Irritation occurs and may be severe if not removed quickly (especially when skin is moist due to formation of phthalic acid). Allergic dermititis may occur in some individuals, characterized by redness, itching, and brown-colored lesions. Allergic skin reactions have been reported to occur with phthalic anhydride.

INHALATION: May cause severe irritation with a burning sensation in nose and throat. Repeated exposures could produce an asthma-like attack in sensitized individuals.

INGESTION: May cause severe irritation and gastrointestinal disturbances.

OTHER: Individuals with pre-existing disease in or a history of ailments involving skin, mucous membranes, respiratory system including asthma may be at a greater risk of adverse health effects when exposed to this product.

SECTION IV - EMERGENCY AND FIRST AID PROCEDURES

EYE CONTACT: Gently flush any material or particles from the eye with large amounts of water for 15 minutes. Immediately seek medical aid. For contact with molten product, flush immediately with large amounts of water for 15 minutes. Pack with ice. Immediately seek medical aid.

SKIN CONTACT: Do not remove clothes if contacted with molten material. Immediately flush area with large amounts of water. For other contact, remove all contaminated clothing and wash exposed area thoroughly with nonabrasive soap and water, or a mild detergent. If irritation occurs, seek medical aid.

INHALATION: Remove subject from exposure area to fresh air immediately. If breathing is difficult, give oxygen. If breathing has stopped, administer artificial respiration (e.g., mouth-to-mouth). Seek medical aid immediately.

INGESTION: DO NOT INDUCE VOMITING. If victim is conscious and alert, give 1 glass of milk OR 1 to 2 oz. (30 to 60g) of activated charcoal slurry in water as tolerated. If vomiting occurs, repeat treatment. Seek medical aid. DO NOT ATTEMPT TO GIVE ANYTHING BY MOUTH TO AN UNCONSCIOUS PERSON.

NOTE TO PHYSICIAN: There is no specific antidote for effects from overexposure. Treatment should be directed at the control of symptoms and the clinical condition.

SECTION V - FIRE AND EXPLOSION HAZARD INFORMATION

FLASH POINT & METHOD: 152C (305F) Closed Cup AUTOIGNITION TEMP: 1058F/570C

FLAMMABLE LIMITS (% BY VOLUME/AIR): LOWER: 1.7 UPPER: 10.5

TDG FLAMMABILITY CLASSIFICATION: None

EXTINGUISHING MEDIA: Use steam, water fog, dry chemical or carbon dioxide.

FIRE-FIGHTING PROCEDURES: Water or foam may cause frothing, if molten. Use inert gas to extinguish fires in molten phthalic storage tanks. Wear complete fire service protective equipment, including full-face MSHA/NIOSH approved self-contained breathing apparatus.

FIRE AND EXPLOSION HAZARDS: Phthalic anhydride dust may form explosive mixtures with air. Minimum concentration required is 0.015 oz/ft3.

SENSITIVITY TO MECHANICAL IMPACT: ND

SENSITIVITY TO STATIC DISCHARGE: ND

SECTION VI - SPILL, LEAK AND DISPOSAL INFORMATION

SPILL OR LEAK PROCEDURES (PRODUCT): Stop spill/leak if no risk involved. Shovel back into original container or waste receptacle. Flush area with water. This product released into the environment must be reported to the National Response Center (1 800-424-8802). When this product is spilled or leaked, the reportable quantity is 5,000 lbs. or more.

---------- DOT REPORTABLE QUANTITIES ----------

5000 lbs. Phthalic Anhydride

WASTE DISPOSAL: This product is a hazardous waste when it is discarded or intended to be discarded. Dispose of as a hazardous waste in accordance with local, state and federal regulations.

SECTION VII - RECOMMENDED EXPOSURE LIMIT/HAZARDOUS INGREDIENTS

HAZARDOUS INGREDIENTS	CAS NUMBER	%BY WT.	EXPOSURE LIMIT (PPM;MG/M3)	
Phthalic Anhydride	85-44-9	95-100	ACGIH-TLV 1	6.1
			OSHA-PEL 2	12

NIOSH-REL 1 6

---------- SARA TITLE III SECTION 313 CHEMICALS ----------
(SEE SECTION VII FOR CAS NUMBERS AND PERCENTAGES)

Phthalic Anhydride

SECTION VIII - PERSONAL PROTECTION INFORMATION

EYE PROTECTION: Industrial safety glasses, minimum. As necessary to comply with 29 CFR 1910.133 and work area conditions: use side shields, goggles or face shield.

SKIN PROTECTION: Rubber gloves; rubber shoes and boots; coveralls and/or rubber apron. If product is molten, use thermal protection. Permeation/degradation values of chemical mixtures cannot be pedicted from pure components or chemical classes. Thus, these materials are normally best estimates based on available pure component data. Significant difference in chemical breakthrough time has been reported for generically similar gloves from different manufacturers (AIHA J.,48, 941-947 1987).

RESPIRATORY PROTECTION: If ventilation is inadequate to maintain personal inhalation exposures below TLV (PEL), use appropriate MSHA/NIOSH approved respiratory protection to comply with current 29 CFR 1910.134 and manufacturer's "Instructions" and "Warnings".

VENTILATION: Provide sufficient general/local exhaust ventilation in pattern/volume to control inhalation exposures below current exposure limits and areas below explosive dust concentrations.

SECTION IX - PERSONAL HANDLING INSTRUCTIONS

HANDLING: Avoid prolonged or repeated contact with skin or eyes. Do not use or handle until manufacturer's safety precautions have been read and understood.

STORAGE: Store in a cool, dry, well-ventilated area away from ignition sources.Store in a closed, properly labeled container. Protect from physical damage.

OTHER: DO NOT TAKE INTERNALLY. Not for use or storage in or around the home.

SECTION X - REACTIVITY DATA

CONDITIONS CONTRIBUTING TO INSTABILITY: none

INCOMPATIBILITY: Avoid oxidizing agents (i.e. copper oxide, nitric acid, sodium nitrite), acids, alkalis, water (forms phthalic acid); explosive when heated under condensed conditions in presence of thermally unstable iron salts of maleic or phthalic acids and iron sulfides.

HAZARDOUS REACTIONS/DECOMPOSITION/COMBUSTION PRODUCTS: Oxides of carbon

CONDITIONS CONTRIBUTING TO HAZARDOUS POLYMERIZATION: none

SECTION XI - PHYSICAL DATA

BOILING POINT:	285C/545F sublimes	SPECIFIC GRAVITY:	1.53 lbs/gal
MELTING POINT:	131 C (268 F)	% VOLATILE BY VOL:	NA
VAPOR PRESSURE:	<.05mm Hg @ 20C	EVAPORATION RATE(ETHER=1):	NA
VAPOR DENSITY(AIR=1):	6.6 Air=1	VISCOSITY:	NA
SOLUBILITY: (WATER)	6200ppm@77F/25C	pH:	acidic

VOC: ND

COEFFICIENT OF WATER/OIL DISTRIBUTION: ND

APPEARANCE/ODOR: White, choking acrid solid (or molten)

SECTION XII - TRANSPORT INFORMATION

--------- PRODUCT PACKAGED IN TANK CAR ---------

RQ ELEVATED TEMPERATURE LIQUID, N.O.S.
(PHTHALIC ANHYDRIDE)
CLASS 9 UN3257 PG III
PHTHALIC ANHYDRIDE
PLACARDED: CLASS 9

--------- PRODUCT PACKAGED IN TANK TRUCK ---------

RQ ELEVATED TEMPERATURE LIQUID, N.O.S.
(PHTHALIC ANHYDRIDE)
CLASS 9 UN3257 PG III
PHTHALIC ANHYDRIDE
PLACARDED: CLASS 9

--------- PRODUCT PACKAGED IN BAG (55 LBS) ---------

NR
PHTHALIC ANHYDRIDE

--------- PRODUCT PACKAGED IN BAG (2000 LBS-SHORT TON) ---------

NR
PHTHALIC ANHYDRIDE

--------- PRODUCT PACKAGED IN BAG (1000 LBS) ---------

NR
PHTHALIC ANHYDRIDE

--------- PRODUCT PACKAGED IN BAG (2204 LBS - METRIC TON) ---------

NR
PHTHALIC ANHYDRIDE

--------- PRODUCT PACKAGED IN BAG (2204 LBS - METRIC TON) ---------

NR
PHTHALIC ANHYDRIDE

SECTION XIII - COMMENTS

PRODUCT USE: Used industrially in plasticizers, polyester resins and alkyd resins, manufacture of dye intermediates, food preservatives, pharmaceuticals, insect repellants, perfume fixatives.

Long-term, high-dose feeding studies (approx. 1.5g/kg/day) in mice have lead to signs of inflammation in the lungs, kidney and bile duct. This treatment with phthalic anhydride also lead to changes in the thalamus and adrenal glands (National Toxicology Program Bioassay of phthalic anhydride for possible carcinogenicity, 1979).

No known ingredients which occur at greater than 0.1% are listed as a carcinogen in the IARC Monographs on the Evaluation of the Carcinogenic Risk of Chemicals to Humans, the NTP Annual Report on Carcinogens or OSHA 29 CFR 1910.1001-1047 subpart Z Toxic and Hazardous Substances (Specifically Regulated Substances).

Do not use until manufacturer's precautions have been read/understood. Wash exposed areas promptly and thoroughly after skin contact from working with this product and before eating, drinking, using tobacco products or rest rooms.

Prepared By: Safety and Health Department

REVISION DATE: 04/02
SPECIFICATION SHEET NUMBER: TP-1274-3
SUPPLIER INFORMATION: Same as manufacturer.

CODE NUMBER: IND00278AP0201
REPLACES SHEET: IND00278NO0100

NOTICE: While the information and recommendations set forth herein are believed to be accurate as of the date hereof, Koppers Industries makes no warranty with respect thereto and disclaims all liability from reliance thereon.

KOPPERS

Material Safety Data Sheet

MATERIAL SAFETY DATA SHEET

K O P P E R S

MEDICAL EMERGENCIES: 1 800 553-5631
OUTSIDE U.S.A.: 412 227-2001
GENERAL INFORMATION: 412 227-2424

KOPPERS INDUSTRIES, INC.
436 SEVENTH AVENUE
PITTSBURGH, PA. 15219-1800

CHEMTREC ASSISTANCE 1 800 424-9300
CANUTEC: 1 613 996-6666

SECTION I - PRODUCT IDENTIFICATION

PRODUCT NAME: Refined Chemical Oil

SYNONYM: None

PRODUCT USE: Manufacture of naphthalene, tar acids and tar base

CHEMICAL FAMILY: Aromatic hydrocarbon

FORMULA: Mixture

CAS NUMBER: 65996-82-9

NFPA 704M/HMIS RATING: 3/3 HEALTH 2/2 FLAMMABILITY 1/1 REACTIVITY
0 = Least 1 = Slight 2 = Moderate 3 = High 4 = Extreme

CANADIAN PRODUCT CLASSIFICATION: Class B, Division 3 Combustible Liquid; Class D, Division 2, Subdivision A Very Toxic Material

SECTION II - HEALTH/SAFETY ALERT

CHRONIC OVEREXPOSURE (as defined by OSHA recommended standards)
MAY CAUSE CANCER
DANGER
COMBUSTIBLE LIQUID AND VAPOR
CORROSIVE TO THE EYES
CAUSES SEVERE BURNS
HARMFUL IF INHALED
MAY BE FATAL IF ABSORBED THROUGH SKIN
MAY BE FATAL IF SWALLOWED

AVOID PROLONGED AND/OR REPEATED CONTACT INCLUDING VAPORS
THIS PRODUCT CONTAINS A CHEMICAL KNOWN TO THE STATE OF CALIFORNIA
CALIFORNIA TO CAUSE CANCER.
OBSERVE GOOD HYGIENE AND SAFETY PRACTICES WHEN HANDLING THIS PRODUCT
DO NOT USE THIS PRODUCT UNTIL MSDS HAS BEEN READ AND UNDERSTOOD

SECTION III - HEALTH HAZARD INFORMATION

EYE: Direct contact may produce severe irritation. Vapors may be moderately irritating.

SKIN: Direct contact can produce severe burns. Material can be absorbed through skin producing systemic toxicity and possibly death. See Section XIII for additional information.

INHALATION: May produce airway irritation, excitation, dizziness, loss of coordination, cardiovascular collapse and death. Chronic overexposure may lead to leukemia.

INGESTION: Small amounts of dilute solutions may produce irritation, bleeding and collapse. Ingestion of several ounces of undiluted material may be fatal.

SECTION IV - EMERGENCY AND FIRST AID PROCEDURES

EYE CONTACT: Immediately flush with large amounts of water for 15 minutes. Seek medical aid.

SKIN CONTACT: Immediately flush area with large amounts of water. Remove contaminated clothing. Immediately seek medical aid.

INHALATION: Remove from exposure. If breathing has stopped or is difficult, administer artificial respiration or oxygen as indicated. Seek medical aid.

INGESTION: Do not induce vomiting. Give 1 to 2 glasses of milk. Immediately seek medical aid. DO NOT ATTEMPT TO GIVE ANYTHING BY MOUTH TO AN UNCONSCIOUS PERSON.

NOTE TO PHYSICIAN: Individuals with erythrocytic glucose-6-phosphate dehydrogenase deficiency may be particularly susceptible to possible hemolytic effects. There is no specific antidote for this product. Treatment should be directed at minimizing corrosive damage to the gastrointestinal tract. See Section XIII.

SECTION V - FIRE AND EXPLOSION HAZARD INFORMATION

FLASH POINT & METHOD: 74 C (165 F) CC AUTOIGNITION TEMP: ND

FLAMMABLE LIMITS (% BY VOLUME/AIR): LOWER: ND UPPER: ND

TDG FLAMMABILITY CLASSIFICATION: None

EXTINGUISHING MEDIA: Use dry chemical, carbon dioxide, foam or water spray.

FIRE-FIGHTING PROCEDURES: Wear complete fire service protective equipment, including full-face MSHA/NIOSH approved self-contained breathing apparatus. Use water to cool fire-exposed container/structure/protect personnel. Toxic vapors may be given off in a fire.

FIRE AND EXPLOSION HAZARDS: When heated (fire conditions), vapors/decomposition products may be released forming flammable/explosive mixtures in air. Closed containers may explode when exposed to extreme heat(fire). Avoid direct contact between water spray or foam and molten product. Addition of small amts. of water will cause violent foaming/explosion.

SENSITIVITY TO MECHANICAL IMPACT: ND

SENSITIVITY TO STATIC DISCHARGE: ND

SECTION VI - SPILL, LEAK AND DISPOSAL INFORMATION

SPILL OR LEAK PROCEDURES (PRODUCT): Stop leak if no risk involved. Stay upwind. Solidified spills: Shovel into dry containers and cover. Small wet spills: Take up with sand or other noncombustible absorbent material. Flush area with water. Dike large spills for later disposal. Contain runoff from fire control and dilution water. This product released into the environment must be reported to the National Response Center (1 800-424-8802). This product is a mixture of hazardous substances. When this product is spilled or leaked, the CERCLA reportable quantity is 19 gals / 167 lbs

---------- DOT REPORTABLE QUANTITIES ----------

100 pounds Naphthalene
100 pounds Acenaphthene

WASTE DISPOSAL: This product is a US EPA defined corrosive hazardous waste. Dispose of as a corrosive hazardous waste in accordance with local, state and federal regulations.

SECTION VII - RECOMMENDED EXPOSURE LIMIT/HAZARDOUS INGREDIENTS

EXPOSURE LIMIT (PRODUCT):
***OSHA Action Level - 0.5 ppm 8-hr. TWA
+ Coal Tar Pitch Volatiles

HAZARDOUS INGREDIENTS	CAS NUMBER	%BY WT.	EXPOSURE LIMIT (PPM;MG/M3)

Benzene	71-43-2	0.38	OSHA-TWA	1	
			OSHA-STEL	5	***
Pyridine	110-86-1	0.05	OSHA-TWA	5	15
Toluene	108-88-3	0.57	OSHA-TWA	200	
			OSHA-STEL	500	
Ethylbenzene	100-41-4	0.12	OSHA-TWA	100	435
M&P Xylene 108-38-3 & 106-42-3	mixture	0.52	OSHA-TWA	100	435
Styrene	100-42-5	0.21	OSHA-TWA	100	
			OSHA-STEL	600	
O-Xylene	95-47-6	0.15	OSHA-TWA	100	435
Phenol	108-95-2	0.25	OSHA-TWA	5	19*
Benzofuran	271-89-6	0.83	None		
Indene	95-43-6	4.06	None		
Naphthalene	91-20-3	59.95	OSHA-TWA	10	50
Quinoline	91-22-5	1.14	None		
2 Methylnaphthalene	91-57-6	5.99	None		
1 Methylnaphthalene	90-12-0	2.32	None		
Acenaphthylene	208-96-8	1.33	None		
Acenaphthene	83-32-9	5.40	None		
Dibenzofuran	132-64-9	3.21	None		
Fluorene	86-73-7	4.06	None		
Phenanthrene	85-01-8	6.52	OSHA-TWA		0.2+
Anthracene	120-12-7	1.83	OSHA-TWA		0.2+
Fluoranthene	206-44-0	2.18	None		
Pyrene	129-00-0	1.55	OSHA-TWA		0.2+
Benzo(a)anthracene	56-55-3	0.3	None		
Chrysene	218-01-9	0.27	OSHA-TWA		0.2+
Benzo(a)pyrene	50-32-8	0.04	OSHA-TWA		0.2+
Benzo(b)fluoranthene	205-99-2	0.05	None		
Benzo(j)fluoranthene	205-82-3	0.04	None		
Benzo(k)fluoranthene	207-08-9	0.04	None		

---------- SARA TITLE III SECTION 313 CHEMICALS ----------
(SEE SECTION VII FOR CAS NUMBERS AND PERCENTAGES)

Benzene	Dibenzofuran
Pyridine	Phenanthrene
Toluene	Anthracene
Ethylbenzene	Fluoranthene
M&P Xylene	Benzo(a)anthracene
Styrene	Chrysene
O Xylene	Benzo(b)fluoranthene
Phenol	Benzo(a)pyrene
Naphthalene	Quinoline
Benzo(j)fluoranthene	Benzo(k)fluoranthene

SECTION VIII - PERSONAL PROTECTION INFORMATION

EYE PROTECTION: Industrial safety glasses, minimum. As necessary to comply with 29 CFR 1910.133 and work area conditions: use side shields, goggles or face shield.

SKIN PROTECTION: As required, industrial resistant flexible-type gloves. Depending on working conditions, i.e., contact potential, wear impervious

protective garments such as head/neck cover, aprons, jackets, pants, coveralls, boots, etc. See Section XIII - Comments for additional information on skin protection recommendation.

RESPIRATORY PROTECTION: Not required under normal use conditions. If ventilation does not maintain inhalation exposures below TLV(PEL), use MSHA/NIOSH approved units as per current 29 CFR1910.134 and manufacturers' "Instructions" and "Warnings". Combination filter/organic vapor cartridges or canister may be used.

VENTILATION: Provide sufficient general/local exhaust ventilation in pattern/volume to control inhalation exposures below current exposure limits and areas below flammable vapor concentrations. Local exhaust is necessary for use in enclosed or confined spaces. See OSHA 29 CFR 1910.146 Permit Required Confined Space.

SECTION IX - PERSONAL HANDLING INSTRUCTIONS

HANDLING: Avoid prolonged or repeated breathing of vapors, mists or fumes. Avoid prolonged or repeated contact with skin or eyes. Observe good personal hygiene practices and recommended procedures. Avoid skin and eye contact with molten material. Handle and use in accordance with OSHA 29CFR1910.106/local codes.

STORAGE: Store in areas/buildings designed to comply with OSHA 1910.106. Keep in a closed, labeled container within a cool (well shaded), dry ventilated area. Protect from physical damage. Keep containers closed when material is not in use. Maintain good housekeeping.

OTHER: Not for use or storage in or around the home. DO NOT TAKE INTERNALLY. Do not use until manufacturer's precautions have been read/understood. Wash exposed areas promptly and thoroughly after skin contact and before eating, drinking, using tobacco products or rest rooms.

SECTION X - REACTIVITY DATA

CONDITIONS CONTRIBUTING TO INSTABILITY: none

INCOMPATIBILITY: Avoid contact with strong oxidizing agents

HAZARDOUS REACTIONS/DECOMPOSITION/COMBUSTION PRODUCTS: oxides of carbon

CONDITIONS CONTRIBUTING TO HAZARDOUS POLYMERIZATION: none

SECTION XI - PHYSICAL DATA

BOILING POINT:	102-300C/212-572F	SPECIFIC GRAVITY:	1.04 @ 15.5/15.5C
MELTING POINT:	~55 C (~131 F)	% VOLATILE BY VOL:	ND

VAPOR PRESSURE: 0.27-0.97 mmHg@70FEVAPORATION RATE(ETHER=1): <1(butyl ace

VAPOR DENSITY(AIR=1): ND VISCOSITY: 2.1-3.1cP@70F

SOLUBILITY: (WATER) negligible pH: acidic

VOC: NA

COEFFICIENT OF WATER/OIL DISTRIBUTION: negligible water*

APPEARANCE/ODOR: Black liquid with coal tar odor
*solubility

SECTION XII - TRANSPORT INFORMATION

--------- PRODUCT PACKAGED IN BARGE ---------

RQ CORROSIVE LIQUID, ACIDIC, ORGANIC, N.O.S.
(CONTAINS NAPHTHALENE, ACENAPHTHALENE)
CLASS 8 UN3265 PG III
.
CRUDE COAL TAR OIL
PLACARDED: CORROSIVE

--------- PRODUCT PACKAGED IN TANK CAR ---------

RQ CORROSIVE LIQUID, ACIDIC, ORGANIC, N.O.S.
(CONTAINS NAPHTHALENE, ACENAPHTHALENE)
CLASS 8 UN3265 PG III
.
CRUDE COAL TAR OIL
PLACARDED: CORROSIVE

--------- PRODUCT PACKAGED IN TANK TRUCK ---------

RQ CORROSIVE LIQUID, ACIDIC, ORGANIC, N.O.S.
(CONTAINS NAPHTHALENE, ACENAPHTHALENE)
CLASS 8 UN3265 PG III
.
CRUDE COAL TAR OIL
PLACARDED: CORROSIVE

SECTION XIII - COMMENTS

Individuals with pre-existing disease in, or a history of ailments involving the central nervous system, blood-forming organs, bleeding abnormalities, liver kidneys or eyes may be at a greater risk of adverse health effects when exposed to this material.

This product contains benzene. The IARC monographs (Vol. 29) state that there is sufficient evidence for the carcinogenicity in humans and limited

evidence for the carcinogenicity in animals. Benzene is also listed in the NTP Annual Report on Carcinogens, and in the OSHA Subpart Z table (Specifically regulated substances).

TOXICOLOGICALLY SYNERGISTIC PRODUCTS: Antimalarials, sulfonanide drugs.

INGESTION: If quantity ingested is 1 mg/kg or greater, careful gastric lavage may be indicated, being careful to avoid aspiration.

May be absorbed through the skin including mucous membranes and eye either by airborne mist, or more particularly, by direct contact. Skin contact should be avoided. To the extent necessary, the use of gloves, coveralls, goggles or other appropriate personal protective equipment, engineering controls or work practices should be utilized to prevent or reduce skin absorption.

No known ingredients which occur at greater than 0.1%, other than those listed above, are listed as a carcinogen in the IARC Monographs on the Evaluation of the Carcinogenic Risk of Chemicals to Humans, the NTP Annual Report on Carcinogens or OSHA 29 CFR 1910.1001-1047 subpart Z Toxic and Hazardous Substances (Specifically Regulated Substances).

SKIN PROTECTION (protective material): Permeation/degradation values of chemical mixtures cannot be predicted from pure components or chemical classes. Thus, these materials are normally best estimates based on available pure component data. A significant difference in chemical breakthrough time has been reported for generically similar gloves from different manufacturers (AIHA J., 48, 941-947 1987).

Do not use until manufacturer's precautions have been read/understood. Wash exposed areas promptly and thoroughly after skin contact from working with this product and before eating, drinking, using tobacco products or rest rooms.

Prepared By: Safety and Health Department

REVISION DATE: 05/01
SPECIFICATION SHEET NUMBER: 6/80 MSDS
SUPPLIER INFORMATION: Same as manufacturer.

CODE NUMBER: IND00031MY0131
REPLACES SHEET: IND00031MY0130

NOTICE: While the information and recommendations set forth herein are believed to be accurate as of the date hereof, Koppers Industries makes no warranty with respect thereto and disclaims all liability from reliance thereon.

Koppers016516

1995, using the procedures of part 173, appendix A, in effect on September 30, 1995 (see 49 CFR part 173, appendix A, revised as of October 1, 1994) for appropriate exposure times may be used for classification and assignment of packing group for Class 8 materials corrosive to skin.

§173.137 Class 8—Assignment of packing group. The packing group of Class 8 material is indicated in column 5 of the §172.101 table. When the §172.101 table provides more than one packing group for a Class 8 material, the packing group must be determined using data obtained from tests conducted in accordance with the 1992 OECD Guideline for Testing of Chemicals, Number 404 "Acute Dermal Irritation/Corrosion" as follows:

(a) Packing Group I. Materials that cause full thickness destruction of intact skin tissue within an observation period of up to 60 minutes starting after the exposure time of three minutes or less.

(b) Packing Group II. Materials other than those meeting Packing Group I criteria that cause full thickness destruction of intact skin tissue within an observation period of up to 14 days starting after the exposure time of more than three minutes but not more than 60 minutes.

(c) Packing Group III. Materials, other than those meeting Packing Group I or II criteria—

(1) That cause full thickness destruction of intact skin tissue within an observation period of up to 14 days starting after the exposure time of more than 60 minutes but not more than 4 hours; or

(2) That do not cause full thickness destruction of intact skin tissue but exhibit a corrosion rate on steel or aluminum surfaces exceeding 6.25 mm (0.25 inch) a year at a test temperature of 55°C (130°F). For the purpose of testing steel P3 (ISO 9328-1) or a similiar type, and for testing aluminum, non-clad types 7075-T6 or AZ5GU-T6 should be used. An acceptable test is described in ASTM G 31-72 (Reapproved 1995).

§173.140 Class 9—Definitions. For the purposes of this subchapter, *miscellaneous hazardous material* (Class 9) means a material which presents a hazard during transportation but which does not meet the definition of any other hazard class. This class includes:

(a) Any material which has an anesthetic, noxious or other similar property which could cause extreme annoyance or discomfort to a flight crew member so as to prevent the correct performance of assigned duties; or

(b) Any material that meets the definition in §171.8 of this subchapter for an elevated temperature material, a hazardous substance, a hazardous waste, or a marine pollutant.

§173.141 Class 9—Assignment of packing group. The packing group of a Class 9 material is as indicated in column 5 of the §172.101 table.

§173.144 Other Regulated Materials (ORM)—Definitions. For the purpose of this subchapter, "ORM-D material" means a material such as a consumer commodity, which, although otherwise subject to the regulations of this subchapter, presents a limited hazard during transportation due to its form, quantity and packaging. It must be a material for which exceptions are provided in the §172.101 table. Each ORM-D material and category of ORM-D material is listed in the §172.101 table.

§173.145 Other Regulated Materials—Assignment of packing group. Packing groups are not assigned to ORM-D materials.

§173.150 Exceptions for Class 3 (flammable) and combustible liquids. (a) General. Exceptions for hazardous materials shipments in the following paragraphs are permitted only if this section is referenced for the specific hazardous material in the §172.101 table of this subchapter and the material does not meet the definition of another hazard class except Division 6.1, Packing Group III or Class 8, Packing Group III.

(b) Limited quantities. Limited quantities of flammable liquids (Class 3) and combustible liquids are excepted from labeling requirements, unless offered for transportation or transported by aircraft, and the specification packaging requirements of this subchapter when packaged in combination packagings according to this paragraph. In addition, shipments of limited quantities are not subject to subpart F (Placarding) of part 172 of this subchapter. Each package must conform to the packaging requirements of subpart B of this part and may not exceed 30 kg (66 pounds) gross weight. The following combination packagings are authorized:

(1) For flammable liquids in Packing Group I, inner packagings not over 0.5 L (0.1 gallon) net capacity each, packed in strong outer packagings;

(2) For flammable liquids in Packing Group II, inner packagings not over 1.0 L (0.3 gallon) net capacity each, packed in strong outer packaging; and

(3) For flammable liquids in Packing Group III and combustible liquids, inner packagings not over 5.0 L (1.3 gallons) net capacity each, packed in strong outer packagings.

(c) Consumer commodities. A limited quantity which conforms to the provisions of paragraph (b) of this section and is a "consumer commodity" as defined in §171.8 of this subchapter, may be renamed "Consumer commodity" and reclassed as ORM-D material. In addition to the exceptions provided by paragraph (b) of this section, shipments of ORM-D materials are not subject to the shipping paper requirements of subpart C of part 172 of this subchapter, unless the material meets the definition of a hazardous substance, hazardous waste, marine pollutant, or are offered for transportation and transported by aircraft, and are eligible for the exceptions provided in §173.156.

(d) Alcoholic beverages. An alcholic beverage (wine and distilled spirits as defined in 27 CFR 4.10 and 5.11) is not subject to the requirements of this subchapter if it—

(1) Contains 24 percent or less alcohol by volume;

(2) Is in an inner packaging of five L (1.3 gallons) or less, and for transportation on passenger-carrying aircraft conforms to §175.10(a)(17) of this subchapter as checked or carry-on baggage; or

(3) Is a Packaging Group III alcoholic beverage in a packaging of 250 L (66 gallons) or less, unless transported by air.

(e) Aqueous solutions of alcohol. An aqueous solution containing 24 percent or less alcohol by volume and no other hazardous material—

(1) May be reclassed as a combustible liquid. ★

(2) Is not subject to the requirements of this subchapter if it contains no less than 50 percent water.

(f) Combustible liquids. (1) A flammable liquid with a flash point at or above 38°C (100°F) that does not meet the definition of any other hazard class may be reclassed as a combustible liquid. This provision does not apply to transportation by vessel or aircraft, except where other means of transportation is impracticable.

(2) The requirements in this subchapter do not apply to a material classed as a combustible liquid in a non-bulk packaging unless the combustible liquid is a hazardous substance, a hazardous waste, or a marine pollutant.

(3) A combustible liquid that is in a bulk packaging or a combustible liquid that is a hazardous substance, a hazardous waste, or a marine pollutant is not subject to the requirements of this subchapter except those pertaining to:

(i) Shipping papers, waybills, switching orders, and hazardous waste manifests;
(ii) Marking of packages;
(iii) Display of identification numbers on bulk packages;
(iv) For bulk packagings only, placarding requirements of subpart F of part 172 of this subchapter;
(v) Carriage aboard aircraft and vessels (for packaging requirements for transport by vessel, see §176.340 of this subchapter);
(vi) Reporting incidents as prescribed by §§171.15 and 171.16 of this subchapter;
(vii) Packaging requirements of subpart B of this part and, in addition, non-bulk packagings must conform with requirements of §173.203; and
(viii) The requirements of §§173.1, 173.21, 173.24, 173.24a, 173.24b, 174.1, 177.804, 177.817, 177.834(j), and 177.837(d) of this subchapter.

(4) A combustible liquid that is not a hazardous substance, a hazardous waste, or a marine pollutant is not subject to the requirements of this subchapter if it is a mixture of one or more components that—

(i) Has a flash point at or above 93°C (200°F),
(ii) Comprises at least 99 percent of the volume of the mixture, and
(iii) Is not offered for transportation or transported as a liquid at a temperature at or above its flash point.

§173.151 Exceptions for Class 4. (a) General. Exceptions for

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hazardous materials shipments in the following paragraphs are permitted only if this section is referenced for the specific hazardous material in the §172.101 table of this subchapter.

(b) Limited quantities of Division 4.1 flammable solids. Limited quantities of flammable solids (Division 4.1) in Packing Groups II and III are excepted from labeling, unless offered for transportation or transported by aircraft, and the specification packaging requirements of this subchapter when packaged in combination packagings according to this paragraph. In addition, shipments of limited quantities are not subject to subpart F (Placarding) of part 172 of this subchapter. Each package must conform to the packaging requirements of subpart B of this part and may not exceed 30 kg (66 pounds) gross weight. The following combination packagings are authorized:

(1) For flammable solids in Packing Group II, inner packagings not over 1.0 kg (2.2 pounds) net capacity each, packed in strong outer packagings; and

(2) For flammable solids in Packing Group III, inner packagings not over 5.0 kg (11 pounds) net capacity each, packed in strong outer packagings.

(c) Consumer commodities. A limited quantity which conforms to the provisions of paragraph (b) of this section, and charcoal briquettes in packagings not exceeding 30 kg (66 pounds) gross weight, may be renamed "Consumer commodity" and reclassed as ORM-D material, if the material is a "consumer commodity" as defined in §171.8 of this subchapter. In addition to the exceptions provided by paragraph (b) of this section, shipments are not subject to the shipping paper requirements of subpart C of part 172 of this subchapter, unless the material meets the definition of a hazardous substance, a hazardous waste, or a marine pollutant or unless offered for transportation or transported by aircraft, and are eligible for the exceptions provided in §173.156.

(d) Limited quantities of Division 4.3 (dangerous when wet) material. Limited quantities of Division 4.3 (dangerous when wet) solids in Packing Groups II and III are excepted from labeling, unless offered for transportation or transported by aircraft, and the specification packaging requirements of this subchapter when packaged in combination packagings according to this paragraph. In addition, shipments of limited quantities are not subject to subpart F (Placarding) of part 172 of this subchapter. Each package must conform to the packaging requirements of subpart B of this part and may not exceed 30 kg (66 pounds) gross weight. The following combination packagings are authorized:

(1) For Division 4.3 solids in Packing Group II, inner packagings not over 0.5 kg (1.1 pound) net capacity each, packed in strong outer packagings; and

(2) For Division 4.3 solids in Packing Group III, inner packagings not over 1 kg (2.2 pounds) net capacity each, packed in strong outer packagings.

§173.152 Exceptions for Division 5.1 (oxidizers) and Division 5.2 (organic peroxides). (a) General. Exceptions for hazardous materials shipments in the following paragraphs are permitted only if this section is referenced for the specific hazardous material in the §172.101 table of this subchapter.

(b) Limited quantities. Limited quantities of oxidizers (Division 5.1) in Packing Groups II and III and organic peroxides (Division 5.2) are excepted from labeling, unless offered or intended for transportation by aircraft, and the specification packaging requirements of this subchapter when packaged in combination packagings according to this paragraph. In addition, shipments of these limited quantities are not subject to subpart F of part 172 (Placarding) of this subchapter. Each package must conform to the packaging requirements of subpart B of this part and may not exceed 30 kg (66 pounds) gross weight. The following combination packagings are authorized:

(1) For oxidizers in Packing Group II, inner packagings not over 1.0 L (0.3 gallon) net capacity each for liquids or not over 1.0 kg (2.2 pounds) net capacity each for solids, packed in strong outer packagings.

(2) For oxidizers in Packing Group III, inner packagings not over 4.0 L (1 gallon) net capacity each for liquids or not over 5.0 kg (11 pounds) net capacity each for solids, packed in strong outer packagings.

(3) For organic peroxides which do not require temperature control during transportation—

(i) For Type D, E, or F organic peroxides, inner packagings not over 125 mL (4.22 ounces) net capacity each for liquids or 500 g (17.64 ounces) net capacity for solids, packed in strong outer packagings.

(ii) For Type B or C organic peroxides, inner packagings not over 25 mL (0.845 ounces) net capacity each for liquids or 100 g (3.528 ounces) net capacity for solids, packed in strong outer packagings.

(4) For polyester resin kits consisting of a base material component (Class 3, Packing Group II or III) and an activator component (Type C, D, E, or F organic peroxide which does not require temperature control)—

(i) The organic peroxide component must be packed in inner packagings not over 125 mL (4.22 ounces) net capacity each for liquids or 500 g (17.64 ounces) net capacity each for solids;

(ii) The flammable liquid component must be packed in inner packagings not over 1.0 L (0.3 gallons) net capacity each for Packing Group II liquids or 5.0 L (1.3 gallons) net capacity each for Packing Group III liquids; and

(iii) The flammable liquid component and the organic peroxide component may be packed in the same strong outer packaging provided they will not interact dangerously in the event of leakage.

(c) Consumer commodities. A limited quantity which conforms to the provisions of paragraph (b) of this section and is a "consumer commodity" as defined in §171.8 of this subchapter, may be renamed "Consumer commodity" and reclassed as ORM-D material. In addition to the exceptions provided by paragraph (b) of this section, shipments are not subject to the shipping paper requirements of subpart C of part 172 of this subchapter, unless the material meets the definition of a hazardous substance, a hazardous waste, or a marine pollutant or unless offered for transportation or transported by aircraft, and are eligible for the exceptions provided in §173.156.

§173.153 Exceptions for Division 6.1 (poisonous materials).

(a) General. Exceptions for hazardous materials shipments in the following paragraphs are permitted only if this section is referenced for the specific hazardous material in the §172.101 table of this subchapter.

(b) Limited quantities of Division 6.1 materials. Limited quantities of poisonous materials (Division 6.1) in Packing Group III are excepted from the specification packaging requirements of this subchapter when packaged in combination packagings according to this paragraph. In addition, shipments of these limited quantities are not subject to subpart F of part 172 (Placarding) of this subchapter. Each package must conform to the packaging requirements of subpart B of this part and may not exceed 30 kg (66 pounds) gross weight. The following combination packagings are authorized:

(1) For poisonous liquids, inner packagings not over 4.0 L (1 gallon) net capacity each, packed in strong outer packagings; and

(2) For poisonous solids, inner packagings not over 5.0 kg (11 pounds) net capacity each, packed in strong outer packagings.

(c) Consumer commodities. The following provisions apply to consumer commodities:

(1) A limited quantity which conforms to the provisions of paragraph (b) of this section and is a "consumer commodity" as defined in §171.8 of this subchapter, may be renamed "Consumer commodity" and reclassed as ORM-D material.

(2) A poisonous material which is a drug or medicine and is a "consumer commodity" as defined in §171.8 of this subchapter, may be renamed "Consumer commodity" and reclassed as ORM-D material if packaged in a combination packaging not exceeding 30 kg (66 pounds) with inner packagings not over 250 mL (8 ounces) net capacity for liquids or 250 g (8.8 ounces) net capacity for solids packed in strong outer packagings. Each package must conform to the packaging requirements of subpart B of this part.

(3) Packages of ORM-D material are excepted from the specification packaging requirements of this subchapter and from the labeling requirements of subpart E of part 172 of this subchapter. Shipments of ORM-D material are eligible for the exceptions provided in §173.156 and in paragraph (b) of this section and are not subject to the shipping paper requirements of subpart C of part 172 of this subchapter, unless the material meets the definition of a hazardous substance, a hazardous waste, or a marine pollutant or unless offered for transportation or transported by aircraft.

§173.154 Exceptions for Class 8 (corrosive materials).

(a) General. Exceptions for hazardous materials shipments in the

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following paragraphs are permitted only if this section is referenced for the specific hazardous material in the §172.101 table of this subchapter.

(b) Limited quantities. Limited quantities of corrosive materials (Class 8) in Packing Groups II and III are excepted from labeling, unless offered or intended for transportation by aircraft, and the specification packaging requirements of this subchapter when packaged in combination packagings according to this paragraph. In addition, shipments of these limited quantities are not subject to subpart F (Placarding) of part 172 of this subchapter. Each package must conform to the packaging requirements of subpart B of this part and may not exceed 30 kg (66 pounds) gross weight. The following combination packagings are authorized:

(1) For corrosive materials in Packing Group II, in inner packagings not over 1.0 L (0.3 gallon) net capacity each for liquids or not over 1.0 kg (2.2 pounds) net capacity each for solids, packed in strong outer packagings.

(2) For corrosive materials in Packing Group III, in inner packagings not over 4.0 L (1 gallon) net capacity each for liquids or not over 5.0 kg (11 pounds) net capacity each for solids, packed in strong outer packagings.

(c) Consumer commodities. A limited quantity which conforms to the provisions of paragraph (b) of this section and is a "consumer commodity" as defined in §171.8 of this subchapter may be renamed "Consumer commodity" and reclassed as ORM-D material. In addition to the exceptions provided by paragraph (b) of this section, shipments of ORM-D materials are not subject to the shipping paper requirements of subpart C of part 172 of this subchapter, unless the material meets the definition of a hazardous substance, a hazardous waste, or a marine pollutant or unless offered or intended for transportation by aircraft, and are eligible for the exceptions provided in §173.156.

(d) Materials corrosive to aluminum or steel only. Except for a hazardous substance, a hazardous waste, or a marine pollutant, a material classed as a Class 8, Packing Group III, material solely because of its corrosive effect—

(1) On aluminum is not subject to any other requirements of this subchapter when transported by motor vehicle or rail car in a packaging constructed of materials that will not react dangerously with or be degraded by the corrosive material; or

(2) On steel is not subject to any other requirements of this subchapter when transported by motor vehicle or rail car in a bulk packaging constructed of materials that will not react dangerously with or be degraded by the corrosive material.

§173.155 Exceptions for Class 9 (miscellaneous hazardous materials). (a) General. Exceptions for hazardous materials shipments in the following paragraphs are permitted only if this section is referenced for the specific hazardous material in the §172.101 table of this subchapter.

(b) Limited quantities. Limited quantities of miscellaneous hazardous materials (Class 9) are excepted from labeling, unless offered or intended for transportation by aircraft, and the specification packaging requirements of this subchapter when packaged in combination packagings according to this paragraph. In addition, shipments of these limited quantities are not subject to subpart F (Placarding) of part 172 of this subchapter. Each package must conform to the packaging requirements of subpart B of this part and may not exceed 30 kg (66 pounds) gross weight. The following combination packagings are authorized:

(1) For liquids, inner packagings not over 5.0 L (1.3 gallons) net capacity each, packed in strong outer packagings.

(2) For solids, inner packagings not over 5.0 kg (11 pounds) net capacity each, packed in strong outer packagings.

(c) Consumer commodities. A limited quantity which conforms to the provisions of paragraph (b) of this section and is a "consumer commodity" as defined in §171.8 of this subchapter, may be renamed "Consumer commodity" and reclassed as ORM-D material. In addition to the exceptions provided by paragraph (b) of this section, shipments of ORM-D materials are not subject to the shipping paper requirements of subpart C of part 172 of this subchapter, unless the material meets the definition of a hazardous substance, a hazardous waste, or a marine pollutant or unless offered for transportation or transported by aircraft, and are eligible for the exceptions provided in §173.156.

§173.156 Exceptions for ORM materials. (a) Exceptions for hazardous materials shipments in the following paragraphs are permitted only if this section is referenced for the specific hazardous material in the §172.101 table or in a packaging section in this part.

(b) ORM-D. Packagings for ORM-D materials are specified according to hazard class in §§173.150 through 173.155 and in §173.306. In addition to other exceptions specified for ORM-D materials in this part:

(1) Strong outer packagings as specified in this part, marking requirements specified in subpart D of part 172 of this subchapter, and the 30 kg (66 pounds) gross weight limitation are not required for materials classed as ORM-D when—

(i) Unitized in cages, carts, boxes or similar overpacks;

(ii) Offered for transportation or transported by:
  (A) Rail;
  (B) Private or contract motor carrier; or
  (C) Common carrier in a vehicle under exclusive use for such service; and

(iii) Transported to or from a manufacturer, a distribution center, or a retail outlet, or transported to a disposal facility from one offeror.

(2) The 30 kg (66 pounds) gross weight limitation does not apply to materials classed as ORM-D when offered for transportation, or transported, by highway or rail between a manufacturer, a distribution center, and a retail outlet provided—

(i) Inner packagings conform to the quantity limits for inner packagings specified in §§173.150(b), 173.152(b), 173.154(b), 173.155(b) and 173.306(a) and (b), as appropriate;

(ii) The inner packagings are packed into corrugated fiberboard trays to prevent them from moving freely;

(iii) The trays are placed in a fiberboard box which is banded and secured to a wooden pallet by metal, fabric, or plastic straps, to form a single palletized unit;

(iv) The package conforms to the general packaging requirements of subpart B of this part;

(v) The maximum net quantity of hazardous material permitted on one palletized unit is 250 kg (550 pounds); and

(vi) The package is properly marked in accordance with §172.316 of this subchapter.

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and to the requirements of the special provisions of column 7 of the §172.101 table.

(b) The following combination packagings are authorized:

Outer packagings:
Steel drum: 1A1 or 1A2
Aluminum drum: 1B1 or 1B2
Metal drum other than steel or aluminum: 1N1 or 1N2
Plywood drum: 1D
Fiber drum: 1G
Plastic drum: 1H1 or 1H2
Steel jerrican: 3A1 or 3A2
Plastic jerrican: 3H1 or 3H2
Aluminum jerrican: 3B1 or 3B2
Steel box: 4A
Aluminum box: 4B
Natural wood box: 4C1 or 4C2
Plywood box: 4D
Reconstituted wood box: 4F
Fiberboard box: 4G
Expanded plastic box: 4H1
Solid plastic box: 4H2

Inner packagings:
Glass or earthenware receptacles
Plastic receptacles
Metal receptacles
Glass ampoules

(c) Except for transportation by passenger aircraft, the following single packagings are authorized:

Steel drum: 1A1 or 1A2
Aluminum drum: 1B1 or 1B2
Metal drum other than steel, or aluminum: 1N1 or 1N2
Plastic drum: 1H1 or 1H2
Steel jerrican: 3A1 or 3A2
Plastic jerrican: 3H1 or 3H2
Aluminum jerrican: 3B1 or 3B2
Plastic receptacle in steel, aluminum, fiber or plastic drum: 6HA1, 6HB1, 6HG1, 6HH1
Plastic receptacle in steel, aluminum, wooden, plywood or fiberboard box: 6HA2, 6HB2, 6HC, 6HD2 or 6HG2
Glass, porcelain or stoneware in steel, aluminum or fiber drum: 6PA1, 6PB1 or 6PG1
Glass, porcelain or stoneware in steel, aluminum, wooden or fiberboard box: 6PA2, 6PB2, 6PC or 6PG2
Glass, porcelain or stoneware in solid or expanded plastic packaging: 6PH1 or 6PH2
Cylinders, specification, as prescribed for any compressed gas, except for Specifications 8 and 3HT

§173.202 Non-bulk packagings for liquid hazardous materials in Packing Group II. **(a)** When §172.101 of this subchapter specifies that a liquid hazardous material be packaged under this section, only non-bulk packagings prescribed in this section may be used for its transportation. Each packaging must conform to the general packaging requirements of subpart B of part 173, to the requirements of part 178 of this subchapter at the Packing Group I or II performance level (unless otherwise excepted), and to the particular requirements of the special provisions of column 7 of the §172.101 table.

(b) The following combination packagings are authorized:

Outer packagings:
Steel drum: 1A1 or 1A2
Aluminum drum: 1B1 or 1B2
Metal drum other than steel or aluminum: 1N1 or 1N2
Plywood drum: 1D
Fiber drum: 1G
Plastic drum: 1H1 or 1H2
Wooden barrel: 2C2
Steel jerrican: 3A1 or 3A2
Plastic jerrican: 3H1 or 3H2
Aluminum jerrican: 3B1 or 3B2
Steel box: 4A
Aluminum box: 4B
Natural wood box: 4C1 or 4C2
Plywood box: 4D
Reconstituted wood box: 4F
Fiberboard box: 4G
Expanded plastic box: 4H1
Solid plastic box: 4H2

Inner packagings:
Glass or earthenware receptacles
Plastic receptacles
Metal receptacles
Glass ampoules

(c) Except for transportation by passenger aircraft, the following single packagings are authorized:

Steel drum: 1A1 or 1A2
Aluminum drum: 1B1 or 1B2
Metal drum other than steel or aluminum: 1N1 or 1N2
Plastic drum: 1H1 or 1H2
Fiber drum: 1G (with liner)
Wooden barrel: 2C1
Steel jerrican: 3A1 or 3A2
Plastic jerrican: 3H1 or 3H2
Aluminum jerrican: 3B1 or 3B2
Plastic receptacle in steel, aluminum, fiber or plastic drum: 6HA1, 6HB1, 6HG1 or 6HH1
Plastic receptacle in steel, aluminum, wooden, plywood or fiberboard box: 6HA2, 6HB2, 6HC, 6HD2 or 6HG2
Glass, porcelain or stoneware in steel, aluminum or fiber drum: 6PA1, 6PB1 or 6PG1
Glass, porcelain or stoneware in steel, aluminum, wooden or fiberboard box: 6PA2, 6PB2, 6PC or 6PG2
Glass, porcelain or stoneware in solid or expanded plastic packaging: 6PH1 or 6PH2
Plastic receptacle in plywood drum: 6HD1
Glass, porcelain or stoneware in plywood drum or wickerwork hamper: 6PD1 or 6PD2
Cylinders, specification, as prescribed for any compressed gas, except for Specifications 8 and 3HT

§173.203 Non-bulk packagings for liquid hazardous materials in Packing Group III. **(a)** When §172.101 of this subchapter specifies that a liquid hazardous material be packaged under this section, only non-bulk packagings prescribed in this section may be used for its transportation. Each packaging must conform to the general packaging requirements of subpart B of part 173, to the requirements of part 178 of this subchapter at the Packing Group I, II or III performance level, and to the requirements of the special provisions of column 7 of the §172.101 table.

(b) The following combination packagings are authorized:

Outer packagings:
Steel drum: 1A1 or 1A2
Aluminum drum: 1B1 or 1B2
Metal drum other than steel or aluminum: 1N1 or 1N2
Plywood drum: 1D
Fiber drum: 1G
Plastic drum: 1H1 or 1H2
Wooden barrel: 2C2
Steel jerrican: 3A1 or 3A2
Plastic jerrican: 3H1 or 3H2
Aluminum jerrican: 3B1 or 3B2
Steel box: 4A
Aluminum box: 4B
Natural wood box: 4C1 or 4C2
Plywood box: 4D
Reconstituted wood box: 4F
Fiberboard box: 4G
Expanded plastic box: 4H1
Solid plastic box: 4H2

Inner packagings:
Glass or earthenware receptacles
Plastic receptacles
Metal receptacles
Glass ampoules

(c) The following single packagings are authorized:

Steel drum: 1A1 or 1A2
Aluminum drum: 1B1 or 1B2
Metal drum other than steel or aluminum: 1N1
Plastic drum: 1H1 or 1H2
Fiber drum: 1G (with liner)

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Wooden barrel: 2C1
Steel jerrican: 3A1 or 3A2
Plastic jerrican: 3H1 or 3H2
Aluminum jerrican: 3B1 or 3B2
Plastic receptacle in steel, aluminum, fiber or plastic drum: 6HA1, 6HB1, 6HG1 or 6HH1
Plastic receptacle in steel, aluminum, wooden, plywood or fiberboard box: 6HA2, 6HB2, 6HC, 6HD2 or 6HG2
Glass, porcelain or stoneware in steel, aluminum or fiber drum: 6PA1, 6PB1 or 6PG1
Glass, porcelain or stoneware in steel, aluminum, wooden or fiberboard box: 6PA2, 6PB2, 6PC or 6PG2
Glass, porcelain or stoneware in solid or expanded plastic packaging: 6PH1 or 6PH2
Plastic receptacle in plywood drum: 6HD1
Glass, porcelain or stoneware in plywood drum or wickerwork hamper: 6PD1 or 6PD2
Cylinders, as prescribed for any compressed gas, except for Specifications 8 and 3HT

§173.204 Non-bulk, non-specification packagings for certain hazardous materials. When §172.101 of this subchapter specifies that a liquid or solid hazardous material be packaged under this section, any appropriate non-bulk packaging which conforms to the general packaging requirements of subpart B of part 173 may be used for its transportation. Packagings need not conform to the requirements of part 178 of this subchapter.

§173.205 Specification cylinders for liquid hazardous materials. When §172.101 of this subchapter specifies that a hazardous material be packaged under this section, any specification cylinder, except those specified for acetylene, is authorized. Cylinders used for poisonous materials (Division 6.1 or 2.3) must conform to the requirements of §173.40.

§173.211 Non-bulk packagings for solid hazardous materials in Packing Group I. **(a)** When §172.101 of this subchapter specifies that a solid hazardous material be packaged under this section, only non-bulk packagings prescribed in this section may be used for its transportation. Each package must conform to the general packaging requirements of subpart B of part 173, to the requirements of part 178 of this subchapter at the Packing Group I performance level, and to the requirements of the special provisions of column 7 of the §172.101 table.

(b) The following combination packagings are authorized:

Outer packagings:
Steel drum: 1A1 or 1A2
Aluminum drum: 1B1 or 1B2
Metal drum other than steel or aluminum: 1N1 or 1N2
Plywood drum: 1D
Fiber drum: 1G
Plastic drum: 1H1 or 1H2
Wooden barrel: 2C2
Steel jerrican: 3A1 or 3A2
Plastic jerrican: 3H1 or 3H2
Aluminum jerrican: 3B1 or 3B2
Steel box: 4A
Aluminum box: 4B
Natural wood box: 4C1 or 4C2
Plywood box: 4D
Reconstituted wood box: 4F
Fiberboard box: 4G
Solid plastic box: 4H2

Inner packagings:
Glass or earthenware receptacles
Plastic receptacles
Metal receptacles
Glass ampoules

(c) Except for transportation by passenger aircraft, the following single packagings are authorized:

Steel drum: 1A1 or 1A2
Aluminum drum: 1B1 or 1B2
Metal drum other than steel or aluminum: 1N1 or 1N2
Plastic drum: 1H1 or 1H2
Fiber drum: 1G
Steel jerrican: 3A1 or 3A2
Plastic jerrican: 3H1 or 3H2
Aluminum jerrican: 3B1 or 3B2
Steel box with liner: 4A
Aluminum box with liner: 4B
Natural wood box, sift proof: 4C2
Plastic receptacle in steel, aluminum, plywood, fiber or plastic drum: 6HA1, 6HB1, 6HD1, 6HG1 or 6HH1
Plastic receptacle in steel, aluminum, wooden, plywood or fiberboard box: 6HA2, 6HB2, 6HC, 6HD2 or 6HG2
Glass, porcelain or stoneware in steel, aluminum, plywood or fiber drum: 6PA1, 6PB1, 6PD1 or 6PG1
Glass, porcelain or stoneware in steel, aluminum, wooden or fiberboard box: 6PA2, 6PB2, 6PC, or 6PG2
Glass, porcelain or stoneware in expanded or solid plastic packaging: 6PH1 or 6PH2

§173.212 Non-bulk packagings for solid hazardous materials in Packing Group II. **(a)** When §172.101 of this subchapter specifies that a solid hazardous material be packaged under this section, only non-bulk packagings prescribed in this section may be used for its transportation. Each package must conform to the general packaging requirements of subpart B of part 173, to the requirements of part 178 of this subchapter at the Packing Group I or II performance level, and to the requirements of the special provisions of column 7 of the §172.101 table.

(b) The following combination packagings are authorized:

Outer packagings:
Steel drum: 1A1 or 1A2
Aluminum drum: 1B1 or 1B2
Metal drum other than steel or aluminum: 1N1 or 1N2
Plywood drum: 1D
Fiber drum: 1G
Plastic drum: 1H1 or 1H2
Wooden barrel: 2C2
Steel jerrican: 3A1 or 3A2
Plastic jerrican: 3H1 or 3H2
Aluminum jerrican: 3B1 or 3B2
Steel box: 4A
Aluminum box: 4B
Natural wood box: 4C1 or 4C2
Plywood box: 4D
Reconstituted wood box: 4F
Fiberboard box: 4G
Solid plastic box: 4H2

Inner packagings:
Glass or earthenware receptacles
Plastic receptacles
Metal receptacles
Glass ampoules

(c) Except for transportation by passenger aircraft, the following single packagings are authorized:

Steel drum: 1A1 or 1A2
Aluminum drum: 1B1 or 1B2
Plywood drum: 1D
Plastic drum: 1H1 or 1H2
Fiber drum: 1G
Metal drum other than steel or aluminum: 1N1 or 1N2
Wooden barrel: 2C1 or 2C2
Steel jerrican: 3A1 or 3A2
Plastic jerrican: 3H1 or 3H2
Aluminum jerrican: 3B1 or 3B2
Steel box: 4A
Steel box with liner: 4A
Aluminum box: 4B
Aluminum box with liner: 4B
Natural wood box: 4C1
Natural wood box, sift proof: 4C2
Plywood box: 4D
Reconstituted wood box: 4F
Fiberboard box: 4G
Expanded plastic box: 4H1
Solid plastic box: 4H2
Bag, woven plastic: 5H1, 5H2 or 5H3

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Bag, plastic film: 5H4
Bag, textile: 5L1, 5L2 or 5L3
Bag, paper, multiwall, water resistant: 5M2
Plastic receptacle in steel, aluminum, plywood, fiber or plastic drum: 6HA1, 6HB1, 6HD1, 6HG1 or 6HH1
Plastic receptacle in steel aluminum, wood, plywood or fiberboard box: 6HA2, 6HB2, 6HC, 6HD2 or 6HG2
Glass, porcelain or stoneware in steel, aluminum, plywood or fiber drum: 6PA1, 6PB1, 6PD1 or 6PG1
Glass, porcelain or stoneware in steel, aluminum, wooden or fiberboard box: 6PA2, 6PB2, 6PC or 6PG2
Glass, porcelain or stoneware in expanded or solid plastic packaging: 6PH1 or 6PH2

§173.213 Non-bulk packagings for solid hazardous materials in Packing Group III. **(a)** When §172.101 of this subchapter specifies that a solid hazardous material be packaged under this section, only non-bulk packagings prescribed in this section may be used for its transportation. Each package must conform to the general packaging requirements of subpart B of part 173, to the requirements of part 178 of this subchapter at the Packing Group I, II or III performance level, and to the requirements of the special provisions of column 7 of the §172.101 table.

(b) The following combination packagings are authorized:

Outer packagings:
Steel drum: 1A1 or 1A2
Aluminum drum: 1B1 or 1B2
Metal drum other than steel or aluminum: 1N1 or 1N2
Plywood drum: 1D
Fiber drum: 1G
Plastic drum: 1H1 or 1H2
Wooden barrel: 2C2
Steel jerrican: 3A1 or 3A2
Plastic jerrican: 3H1 or 3H2
Aluminum jerrican: 3B1 or 3B2
Steel box: 4A
Aluminum box: 4B
Natural wood box: 4C1 or 4C2
Plywood box: 4D
Reconstituted wood box: 4F
Fiberboard box: 4G
Solid plastic box: 4H2

Inner packagings:
Glass or earthenware receptacles
Plastic receptacles
Metal receptacles
Glass ampoules

(c) The following single packagings are authorized:

Steel drum: 1A1 or 1A2
Aluminum drum: 1B1 or 1B2
Plywood drum: 1D
Fiber drum: 1G
Plastic drum: 1H1 or 1H2
Metal drum other than steel or aluminum: 1N1 or 1N2
Wooden barrel: 2C1 or 2C2
Steel jerrican: 3A1 or 3A2
Plastic jerrican: 3H1 or 3H2
Aluminum jerrican: 3B1 or 3B2
Steel box with liner: 4A
Steel box: 4A
Aluminum box with liner: 4B
Natural wood box: 4C1
Natural wood box, sift proof: 4C2
Plywood box: 4D
Reconstituted wood box: 4F
Fiberboard box: 4G
Expanded plastic box: 4H1
Solid plastic box: 4H2
Bag, woven plastic: 5H1, 5H2 or 5H3
Bag, plastic film: 5H4
Bag, textile: 5L1, 5L2 or 5L3
Bag, paper, multiwall, water resistant: 5M2
Plastic receptacle in steel, aluminum, plywood, fiber or plastic drum: 6HA1, 6HB1, 6HD1, 6HG1 or 6HH1
Plastic receptacle in steel, aluminum, wooden, plywood or fiberboard box: 6HA2, 6HB2, 6HC, 6HD2 or 6HG2
Glass, porcelain or stoneware in steel, aluminum, plywood or fiber drum: 6PA1, 6PB1, 6PD1 or 6PG1
Glass, porcelain or stoneware in steel, aluminum, wooden or fiberboard box: 6PA2, 6PB2, 6PC or 6PG2
Glass, porcelain or stoneware in expanded or solid plastic packaging: 6PH1 or 6PH2

§173.214 Packagings which require approval by the Associate Administrator for Hazardous Materials Safety. When §172.101 of this subchapter specifies that a hazardous material be packaged under this section, packagings and method of shipment must be approved by the Associate Administrator for Hazardous Materials Safety prior to the first shipment.

§173.216 Asbestos, blue, brown or white. **(a)** Asbestos, blue, brown or white, includes each of the following hydrated mineral silicates: chrysolite, crocidolite, amosite, anthophyllite asbestos, tremolite asbestos, actinolite asbestos, and every product containing any of these materials.

(b) Asbestos which is immersed or fixed in a natural or artificial binder material (such as cement, plastic, asphalt, resins or mineral ore), and manufactured products containing asbestos are not subject to the requirements of this subchapter.

(c) Packagings for asbestos must conform to the general packaging requirements of subpart B of this part but need not conform to the requirements of part 178 of this subchapter. Asbestos must be offered for transportation and transported in—

(1) Rigid, leaktight packagings, such as metal, plastic or fiber drums, portable tanks, hopper-type rail cars, or hopper-type motor vehicles;

(2) Bags or other non-rigid packagings in closed freight containers, motor vehicles, or rail cars that are loaded by and for the exclusive use of the consignor and unloaded by the consignee;

(3) Bags or other non-rigid packagings which are dust and siftproof. When transported by other than private carrier by highway, such packagings containing asbestos must be palletized and unitized by methods such as shrink-wrapping in plastic film or wrapping in fiberboard secured by strapping. Pallets need not be used during transportation by vessel for loads with slings that are unitized by methods such as shrink-wrapping, if the slings adequately and evenly support the loads and the unitizing method prevents shifting of the bags or other non-rigid packagings during conditions normally incident to transportation; or

(4) Bags or other non-rigid packagings which are dust and siftproof in strong outside fiberboard or wooden boxes.

§173.217 Carbon dioxide, solid (dry ice). **(a)** Carbon dioxide, solid (dry ice), when offered for transportation or transported by aircraft or water, must be packed in packagings designed and constructed to permit the release of carbon dioxide gas to prevent a build-up of pressure that could rupture the packagings. Packagings must conform to the general packaging requirements of subpart B of this part but need not conform to the requirements of part 178 of this subchapter. For each shipment by air exceeding 2.3 kg (5 lbs) per package, advance arrangements must be made between the shipper and each carrier.

(b) Railroad cars and motor vehicles containing solid carbon dioxide, when accepted for transportation on board ocean vessels, must be conspicuously marked on two sides "WARNING CO_2 SOLID (DRY ICE)."

(c) Other packagings containing solid carbon dioxide, when offered or accepted for transportation on board ocean vessels, must be marked "CARBON DIOXIDE, SOLID—DO NOT STOW BELOW DECKS."

(d) Not more than 200 kg (441 pounds) of solid carbon dioxide may be transported in any one cargo compartment or bin on any aircraft except by specific and special written arrangement between the shipper and the aircraft operator.

(e) Carbon dioxide, solid (dry ice) is excepted from the shipping paper and certification requirements of this subchapter if the requirements of paragraphs (a) and (d) of this section are complied with and the package is marked "Carbon dioxide, solid" or "Dry ice" and marked with an indication that the material being refrigerated is used for diagnostic or treatment purposes (e.g., frozen medical specimens).

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PUBLISHER'S NOTE

This Subpart lists the authorized bulk packaging for hazardous materials other than Class 1 (Explosives), Class 2 (Compressed Gases), and Class 7 (Radioactive Materials). The authorized bulk packaging for Class 1 is contained in Subpart C, Class 2 (Compressed Gases) in Subpart D, and Class 7 (Radioactive Materials) in Subpart H. Even though the title of this Subpart does not exclude Class 2 (Compressed Gases) there are no bulk packaging requirements in Subpart E for Class 2. These can be found in Subpart G.

Column (8C) of the Hazardous Materials Table (§172.101) lists the section in this Subpart identifying the authorized bulk packaging for a given hazardous material. In addition, column (7) may contain additional requirements applicable to the packaging. Any code listed in column (7) beginning with an B applies to a bulk packaging.

Subpart F

BULK PACKAGING FOR HAZARDOUS MATERIALS OTHER THAN CLASS 1 AND CLASS 7

§173.240 Bulk packaging for certain low hazard solid materials. When §172.101 of this subchapter specifies that a hazardous material be packaged under this section, only the following bulk packagings are authorized, subject to the requirements of subparts A and B of part 173 of this subchapter and the special provisions specified in column 7 of the §172.101 table.

(a) Rail cars: Class DOT 103, 104, 105, 109, 111, 112, 114, 115, or 120 tank car tanks; Class 106 or 110 multi-unit tank car tanks; and metal non-DOT specification, sift-proof tank car tanks and sift-proof closed cars.

(b) Motor vehicles: Specification MC 300, MC 301, MC 302, MC 303, MC 304, MC 305, MC 306, MC 307, MC 310, MC 311, MC 312, MC 330, MC 331, DOT 406, DOT 407, and DOT 412 cargo tank motor vehicles; non-DOT specification, sift-proof cargo tank motor vehicles; and sift-proof closed vehicles.

(c) Portable tanks and closed bulk bins. DOT 51, 56, 57 and 60 portable tanks; IMO type 1, 2 and 5, and IM 101 and IM 102 portable tanks; UN portable tanks; marine portable tanks conforming to 46 CFR part 64; and sift-proof non-DOT Specification portable tanks and closed bulk bins are authorized.

(d) IBCs. IBCs are authorized subject to the conditions and limitations of this section provided the IBC type is authorized according to the IBC packaging code specified for the specific hazardous material in Column (7) of the §172.101 Table of this subchapter and the IBC conforms to the requirements in subpart O of part 178 of this subchapter at the Packing Group performance level as specified in Column (5) of the §172.101 Table of this subchapter for the material being transported.

(1) IBCs may not be used for the following hazardous materials:
- (i) Packing Group I liquids; and
- (ii) Packing Group I solids that may become liquid during transportation.

(2) The following IBCs may not be used for Packing Group II and III solids that may become liquid during transportation:
- (i) Wooden: 11C, 11D and 11F;
- (ii) Fiberboard: 11G;
- (iii) Flexible: 13H1, 13H2, 13H3, 13H4, 13H5, 13L1, 13L2, 13L3, 13L4, 13M1 and 13M2; and
- (iv) Composite: 11HZ2 and 21HZ2.

§173.241 Bulk packagings for certain low hazard liquid and solid materials. When §172.101 of this subchapter specifies that a hazardous material be packaged under this section, only the following bulk packagings are authorized, subject to the requirements of subparts A and B of part 173 of this subchapter and the special provisions specified in column 7 of the §172.101 table.

(a) Rail cars: Class DOT 103, 104, 105, 109, 111, 112, 114, 115, 120 tank car tanks; Class 106 or 110 multi-unit tank car tanks and AAR Class 203W, 206W, and 211W tank car tanks.

(b) Cargo tanks: DOT specification MC 300, MC 301, MC 302, MC 303, MC 304, MC 305, MC 306, MC 307, MC 310, MC 311, MC 312, MC 330, MC 331, DOT 406, DOT 407, and DOT 412 cargo tank motor vehicles; and non-DOT specification cargo tank motor vehicles suitable for transport of liquids.

(c) Portable tanks: DOT Specification 51, 56, 57 and 60 portable tanks; IMO type 1, 2 and 5, and IM 101 and IM 102 portable tanks; UN portable tanks; marine portable tanks conforming to 46 CFR part 64; and non-DOT Specification portable tanks suitable for transport of liquids are authorized.

(d) IBCs. IBCs are authorized subject to the conditions and limitations of this section provided the IBC type is authorized according to the IBC packaging code specified for the specific hazardous material in Column (7) of the §172.101 Table of this subchapter and the IBC conforms to the requirements in subpart O of part 178 of this subchapter at the Packing Group performance level as specified in Column (5) of the §172.101 Table for the material being transported.

(1) IBCs may not be used for the following hazardous materials:
- (i) Packing Group I liquids; and
- (ii) Packing Group I solids that may become liquid during transportation.

(2) The following IBCs may not be used for Packing Group II and III solids that may become liquid during transportation:
- (i) Wooden: 11C, 11D and 11F;
- (ii) Fiberboard: 11G;
- (iii) Flexible: 13H1, 13H2, 13H3, 13H4, 13H5, 13L1, 13L2, 13L3, 13L4, 13M1 and 13M2; and
- (iv) Composite: 11HZ2 and 21HZ2.

§173.242 Bulk packagings for certain medium hazard liquids and solids, including solids with dual hazards. When §172.101 of this subchapter specifies that a hazardous material be packaged under this section, only the following bulk packagings are authorized, subject to the requirements of subparts A and B of part 173 of this subchapter and the special provisions specified in column 7 of the §172.101 table.

(a) Rail cars: Class DOT 103, 104, 105, 109, 111, 112, 114, 115, or 120 tank car tanks; Class 106 or 110 multi-unit tank car tanks and AAR Class 206W tank car tanks.

(b) Cargo tanks: Specification MC 300, MC 301, MC 302, MC 303, MC 304, MC 305, MC 306, MC 307, MC 310, MC 311, MC 312, MC 330, MC 331, DOT 406, DOT 407, and DOT 412 cargo tank motor vehicles. Cargo tanks used to transport Class 3, Packing Group I or II, or Packing Group III with a flash point of less than 38°C (100°F); Class 6, Packing Group I or II; and Class 8, Packing Group I or II materials must conform to the following special requirements:

(1) Pressure relief system: Except as provided by §173.33(d), each cargo tank must be equipped with a pressure relief system meeting the requirements of §178.346-3 or §178.347-4 of this subchapter. However, pressure relief devices on MC 310, MC 311 and MC 312 cargo tanks must meet the requirements for a Specification MC 307 cargo tank (except for Class 8, Packing Group I and II). Pressure relief devices on MC 330 and MC 331 cargo tanks must meet the requirement in §178.337-9 of this subchapter.

(2) Bottom outlets: DOT 406, DOT 407 and DOT 412 must be equipped with stop-valves meeting the requirements of §178.345-11 of this subchapter; MC 304, MC 307, MC 310, MC 311, and MC 312 cargo tanks must be equipped with stop-valves capable of being

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remotely closed within 30 seconds of actuation by manual or mechanic means and (except for Class 8, Packing Group I and II) by a closure activated at a temperature not over 121°C (250°F); MC 330 and MC 331 cargo tanks must be equipped with internal self-closing stop-valves meeting the requirements in §178.337-11 of this subchapter.

(c) Portable tanks: Specification 51, 56, 57 and 60 portable tanks; ★ Specification IM 101 and IM 102 and UN portable tanks when a T Code is specified in Column (7) of the §172.101 Hazardous Materials Table for a specific hazardous material; and marine portable tanks conforming to 46 CFR part 64 are authorized. DOT Specification 57 portable tanks used for the transport by vessel of Class 3, Packaging Group II materials must conform to the following:

(1) Minimum design pressure. Each tank must have a minimum design pressure of 62 kPa (9 psig);

(2) Pressure relief devices. Each tank must be equipped with at least one pressure relief device, such as a spring-loaded valve or fusible plug, conforming to the following:

(i) Each pressure relief device must communicate with the vapor space of the tank when the tank is in a normal transportation attitude. Shutoff valves may not be installed between the tank opening and any pressure relief device. Pressure relief devices must be mounted, shielded, or drained to prevent the accumulation of any material that could impair the operation or discharge capability of the device;

(ii) Frangible devices are not authorized;

(iii) No pressure relief device may open at less than 34.4 kPa (5 psig);

(iv) If a fusible device is used for relieving pressure, the device must have a minimum area of 1.25 square inches. The device must function at a temperature between 104°C. and 149°C. (220°F. and 300°F.) and at a pressure less than the design test pressure of the tank, unless this latter function is accomplished by a separate device; and

(v) No relief device may be used which would release flammable vapors under normal conditions of transportation (temperature up to and including 54°C. (130°F.).); and

(3) Venting capacity. The minimum venting capacity for pressure activated vents must be 6,000 cubic feet of free air per hour (measured at 101.3 kPa (14.7 psi) and 15.6°C. (60°F.)) at not more than 34.4 kPa (5 psi). The total emergency venting capacity (cu. ft./hr.) of each portable tank must be at least that determined from the following table:

Total surface area square feet[1,2]	Cubic feet free air per hour
20	15,800
30	23,700
40	31,600
50	39,500
60	47,400
70	55,300
80	63,300
90	71,200
100	79,100
120	94,900
140	110,700
160	126,500

[1]Interpolate for intermediate sizes.
[2]Surface area excludes area of legs.

(d) IBCs. IBCs are authorized subject to the conditions and limitations of this section provided the IBC type is authorized according to the IBC packaging code specified for the specific hazardous material in Column (7) of the §172.101 Table of this subchapter and the IBC conforms to the requirements in subpart O of part 178 of this subchapter at the Packing Group performance level as specified in Column (5) of the §172.101 Table of this subchapter for the material being transported.

(1) IBCs may not be used for the following hazardous materials:

(i) Packing Group I liquids; and

(ii) Packing Group I solids that may become liquid during transportation.

(2) The following IBCs may not be used for Packing Group II and III solids that may become liquid during transportation:

(i) Wooden: 11C, 11D and 11F;

(ii) Fiberboard: 11G;

(iii) Flexible: 13H1, 13H2, 13H3, 13H4, 13H5, 13L1, 13L2, 13L3, 13L4, 13M1 and 13M2; and

(iv) Composite: 11HZ2 and 21HZ2.

§173.243 Bulk packaging for certain high hazard liquids and dual hazard materials which pose a moderate hazard. When §172.101 of this subchapter specifies that a hazardous material be packaged under this section, only the following bulk packagings are authorized, subject to the requirements of subparts A and B of part 173 of this subchapter and the special provisions specified in column 7 of the §172.101 table.

(a) Rail cars: Class DOT 103, 104, 105, 109, 111, 112, 114, 115, or 120 fusion-welded tank car tanks; and Class 106 or 110 multi-unit tank car tanks.

(b) Cargo tanks: Specification MC 304, MC 307, MC 330, MC 331 cargo tank motor vehicles; and MC 310, MC 311, MC 312, DOT 407, and DOT 412 cargo tank motor vehicles with tank design pressure of at least 172.4 kPa (25 psig). Cargo tanks used to transport Class 3 or Division 6.1 materials, or Class 8, Packing Group I or II materials must conform to the following special requirements:

(1) Pressure relief system: Except as provided by §173.33(d), each cargo tank must be equipped with a pressure relief system meeting the requirements of §178.346-3 or §178.347-4 of this subchapter. However, pressure relief devices on MC 310, MC 311 and MC 312 cargo tanks must meet the requirements for a Specification MC 307 cargo tank (except for Class 8, Packing Group I and II). Pressure relief devices on MC 330 and MC 331 cargo tanks must meet the requirement in §178.337-9 of this subchapter.

(2) Bottom outlets: DOT 407 and DOT 412 cargo tanks must be equipped with stop-valves meeting the requirements of §178.345-11 of this subchapter; MC 304, MC 307, MC 310, MC 311, and MC 312 cargo tanks must be equipped with stop-valves capable of being remotely closed within 30 seconds of actuation by manual or mechanic means and (except for Class 8, Packing Group I and II) by a closure activated at a temperature not over 121°C (250°F); MC 330 and MC 331 cargo tanks must be equipped with internal self-closing stop-valves meeting the requirements in §178.337-11 of this subchapter.

(c) Portable tanks: DOT Specification 51 and 60 portable tanks; UN portable tanks and IM 101 and IM 102 portable tanks when a T code ★ is specified in Column (7) of the §172.101 Table of this subchapter for a specific hazardous material; and marine portable tanks conforming to 46 CFR part 64 with design pressure of at least 172.4 kPa (25 psig) are authorized.

(d) IBCs. IBCs are authorized subject to the conditions and limitations of this section provided the IBC type is authorized according to the IBC packaging code specified for the specific hazardous material in Column (7) of the §172.101 Table of this subchapter and the IBC conforms to the requirements in subpart O of part 178 of this subchapter at the Packing Group performance level as specified in Column (5) of the §172.101 Table of this subchapter for the material being transported.

(1) IBCs may not be used for the following hazardous materials:

(i) Packing Group I liquids; and

(ii) Packing Group I solids that may become liquid during transportation.

(2) The following IBCs may not be used for Packing Group II and III solids that may become liquid during transportation:

(i) Wooden: 11C, 11D and 11F;

(ii) Fiberboard: 11G;

(iii) Flexible: 13H1, 13H2, 13H3, 13H4, 13H5, 13L1, 13L2, 13L3, 13L4, 13M1 and 13M2; and

(iv) Composite: 11HZ2 and 21HZ2.

(e) A dual hazard material may be packaged in accordance with §173.242 if:

(1) The subsidiary hazard is Class 3 with a flash point greater than 38°C (100°F); or

(2) The subsidiary hazard is Division 6.1, Packing Group III; or

(3) The subsidiary hazard is Class 8, Packaging Group III.

§173.244 Bulk packaging for certain pyrophoric liquids (Division 4.2), dangerous when wet (Division 4.3) materials, and poisonous liquids with inhalation hazards (Division 6.1). When §172.101 of this subchapter specifies that a hazardous material be packaged under this section, only the following bulk packagings are authorized, subject to the requirements of subparts A and B of part 173 of this subchapter and the special provisions specified in column 7 of the §172.101 table.

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(a) Rail cars: Class DOT 105, 109, 112, 114, or 120 fusion-welded tank car tanks; and Class 106 or 110 multi-unit tank car tanks.

(b) Cargo tanks: Specifications MC 330 and MC 331 cargo tank motor vehicles and, except for Division 4.2 materials, MC 312 and DOT 412 cargo tank motor vehicles.

(c) Portable tanks: DOT 51 portable tanks.

§173.245 Bulk packaging for extremely hazardous materials such as poisonous gases (Division 2.3). When §172.101 of this subchapter specifies that a hazardous material be packaged under this section, only the following bulk packagings are authorized, subject to the requirements of subparts A and B of part 173 of this subchapter and the special provisions specified in column 7 of the §172.101 table.

(a) Tank car tanks and multi-unit tank car tanks, when approved by the Associate Administrator.

(b) Cargo tank motor vehicles and portable tanks, when approved by the Associate Administrator.

§173.247 Bulk packaging for certain elevated temperature materials. When §172.101 of this subchapter specifies that a hazardous material be packaged under this section, only the following bulk packagings are authorized, subject to the requirements of subparts A and B of part 173 of this subchapter and the special provisions in column 7 of the §172.101 table. On or after October 1, 1993, authorized packagings must meet all requirements in paragraph (g) of this section, unless otherwise excepted.

(a) Rail cars: Class DOT 103, 104, 105, 109, 111, 112, 114, 115, or 120 tank car tanks; Class DOT 106, 110 multi-unit tank car tanks; AAR Class 203W, 206W, 211W tank car tanks; and non-DOT specification tank car tanks equivalent in structural design and accident damage resistance to specification packagings.

(b) Cargo tanks: Specification MC 300, MC 301, MC 302, MC 303, MC 304, MC 305, MC 306, MC 307, MC 310, MC 311, MC 312, MC 330, MC 331 cargo tank motor vehicles; DOT 406, DOT 407, DOT 412 cargo tank motor vehicles; and non-DOT specification cargo tank motor vehicles equivalent in structural design and accident damage resistance to specification packagings. A non-DOT specification cargo tank motor vehicle constructed of carbon steel which is in elevated temperature material service is excepted from §178.345-7(d)(5) of this subchapter.

(c) Portable tanks. DOT Specification 51, 56, 57 and 60 portable tanks; IM 101 and IM 102 portable tanks; UN portable tanks; marine portable tanks conforming to 46 CFR part 64; metal IBCs and non-specification portable tanks equivalent in structural design and accident damage resistance to specification packagings are authorized.

(d) Crucibles: Nonspecification crucibles designed and constructed such that the stress in the packaging does not exceed one fourth (0.25) of the ultimate strength of the packaging material at any temperature within the design temperature range. Stress is determined under a load equal to the sum of the static or working pressure in combination with the loads developed from accelerations and decelerations incident to normal transportation. For highway transportation, these forces are assumed to be "1.7g" vertical, "0.75g" longitudinal, and "0.4g" transverse, in reference to the axes of the transport vehicle. Each accelerative or decelerative load may be considered separately.

(e) Kettles: A kettle, for the purpose of this section, is a bulk packaging (portable tank or cargo tank) having a capacity not greater than 5678 L (1500 gallons) with an integral heating apparatus used for melting various bituminous products such as asphalt. Kettles used for the transport of asphalt or bitumen are subject to the following requirements:

(1) Low stability kettles. Kettles with a ratio of track-width to fully loaded center of gravity (CG) height less than 2.5 must meet all requirements of paragraph (g) of this section (track-width is the distance measured between the outer edge of the kettle tires; CG height is measured perpendicular from the road surface).

(2) High stability kettles.

(i) Kettles with a total capacity of less than 2650 L (700 gallons) and a ratio of track-width to fully loaded CG height of 2.5 or more are excepted from all requirements of paragraph (g)(2) of this section and the rollover protection requirements of paragraph (g)(6) of this section, if closures meet the requirements of paragraph (e)(2)(iii) of this section.

(ii) Kettles with a total capacity of 2650 L (700 gallons) or more and a ratio of track-width to fully loaded CG height of 2.5 or more are excepted from the "substantially leak tight" requirements of paragraph (g)(2) of this section and the rollover protection requirements of paragraph (g)(6) of this section if closures meet the requirements of paragraph (e)(2)(iii) of this section.

(iii) Closures must be securely closed during transportation. Closures also must be designed to prevent opening and the expulsion of lading in a rollover accident.

(f) Other bulk packagings: Bulk packagings, other than those specified in paragraphs (a) through (e) of this section, which are used for the transport of elevated temperature materials, must conform to all requirements of paragraph (g) of this section on or after October 1, 1993.

(g) General requirements. Bulk packagings authorized or used for transport of elevated temperature materials must conform to the following requirements:

(1) Pressure and vacuum control equipment. When pressure or vacuum control equipment is required on a packaging authorized in this section, such equipment must be of a self-reclosing design, must prevent package rupture or collapse due to pressure, must prevent significant release of lading due to packaging overturn or splashing or surging during normal transport conditions, and may be external to the packaging.

(i) Pressure control equipment is not required if pressure in the packaging would increase less than 10 percent as a result of heating the lading from the lowest design operating temperature to a temperature likely to be encountered if the packaging were engulfed in a fire. When pressure control equipment is required, it must prevent rupture of the packaging from heating, including fire engulfment.

(ii) Vacuum control equipment is not required if the packaging is designed to withstand an external pressure of 100 kPa (14.5 psig) or if pressure in the packaging would decrease less than 10 percent as a result of the lading cooling from the highest design operating temperature to the lowest temperature incurred in transport. When vacuum control equipment is required, it must prevent collapse of the packaging from a cooling-induced pressure differential.

(iii) When the regulations require a reclosing pressure relief device, the lading must not render the devices inoperable (i.e. from clogging, freezing, or fouling). If the lading affects the proper operation of the device, the packaging must have:

(A) A safety relief device incorporating a frangible disc or a permanent opening, each having a maximum effective area of 22 cm^2 (3.4 $in.^2$), for transportation by highway;

(B) For transportation of asphalt by highway, a safety relief device incorporating a frangible disc or a permanent opening, each having a maximum effective area of 48 cm^2 (7.4 $in.^2$); or

(C) For transportation by rail, a non-reclosing pressure relief device incorporating a rupture disc conforming to the requirements of §179.15 of this subchapter.

(iv) Reclosing pressure relief devices, rupture discs or permanent openings must not allow the release of lading during normal transportation conditions (i.e., due to splashing or surging).

(2) Closures. All openings, except permanent vent openings authorized in paragraph (g)(1)(iii) of this section, must be securely closed during transportation. Packagings must be substantially leak-tight so as not to allow any more than dripping or trickling of a non-continuous flow when overturned. Closures must be designed and constructed to withstand, without exceeding the yield strength of the packaging, twice the static loading produced by the lading in any packaging orientation and at all operating temperatures.

(3) Strength. Each packaging must be designed and constructed to withstand, without exceeding the yield strength of the packaging, twice the static loading produced by the lading in any orientation and at all operating temperatures.

(4) Compatability. The packaging and lading must be compatible over the entire operating temperature range.

(5) Markings. In addition to any other markings required by this subchapter, each packaging must be durably marked in a place readily accessible for inspection in characters at least 4.8 mm ($^3/_{16}$ inch) with the manufacturer's name, date of manufacture, design temperature range, and maximum product weight (or "load limit" for tank cars) or volumetric capacity.

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(6) Accident damage protection. For transportation by highway, external loading and unloading valves and closures must be protected from impact damage resulting from collision or overturn. Spraying equipment and the road oil application portion of a packaging are excepted from this requirement.

(7) New construction. Specification packagings that are being manufactured for the transport of elevated temperature materials must be authorized for current construction.

(h) Exceptions. (1) General. Packagings manufactured for elevated temperature materials service prior to October 1, 1993, which are not in full compliance with the requirements in paragraph (g) of this section, may continue in service if they meet the applicable requirements of subparts A and B of this part and meet the closure requirements in paragraph (g)(2) of this section by March 30, 1995.

(2) Kettles. Kettles in service prior to October 1, 1993, which are used to transport asphalt or bitumen, are excepted from specific provisions of this section as follows:

(i) Kettles with a total capacity of less than 2650 L (700 gallons), which are not in full compliance with the requirements of paragraph (g) of this section, may continue in elevated temperature material service if they meet the applicable requirements of subparts A and B of this part and if, after March 30, 1995, closures are secured during transport to resist opening in an overturn.

(ii) Kettles with a total capacity of 2650 L (700 gallons) or more, which are not in full compliance with the requirements of paragraph (g) of this section, may continue in elevated temperature material service if they meet the applicable requirements of subparts A and B of this part and if, after March 30, 1995, closures are secured during transport to resist opening in an overturn and no opening exceeds 46 cm^2 (7.1 in^2).

(3) Molten metals and molten glass. This section does not apply to packagings used for transportation of molten metals and molten glass by rail when movement is restricted to operating speeds less than 15 miles per hour. (See §172.203(g)(3) of this subchapter for shipping paper requirements.)

(4) Solid elevated temperature materials. A material which meets the definition of a solid elevated temperature material is excepted from all requirements of this subchapter except §172.325 of this subchapter.

§173.249 Bromine. When §172.101 of this subchapter specifies that a hazardous material be packaged under this section, only the following bulk packagings are authorized, subject to the requirements of Subparts A and B of Part 173 of this subchapter and the special provisions specified in Column 7 of the §172.101 Table.

(a) Class DOT 105A300W or 105A500W tank cars. Class 105A500W tank cars may be equipped with manway cover plates, pressure relief valves, vent valves, and loading/unloading valves that are required on Class 105A300W tank cars. Tank cars must conform with paragraphs (d) through (f) of this section.

(b) Specification MC 310, MC 311, MC 312 or DOT 412 cargo tank motor vehicles conforming with paragraphs (d) through (f) of this section. The total quantity in one tank may not be less than 88 percent nor more than 96 percent of the volume of the tank. Cargo tanks in bromine service built prior to August 31, 1991 may continue in service under the requirements contained in §173.252(a)(4) of this part in effect on September 30, 1991.

(c) Specification IM 101 portable tanks conforming with paragraphs (d) through (f) of this section. The total quantity in one tank may not be less than 88 percent nor more than 92 percent of the volume of the tank.

(d) The tank must be made from nickel-clad or lead-lined steel plate. Nickel cladding or lead lining must be on the inside of the tank. Nickel cladding must comprise at least 20 percent of the required minimum total thickness. Nickel cladding must conform to ASTM Specification B 162-69. Lead lining must be at least 4.763 mm (0.188 inch) thick. All tank equipment and appurtenances in contact with the lading must be lined or made from metal not subject to deterioration by contact with lading.

(e) Maximum filling density is 300 percent of the tank's water capacity. Minimum filling density is 287 percent of the tank's water capacity. Maximum water capacity is 9,253 kg (20,400 pounds) for DOT 105A300W tank cars. Maximum quantity of lading in DOT 105A300W tank cars is 27,216 kg (60,000 pounds). Maximum water capacity is 16,964 kg (37,400 pounds) for DOT 105A500W tank cars and DOT 105A500W tank cars equipped as described in paragraph (a) of this section. Maximum quantity of lading in DOT 105A500W tank cars is 49,895 kg (110,000 pounds).

(f) Tank shell and head thickness for cargo tank motor vehicles and portable tanks must be at least 9.5 mm (0.375 inch) excluding lead lining.

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PUBLISHER'S NOTE

Unless exempted, each shipment of hazardous materials must be accompanied by a "shipping paper" that contains information outlined in this Subpart. The information required on the shipping paper must be easy to identify, legible and printed in English. Depending on who prepared the shipping paper, it is often referred to as "bills of lading," "shipping orders," "waybill," etc. For hazardous wastes the Hazardous Waste Manifest can sometimes be used as the shipping papers. No matter who prepared the shipping paper or what it is called, any document containing the required information can be used as a shipping paper. It must accompany the hazardous material at all times during transportation. During transportation the shipping papers must be located as outlined in the modal Parts, 174 through 177.

Subpart C

SHIPPING PAPERS

§172.200 Applicability. (a) Description of hazardous materials required. Except as otherwise provided in this subpart, each person who offers a hazardous material for transportation shall describe the hazardous material on the shipping paper in the manner required by this subpart.

(b) This subpart does not apply to any material, other than a hazardous substance, hazardous waste or marine pollutant, that is—

(1) Identified by the letter "A" in column 1 of the §172.101 table, except when the material is offered or intended for transportation by air; or

(2) Identified by the letter "W" in column 1 of the §172.101 table, except when the material is offered or intended for transportation by water; or

(3) An ORM–D, except when the material is offered or intended for transportation by air.

§172.201 Preparation and retention of shipping papers. (a) Contents. When a description of hazardous material is required to be included on a shipping paper, that description must conform to the following requirements:

(1) When a hazardous material and a material not subject to the requirements of this subchapter are described on the same shipping paper, the hazardous material description entries required by §172.202 and those additional entries that may be required by §172.203:

(i) Must be entered first, or

(ii) Must be entered in a color that clearly contrasts with any description on the shipping paper of a material not subject to the requirements of this subchapter, except that a description on a reproduction of a shipping paper may be highlighted, rather than printed, in a contrasting color (the provisions of this paragraph apply only to the basic description required by §172.202(a)(1) and (2), or (3), and (4)), or

(iii) Must be identified by the entry of an "X" placed before the proper shipping name in a column captioned "HM". (The "X" may be replaced by "RQ," if appropriate.)

(2) The required shipping description on a shipping paper and all copies thereof used for transportation purposes, must be legible and printed (manually or mechanically) in English.

(3) Unless it is specifically authorized or required in this subchapter, the required shipping description may not contain any code or abbreviation.

(4) A shipping paper may contain additional information concerning the material provided the information is not inconsistent with the required description. Unless otherwise permitted or required by this subpart, additional information must be placed after the basic description required by §172.202(a).

(b) [Reserved].

(c) Continuation page. A shipping paper may consist of more than one page, if each page is consecutively numbered and the first page bears a notation specifying the total number of pages included in the shipping paper. For example, "Page 1 of 4 pages."

(d) Emergency response telephone number. Except as provided in §172.604(c), a shipping paper must contain an emergency response telephone number, as prescribed in subpart G of this part.

(e) Each person who provides a shipping paper must retain a copy of the shipping paper required by §172.200(a), or an electronic image thereof, that is accessible at or through its principal place of business and must make the shipping paper available, upon request, ★ to an authorized official of a Federal, State, or local government agency at reasonable times and locations. For a hazardous waste, the shipping paper copy must be retained for three years after the material is accepted by the initial carrier. For all other hazardous materials, the shipping paper copy must be retained for 375 days after the material is accepted by the initial carrier. Each shipping paper copy must include the date of acceptance by the initial carrier, except that, for rail, vessel, or air shipments, the date on the shipment waybill, airbill, ★ or bill of lading may be used in place of the date of acceptance by the initial carrier. A motor carrier (as defined in §390.5 of Subchapter B of Chapter III of Subtitle B) that uses a shipping paper without change for multiple shipments of a single hazardous material (*i.e.*, one having the same shipping name and identification number) may retain a single copy of the shipping paper, instead of a copy for each shipment made, if the carrier also retains a record of each shipment made, to include shipping name, identification number, quantity transported, and date of shipment.

§172.202 Description of hazardous material on shipping papers. (a) The shipping description of a hazardous material on the shipping paper must include:

(1) The proper shipping name prescribed for the material in column 2 of the §172.101 table;

(2) The hazard class or division prescribed for the material as shown in column 3 of the §172.101 table (class names or subsidiary hazard class or division number may be entered following the numerical hazard class, or following the basic description). The hazard class need not be included for the entry "Combustible liquid, n.o.s.";

(3) The identification number prescribed for the material as shown in column 4 of the §172.101 table;

(4) The packing group, in Roman numerals, as designated for the hazardous material in Column 5 of the §172.101 Table. Class 1 (explosives) materials, self-reactive substances, organic peroxides and entries that are not assigned a packing group are excepted from this requirement. The packing group may be preceded by the letters "PG" (e.g., "PG II"); and

(5) Except for empty packagings (see §173.29 of this subchapter), cylinders for Class 2 (compressed gases) materials, and bulk packagings, the total quantity (by net or gross mass, capacity, or as otherwise appropriate), including the unit of measurement, of the hazardous material covered by the description (e.g., "800 lbs", "55 gal.", "3629 kg", or "208 L"). For cylinders for Class 2 (compressed gases) materials and bulk packagings, some indication of total quantity must be shown (e.g., "10 cylinders" or "1 cargo tank").

(b) Except as provided in this subpart, the basic description specified in paragraphs (a)(1), (2), (3) and (4) of this section must be shown in sequence with no additional information interspersed. For example: "Gasoline, 3, UN 1203, PG II".

(c) The total quantity of the material covered by one description must appear before or after, or both before and after, the description required and authorized by this subpart. The type of packaging and destination marks may be entered in any appropriate manner before

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or after the basic description. Abbreviations may be used to express units of measurement and types of packagings.

(d) Technical and chemical group names may be entered in parentheses between the proper shipping name and hazard class or following the basic description. An appropriate modifier, such as "contains" or "containing," and/or the percentage of the technical constituent may also be used. For example: "Flammable liquids, n.o.s. (contains Xylene and Benzene), 3, UN 1993, PG II".

(e) Except for those materials in the UN Recommendations, the ICAO Technical Instructions, or the IMDG Code, (see §171.7 of this subchapter), a material that is not a hazardous material according to this subchapter may not be offered for transportation or transported when its description on a shipping paper includes a hazard class or an identification number specified in the §172.101 Table.

§172.203 Additional description requirements. (a) Exemptions. Each shipping paper issued in connection with a shipment made under an exemption must bear the notation "DOT-E" followed by the exemption number assigned and so located that the notation is clearly associated with the description to which the exemption applies.

(b) Limited quantities. The description for a material offered for transportation as "limited quantity," as authorized by this subchapter, must include the words "Limited Quantity" or "Ltd Qty" following the basic description.

(c) Hazardous substances. (1) Except for Class 7 (radioactive) materials described in accordance with paragraph (d) of this section, if the proper shipping name for a material that is a hazardous substance does not identify the hazardous substance by name, the name of the hazardous substance must be entered in parentheses in association with the basic description. If the material contains two or more hazardous substances, at least two hazardous substances, including the two with the lowest reportable quantities (RQs), must be identified. For a hazardous waste, the waste code (e.g., D001), if appropriate, may be used to identify the hazardous substance.

(2) The letters "RQ" shall be entered on the shipping paper either before or after, the basic description required by §172.202 for each hazardous substance (see definition in §171.8 of this subchapter). For example: "RQ, Allyl alcohol, 6.1, UN 1098, I"; or "Environmentally hazardous substance, solid, n.o.s., 9, UN 3077, III, RQ (Adipic acid)".

(d) Radioactive material. The description for a shipment of a Class 7 (radioactive) material must include the following additional entries as appropriate:

(1) The words "RADIOACTIVE MATERIAL" unless these words are contained in the proper shipping name.

(2) The name of each radionuclide in the Class 7 (radioactive) material that is listed in §173.435 of this subchapter. For mixtures of radionuclides, the radionuclides that must be shown must be determined in accordance with §173.433(f) of this subchapter. Abbreviations, e.g., "^{99}Mo", are authorized.

(3) A description of the physical and chemical form of the material, if the material is not in special form (generic chemical description is acceptable for chemical form).

(4) The activity contained in each package of the shipment in terms of the appropriate SI units (e.g. Becquerel, Terabecquerel, etc.) or in terms of the appropriate SI units followed by the customary units (e.g. Curies, millicuries, etc.). Abbreviations are authorized. Except for plutonium-238, plutonium-239, and plutonium- 241, the weight in grams or kilograms of fissile radionuclides may be inserted instead of activity units. For plutonium-238, plutonium-239, and plutonium-241 the weight in grams or kilograms of fissile radionuclides may be inserted in addition to the activity units. For the shipment of a package containing a highway route controlled quantity of Class 7 (radioactive) materials (see §173.403 of this subchapter) the words "Highway route controlled quantity" must be entered in association with the basic description.

(5) The category of label applied to each package in the shipment. For example: "RADIOACTIVE WHITE-I."

(6) The transport index assigned to each package in the shipment bearing RADIOACTIVE YELLOW-II or RADIOACTIVE YELLOW-III labels.

(7) For a shipment of fissile Class 7 (radioactive) materials:

(i) The words "Fissile Excepted" if the package is excepted pursuant to §173.453 of this subchapter;

(ii) For a fissile material, controlled shipment, the additional notation: "Warning—Fissile material, controlled shipment. Do not load more than * * * packages per vehicle." (Asterisks to be replaced by appropriate number.) "In loading and storage areas, keep at least 6 m (20 feet) from other packages bearin radioactive labels"; and

(iii) If a fissile material, controlled shipment is to be transported by water, the supplementary notation must also include the following statement: "For shipment by water, only one fissile material, controlled shipment is permitted in each hold."

(8) For a package approved by the U.S. Department of Energy (DOE) or U.S. Nuclear Regulatory Commission (USNRC), a notation of the package identification marking as prescribed in the applicable DOE or USNRC approval. (See §173.471 of the subchapter.)

(9) For an export shipment or a shipment in a foreign made package, a notation of the package identification marking as prescribed in the applicable International Atomic Energy Agency (IAEA) Certificate of Competent Authority which has been issued for the package. (See §173.473 of the subchapter.)

(10) For a shipment required by this subchapter to be consigned as exclusive use:

(i) An indication that the shipment is consigned as exclusive use; or

(ii) If all the descriptions on the shipping paper are consigned as exclusive use, then the statement "Exclusive Use Shipment" may be entered only once on the shipping paper in a clearly visible location.

(11) For a shipment of low specific activity material or surface contaminated objects, the appropriate group notation of LSA-I, LSA-II, LSA-III, SCO-I, or SCO-II, unless the group notation is contained in the proper shipping name as described in the §172.101 Table.

(e) Empty packagings. (1) The description on the shipping paper for a packaging containing the residue of a hazardous material may include the words "RESIDUE: Last Contained * * *" in association with the basic description of the hazardous material last contained in the packaging.

(2) The description on the shipping paper for a tank car containing the residue of a hazardous material must include the phrase, "RESIDUE: LAST CONTAINED * * *" before the basic description.

(f) Transportation by air. When a package containing a hazardous material is offered for transportation by air and this subchapter prohibits its transportation aboard passenger-carrying aircraft, the words "Cargo aircraft only" must be entered after the basic description.

(g) Transportation by rail. (1) A shipping paper prepared by a rail carrier for a rail car, freight container, transport vehicle or portable tank that contains hazardous materials must include the reporting mark and number when displayed on the rail car, freight container, transport vehicle or portable tank.

(2) The shipping paper for each DOT-113 tank car containing a Division 2.1 material or its residue must contain an appropriate notation, such as "DOT 113", and the statement "Do not hump or cut off car while in motion."

(3) When shipments of elevated temperature materials are transported under the exception permitted in §173.247(h)(3) of this subchapter, the shipping paper must contain an appropriate notation, such as "Maximum operating speed 15 mph.".

(h) Transportation by highway. Following the basic description for a hazardous material in a Specification MC 330 or MC 331 cargo tank, there must be entered for—

(1) Anhydrous ammonia.

(i) The words "0.2 PERCENT WATER" to indicate the suitability for shipping anhydrous ammonia in a cargo tank made of quenched and tempered steel as authorized by §173.315(a), Note 14 of this subchapter, or

(ii) The words "NOT FOR Q AND T TANKS" when the anhydrous ammonia does not contain 0.2 percent or more water by weight.

(2) Liquefied petroleum gas.

(i) The word "NONCORROSIVE" or "NONCOR" to indicate the suitability for shipping "Noncorrosive" liquefied petroleum gas in a cargo tank made of quenched and tempered steel as authorized by §173.315(a), Note 15 of this subchapter, or

(ii) The words "NOT FOR Q and T TANKS" for grades of liquefied petroleum gas other than "Noncorrosive".

(i) Transportation by water. Each shipment by water must have the following additional shipping paper entries:

(1) Identification of the type of packagings such as barrels, drums, cylinders, and boxes.

(2) The number of each type of package including those in a freight container or on a pallet.

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(3) The gross mass of each type of package or the individual gross mass of each package.

(4) The name of the shipper.

(5) Minimum flash point if 61°C or below (in °C closed cup (c.c.) in association with the basic description.

(6) Subsidiary hazards not communicated in the proper shipping name shown either following the hazard class or division in parentheses, or in association with the basic description.

(j) [Reserved]

(k) Technical names for "n.o.s." and other generic descriptions. Unless otherwise excepted, if a material is described on a shipping paper by one of the proper shipping names identified by the letter "G" in column (1) of the §172.101 table, the technical name of the hazardous material must be entered in parentheses in association with ★ the basic description. For example "Corrosive liquid, n.o.s., (Octanol chloride), 8, UN 1760, II", or "Corrosive liquid, n.o.s., 8, UN 1760, II ★ (contains Octanol chloride)." The word "contains" may be used in association with the technical name, if appropriate. For organic peroxides which may qualify for more than one generic listing depending on concentration, the technical name must include the actual concentration being shipped or the concentration range for the appropriate generic listing. For example, "Organic peroxide type B, solid, 5.2, UN 3102 (dibenzoyl peroxide, 52–100%)" or "Organic peroxide type E, solid, 5.2, UN 3108, (dibenzoyl peroxide, paste, <52%)". Shipping descriptions for toxic materials that meet the criteria of Division 6.1, PG I or II (as specified in §173.132(a) of this subchapter) or Division 2.3 (as specified in §173.115(c) of this subchapter) and are identified by the letter "G" in column (1) of the §172.101 Table, must have the technical name of the toxic constituent entered in parentheses in association with the basic description.

(1) If a hazardous material is a mixture or solution of two or more hazardous materials, the technical names of at least two components most predominantly contributing to the hazards of the mixture or solution must be entered on the shipping paper as required by paragraph (k) of this section. For example, "Flammable liquid, corrosive, n.o.s., 3, UN 2924, II (contains Methanol, Potassium hydroxide)".

(2) The provisions of this paragraph do not apply—

(i) To a material that is a hazardous waste and described using the proper shipping name "Hazardous waste, liquid *or* solid, n.o.s.", classed as a miscellaneous Class 9, provided the EPA hazardous waste number is included on the shipping paper in association with the basic description, or provided the material is described in accordance with the provisions of §172.203(c) of this part.

(ii) To a material for which the hazard class is to be determined by testing under the criteria in §172.101(c)(11).

(iii) If the n.o.s. description for the material (other than a mixture of hazardous materials of different classes meeting the definitions of more than one hazard class) contains the name of the chemical element or group which is primarily responsible for the material being included in the hazard class indicated.

(iv) If the n.o.s. description for the material (which is a mixture of hazardous materials of different classes meeting the definition of more than one hazard class) contains the name of the chemical element or group responsible for the material meeting the definition of one of these classes. In such cases, only the technical name of the component that is not appropriately identified in the n.o.s. description shall be entered in parentheses.

(l) Marine pollutants. (1) If the proper shipping name for a material which is a marine pollutant does not identify by name the component which makes the material a marine pollutant, the name of that component must appear in parentheses in association with the basic description. Where two or more components which make a material a marine pollutant are present, the names of at least two of the components most predominantly contributing to the marine pollutant designation must appear in parentheses in association with the basic description.

(2) The words "Marine Pollutant" shall be entered in association with the basic description for a material which is a marine pollutant.

(3) Except for transportation by vessel, marine pollutants subject to the provisions of 49 CFR 130.11 are excepted from the requirements of paragraph (1) of this section if a phrase indicating the material is an oil is placed in association with the basic description.

(m) Poisonous materials. Notwithstanding the hazard class to which a material is assigned—

(1) If a liquid or solid material in a package meets the definition of a Division 6.1, Packing Group I or II, according to this subchapter, and the fact that it is a poison is not disclosed in the shipping name or class entry, the word "'Poison' or 'Toxic'" shall be entered on the shipping paper in association with the shipping description.

(2) For materials which are poisonous by inhalation (see §171.8 of this subchapter), the words "'Poison-Inhalation Hazard' or 'Toxic-Inhalation Hazard'" and the words "Zone A", "Zone B", "Zone C", or "Zone D", for gases or "Zone A" or "Zone B" for liquids, as appropriate, shall be entered on the shipping paper immediately following the shipping description. The word "'Poison' or 'Toxic'" need not be repeated if it otherwise appears in the shipping description.

(n) Elevated temperature materials. If a liquid material in a package meets the definition of an elevated temperature material in §171.8 of this subchapter, and the fact that it is an elevated temperature material is not disclosed in the proper shipping name (for example, when the words "Molten" or "Elevated temperature" are part of the proper shipping name), the word "HOT" must immediately precede the proper shipping name of the material on the shipping paper..

(o) Organic peroxides and self-reactive materials. The description on a shipping paper for a Division 4.1 (self-reactive) material or a Division 5.2 (organic peroxide) material must include the following additional information, as appropriate:

(1) If notification or competent authority approval is required, the shipping paper must contain a statement of approval of the classification and conditions of transport.

(2) For Division 4.1 (self-reactive) and Division 5.2 (organic peroxide) materials that require temperature control during transport, the control and emergency temperature must be included on the shipping paper.

(3) The word "SAMPLE" must be included in association with the basic description when a sample of a Division 4.1 (self-reactive) material (see §173.224(c)(3) of this subchapter) or Division 5.2 (organic peroxide) material (see §173.225(c)(2) of this subchapter) is offered for transportation or transported.

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§172.204 Shipper's certification. (a) General. Except as provided in paragraphs (b) and (c) of this section, each person who offers a hazardous material for transportation shall certify that the material is offered for transportation in accordance with this subchapter by printing (manually or mechanically) on the shipping paper containing the required shipping description the certification contained in paragraph (a)(1) of this section or the certification (declaration) containing the language contained in paragraph (a)(2) of this section.

(1) "This is to certify that the above-named materials are properly classified, described, packaged, marked and labeled, and are in proper condition for transportation according to the applicable regulations of the Department of Transportation."

Note: In line one of the certification the words "herein-named" may be substituted for the words "above-named."

(2) "I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name, and are classified, packaged, marked and labelled/placarded, and are in all respects in proper condition for transport according to applicable international and national governmental regulations."

(b) Exceptions. (1) Except for a hazardous waste, no certification is required for a hazardous material offered for transportation by motor vehicle and transported:

(i) In a cargo tank supplied by the carrier, or

(ii) By the shipper as a private carrier except for a hazardous material that is to be reshipped or transferred from one carrier to another.

(2) No certification is required for the return of any empty tank car which previously contained a hazardous material and which has not been cleaned or purged.

(c) Transportation by air.

(1) **General.** Certification containing the following language may be used in place of the certification required by paragraph (a) of this section:

"I hereby certify that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packaged, marked and labeled, and in proper condition for carriage by air according to applicable national government regulations."

Note to Paragraph (c)(1): In the certification, the word "packed" may be used instead of the word "packaged" until October 1, 2010.

(2) **Certificate in duplicate.** Each person who offers a hazardous material to an aircraft operator for transportation by air shall provide

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two copies of the certification required in this section. (See §175.30 of this subchapter.)

(3) Passenger and cargo aircraft. Each person who offers for transportation by air a hazardous material authorized for air transportation shall add to the certification required in this section the following statement:

"This shipment is within the limitations prescribed for passenger aircraft/cargo aircraft only (delete nonapplicable)."

(4) Radioactive material. Each person who offers any radioactive material for transportation aboard a passenger-carrying aircraft shall sign (mechanically or manually) a printed certificate stating that the shipment contains radioactive material intended for use in, or incident to, research, or medical diagnosis or treatment.

(d) Signature. The certifications required by paragraphs (a) or (c) of this section:

(1) Must be legibly signed by a principal, officer, partner, or employee of the shipper or his agent; and

(2) May be legibly signed manually, by typewriter, or by other mechanical means.

§172.205 Hazardous waste manifest. (a) No person may offer, transport, transfer, or deliver a hazardous waste (waste) unless an EPA Form 8700-22 and 8700-22A (when necessary) hazardous waste manifest (manifest) is prepared in accordance with 40 CFR 262.20 and is signed, carried, and given as required of that person by this section.

(b) The shipper (generator) shall prepare the manifest in accordance with 40 CFR Part 262.

(c) The original copy of the manifest must be dated by, and bear the handwritten signature of, the person representing:

(1) The shipper (generator) of the waste at the time it is offered for transportation, and

(2) The initial carrier accepting the waste for transportation.

(d) A copy of the manifest must be dated by, and bear the handwritten signature of the person representing:

(1) Each subsequent carrier accepting the waste for transportation, at the time of acceptance, and

(2) The designated facility receiving the waste, upon receipt.

(e) A copy of the manifest bearing all required dates and signatures must be:

(1) Given to a person representing each carrier accepting the waste for transportation,

(2) Carried during transportation in the same manner as required by this subchapter for shipping papers.

(3) Given to a person representing the designated facility receiving the waste,

(4) Returned to the shipper (generator) by the carrier that transported the waste from the United States to a foreign destination with a notation of the date of departure from the United States, and

(5) Retained by the shipper (generator) and by the initial and each subsequent carrier for three years from the date the waste was accepted by the initial carrier. Each retained copy must bear all required signatures and dates up to and including those entered by the next person who received the waste.

(f) Transportation by rail. Notwithstanding the requirements of paragraphs (d) and (e) of this section, the following requirements apply:

(1) When accepting hazardous waste from a non-rail transporter, the initial rail transporter must:

(i) Sign and date the manifest acknowledging acceptance of the hazardous waste;

(ii) Return a signed copy of the manifest to the non-rail transporter;

(iii) Forward at least three copies of the manifest to:

(A) The next non-rail transporter, if any;

(B) The designated facility, if the shipment is delivered to that facility by rail; or

(C) The last rail transporter designated to handle the waste in the United States; and

(iv) Retain one copy of the manifest and rail shipping paper in accordance with 40 CFR 263.22.

(2) Rail transporters must ensure that a shipping paper containing all the information required on the manifest (excluding the EPA identification numbers, generator certification and signatures) and, for exports, an EPA Acknowledgment of Consent accompanies the hazardous waste at all times. Intermediate rail transporters are not required to sign either the manifest or shipping paper.

(3) When delivering hazardous waste to the designated facility, a rail transporter must:

(i) Obtain the date of delivery and handwritten signature of the owner or operator of the designated facility on the manifest or the shipping paper (if the manifest has not been received by the facility); and

(ii) Retain a copy of the manifest or signed shipping paper in accordance with 40 CFR 263.22.

(4) When delivering hazardous waste to a non-rail transporter, a rail transporter must:

(i) Obtain the date of delivery and the handwritten signature of the next non-rail transporter on the manifest; and

(ii) Retain a copy of the manifest in accordance with 40 CFR 263.22.

(5) Before accepting hazardous waste from a rail transporter, a non-rail transporter must sign and date the manifest and provide a copy to the rail transporter.

(g) The person delivering a hazardous waste to an initial rail carrier shall send a copy of the manifest, dated and signed by a representative of the rail carrier, to the person representing the designated facility.

(h) A hazardous waste manifest required by 40 CFR part 262, containing all of the information required by this subpart, may be used as the shipping paper required by this subpart.

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PUBLISHER'S NOTE

This Subpart covers the requirements for emergency response information. The emergency response information includes the requirement for a 24-hour emergency response telephone number for use in the event of an emergency involving the hazardous material and information that can be used in the mitigation of an incident involving hazardous materials. Both pieces of information must be included with the shipping papers required by an earlier subpart. In the case of facilities where hazardous materials are received, stored, or handled during transportation, the information used in the mitigation of an incident must be in a location that is immediately accessible to facility personnel in the event of an incident involving the hazardous material. Emergency response information is not required for hazardous materials that are exempted from the shipping paper requirements.

Subpart G

EMERGENCY RESPONSE INFORMATION

§172.600 Applicability and general requirements. (a) Scope. Except as provided in paragraph (d) of this section, this subpart prescribes requirements for providing and maintaining emergency response information during transportation and at facilities where hazardous materials are loaded for transportation, stored incidental to transportation or otherwise handled during any phase of transportation.

(b) Applicability. This subpart applies to persons who offer for transportation, accept for transportation, transfer or otherwise handle hazardous materials during transportation.

(c) General requirements. No person to whom this subpart applies may offer for transportation, accept for transportation, transfer, store or otherwise handle during transportation a hazardous material unless:

(1) Emergency response information conforming to this subpart is immediately available for use at all times the hazardous material is present; and

(2) Emergency response information, including the emergency response telephone number, required by this subpart is immediately available to any person who, as a representative of a Federal, State or local government agency, responds to an incident involving a hazardous material, or is conducting an investigation which involves a hazardous material.

(d) Exceptions. The requirements of this subpart do not apply to hazardous material which is excepted from the shipping paper requirements of this subchapter or a material properly classified as an ORM-D.

§172.602 Emergency response information. (a) Information required. For purposes of this subpart, the term "emergency response information" means information that can be used in the mitigation of an incident involving hazardous materials and, as a minimum, must contain the following information:

(1) The basic description and technical name of the hazardous material as required by §§172.202 and 172.203(k), the ICAO Technical Instructions, the IMDG Code, or the TDG Regulations, as appropriate (see §171.7 of this subchapter);

(2) Immediate hazards to health;

(3) Risks of fire or explosion;

(4) Immediate precautions to be taken in the event of an accident or incident;

(5) Immediate methods for handling fires;

(6) Initial methods for handling spills or leaks in the absence of fire; and

(7) Preliminary first aid measures.

(b) Form of information. The information required for a hazardous material by paragraph (a) of this section must be:

(1) Printed legibly in English;

(2) Available for use away from the package containing the hazardous material; and

(3) Presented—

(i) On a shipping paper;

(ii) In a document, other than a shipping paper, that includes both the basic description and technical name of the hazardous material as required by §§172.202 and 172.203(k), the ICAO Technical Instructions, the IMDG Code, or the TDG Regulations, as appropriate, and the emergency response information required by this subpart (e.g., a material safety data sheet); or

(iii) Related to the information on a shipping paper, a written notification to pilot-in-command, or a dangerous cargo manifest, in a separate document (e.g., an emergency response guidance document), in a manner that cross-references the description of the hazardous material on the shipping paper with the emergency response information contained in the document. Aboard aircraft, the ICAO "Emergency Response Guidance for Aircraft Incidents Involving Dangerous Goods" and, aboard vessels, the IMO "Emergency Procedures for Ships Carrying Dangerous Goods," or equivalent documents, may be used to satisfy the requirements of this section for a separate document.

(c) Maintenance of information. Emergency response information shall be maintained as follows:

(1) Carriers. Each carrier who transports a hazardous material shall maintain the information specified in paragraph (a) of this section and §172.606 of this part in the same manner as prescribed for shipping papers, except that the information must be maintained in the same manner aboard aircraft as the notification of pilot-in-command, and aboard vessels in the same manner as the dangerous cargo manifest. This information must be immediately accessible to train crew personnel, drivers of motor vehicles, flight crew members, and bridge personnel on vessels for use in the event of incidents involving hazardous materials.

(2) Facility operators. Each operator of a facility where a hazardous material is received, stored or handled during transportation, shall maintain the information required by paragraph (a) of this section whenever the hazardous material is present. This information must be in a location that is immediately accessible to facility personnel in the event of an incident involving the hazardous material.

§172.604 Emergency response telephone number. (a) A person who offers a hazardous material for transportation must provide an emergency response telephone number, including the area code or international access code, for use in the event of an emergency involving the hazardous material. The telephone number must be—

(1) Monitored at all times the hazardous material is in transportation, including storage incidental to transportation;

(2) The number of a person who is either knowledgeable of the hazardous material being shipped and has comprehensive emergency response and incident mitigation information for that material, or has immediate access to a person who possesses such knowledge and information; and

(3) Entered on a shipping paper, as follows:

(i) Immediately following the description of the hazardous material required by subpart C of this part; or

(ii) Entered once on the shipping paper in a clearly visible location. This provision may be used only if the telephone number applies to each hazardous material entered on the shipping paper, and if it is indicated that the telephone number is for emergency response information (for example: "EMERGENCY CONTACT: * * *).

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(b) The telephone number required by paragraph (a) of this section must be the number of the person offering the hazardous material for transportation or the number of an agency or organization capable of, and accepting responsibility for, providing the detailed information concerning the hazardous material. A person offering a hazardous material for transportation who lists the telephone number of an agency or organization shall ensure that agency or organization has received current information on the material, as required by paragraph (a)(2) of this section before it is offered for transportation.

(c) The requirements of this section do not apply to—

(1) Hazardous materials that are offered for transportation under the provisions applicable to limited quantities; and

(2) Materials properly described under the following shipping names:

Battery powered equipment
Battery powered vehicle
Carbon dioxide, solid
Castor bean
Castor flake
Castor meal
Castor pomace
Consumer commodity
Dry ice
Engines, internal combustion
Fish meal, stabilized
Fish scrap, stabilized
Refrigerating machine
Vehicle, flammable gas powered
Vehicle, flammable liquid powered
Wheelchair, electric

§172.606 Carrier information contact. (a) Each carrier who transports or accepts for transportation a hazardous material for which a shipping paper is required shall instruct the operator of a motor vehicle, train, aircraft, or vessel to contact the carrier (e.g., by telephone or mobile radio) in the event of an incident involving the hazardous material.

(b) For transportation by highway, if a transport vehicle, (e.g., a semi-trailer or freight container-on-chassis) contains hazardous material for which a shipping paper is required and the vehicle is separated from its motive power and parked at a location other than a facility operated by the consignor or consignee or a facility (e.g., a carrier's terminal or a marine terminal) subject to the provisions of §172.602(c)(2), the carrier shall—

(1) Mark the transport vehicle with the telephone number of the motor carrier on the front exterior near the brake hose and electrical connections or on a label, tag, or sign attached to the vehicle at the brake hose or electrical connection; or

(2) Have the shipping paper and emergency response information readily available on the transport vehicle.

(c) The requirements specified in paragraph (b) of this section do not apply to an unattended motor vehicle separated from its motive power when the motor vehicle is marked on an orange panel, a placard, or a plain white square-on-point configuration with the identification number of each hazardous material loaded therein, and the marking or placard is visible on the outside of the motor vehicle.

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EMERGENCY RESPONSE

FIRE

CAUTION: All these products have a very low flash point: Use of water spray when fighting fire may be inefficient.

Small Fires

- Dry chemical, CO_2, water spray or regular foam.

Large Fires

- Water spray, fog or regular foam.
- Use water spray or fog; do not use straight streams.
- Move containers from fire area if you can do it without risk.

Fire involving Tanks or Car/Trailer Loads

- Fight fire from maximum distance or use unmanned hose holders or monitor nozzles.
- Cool containers with flooding quantities of water until well after fire is out.
- Withdraw immediately in case of rising sound from venting safety devices or discoloration of tank.
- ALWAYS stay away from tanks engulfed in fire.
- For massive fire, use unmanned hose holders or monitor nozzles; if this is impossible, withdraw from area and let fire burn.

SPILL OR LEAK

- ELIMINATE all ignition sources (no smoking, flares, sparks or flames in immediate area).
- All equipment used when handling the product must be grounded.
- Do not touch or walk through spilled material.
- Stop leak if you can do it without risk.
- Prevent entry into waterways, sewers, basements or confined areas.
- A vapor suppressing foam may be used to reduce vapors.
- Absorb or cover with dry earth, sand or other non-combustible material and transfer to containers.
- Use clean non-sparking tools to collect absorbed material.

Large Spills

- Dike far ahead of liquid spill for later disposal.
- Water spray may reduce vapor; but may not prevent ignition in closed spaces.

FIRST AID

- Move victim to fresh air.
- Call 911 or emergency medical service.
- Apply artificial respiration if victim is not breathing.
- Administer oxygen if breathing is difficult.
- Remove and isolate contaminated clothing and shoes.
- In case of contact with substance, immediately flush skin or eyes with running water for at least 20 minutes.
- Wash skin with soap and water.
- Keep victim warm and quiet.
- Ensure that medical personnel are aware of the material(s) involved, and take precautions to protect themselves.

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POTENTIAL HAZARDS

FIRE OR EXPLOSION

- **HIGHLY FLAMMABLE: Will be easily ignited by heat, sparks or flames.**
- Vapors may form explosive mixtures with air.
- Vapors may travel to source of ignition and flash back.
- Most vapors are heavier than air. They will spread along ground and collect in low or confined areas (sewers, basements, tanks).
- Vapor explosion hazard indoors, outdoors or in sewers.
- Those substances designated with a **"P"** may polymerize explosively when heated or involved in a fire.
- Runoff to sewer may create fire or explosion hazard.
- Containers may explode when heated.
- Many liquids are lighter than water.
- Substance may be transported hot.

HEALTH

- Inhalation or contact with material may irritate or burn skin and eyes.
- Fire may produce irritating, corrosive and/or toxic gases.
- Vapors may cause dizziness or suffocation.
- Runoff from fire control or dilution water may cause pollution.

PUBLIC SAFETY

- **CALL Emergency Response Telephone Number on Shipping Paper first. If Shipping Paper not available or no answer, refer to appropriate telephone number listed on the inside back cover.**
- Isolate spill or leak area immediately for at least 25 to 50 meters (80 to 160 feet) in all directions.
- Keep unauthorized personnel away.
- Stay upwind.
- Keep out of low areas.
- Ventilate closed spaces before entering.

PROTECTIVE CLOTHING

- Wear positive pressure self-contained breathing apparatus (SCBA).
- Structural firefighters' protective clothing will only provide limited protection.

EVACUATION

Large Spill

- Consider initial downwind evacuation for at least 300 meters (1000 feet).

Fire

- If tank, rail car or tank truck is involved in a fire, ISOLATE for 800 meters (1/2 mile) in all directions; also, consider initial evacuation for 800 meters (1/2 mile) in all directions.

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EMERGENCY RESPONSE

FIRE

- **Some of these materials may react violently with water.**

Small Fires • Dry chemical, CO_2, water spray or alcohol-resistant foam.

Large Fires

- Water spray, fog or alcohol-resistant foam.
- Move containers from fire area if you can do it without risk.
- Dike fire control water for later disposal; do not scatter the material.
- Do not get water inside containers.

Fire involving Tanks or Car/Trailer Loads

- Fight fire from maximum distance or use unmanned hose holders or monitor nozzles.
- Cool containers with flooding quantities of water until well after fire is out.
- Withdraw immediately in case of rising sound from venting safety devices or discoloration of tank.
- ALWAYS stay away from tanks engulfed in fire.
- For massive fire, use unmanned hose holders or monitor nozzles; if this is impossible, withdraw from area and let fire burn.

SPILL OR LEAK

- Fully encapsulating, vapor protective clothing should be worn for spills and leaks with no fire.
- ELIMINATE all ignition sources (no smoking, flares, sparks or flames in immediate area).
- All equipment used when handling the product must be grounded.
- Do not touch or walk through spilled material.
- Stop leak if you can do it without risk.
- Prevent entry into waterways, sewers, basements or confined areas.
- A vapor suppressing foam may be used to reduce vapors.
- Absorb with earth, sand or other non-combustible material and transfer to containers (except for Hydrazine).
- Use clean non-sparking tools to collect absorbed material.

Large Spills • Dike far ahead of liquid spill for later disposal.

- Water spray may reduce vapor; but may not prevent ignition in closed spaces.

FIRST AID

- Move victim to fresh air. • Call 911 or emergency medical service.
- Apply artificial respiration if victim is not breathing.
- **Do not use mouth-to-mouth method if victim ingested or inhaled the substance; induce artificial respiration with the aid of a pocket mask equipped with a one-way valve or other proper respiratory medical device.**
- Administer oxygen if breathing is difficult.
- Remove and isolate contaminated clothing and shoes.
- In case of contact with substance, immediately flush skin or eyes with running water for at least 20 minutes.
- Keep victim warm and quiet.
- Effects of exposure (inhalation, ingestion or skin contact) to substance may be delayed.
- Ensure that medical personnel are aware of the material(s) involved, and take precautions to protect themselves.

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POTENTIAL HAZARDS

FIRE OR EXPLOSION

- **Flammable/combustible materials.**
- May be ignited by heat, sparks or flames.
- Vapors may form explosive mixtures with air.
- Vapors may travel to source of ignition and flash back.
- Most vapors are heavier than air. They will spread along ground and collect in low or confined areas (sewers, basements, tanks).
- Vapor explosion hazard indoors, outdoors or in sewers.
- Those substances designated with a **"P"** may polymerize explosively when heated or involved in a fire.
- Runoff to sewer may create fire or explosion hazard.
- Containers may explode when heated.
- Many liquids are lighter than water.

HEALTH

- May cause toxic effects if inhaled or ingested/swallowed.
- Contact with substance may cause severe burns to skin and eyes.
- Fire will produce irritating, corrosive and/or toxic gases.
- Vapors may cause dizziness or suffocation.
- Runoff from fire control or dilution water may cause pollution.

PUBLIC SAFETY

- **CALL Emergency Response Telephone Number on Shipping Paper first. If Shipping Paper not available or no answer, refer to appropriate telephone number listed on the inside back cover.**
- Isolate spill or leak area immediately for at least 50 to 100 meters (160 to 330 feet) in all directions.
- Keep unauthorized personnel away.
- Stay upwind.
- Keep out of low areas.
- Ventilate closed spaces before entering.

PROTECTIVE CLOTHING

- Wear positive pressure self-contained breathing apparatus (SCBA).
- Wear chemical protective clothing which is specifically recommended by the manufacturer. It may provide little or no thermal protection.
- Structural firefighters' protective clothing provides limited protection in fire situations ONLY; it is not effective in spill situations.

EVACUATION

Large Spill

- See the Table of Initial Isolation and Protective Action Distances for highlighted substances. For non-highlighted substances, increase, in the downwind direction, as necessary, the isolation distance shown under "PUBLIC SAFETY".

Fire

- If tank, rail car or tank truck is involved in a fire, ISOLATE for 800 meters (1/2 mile) in all directions; also, consider initial evacuation for 800 meters (1/2 mile) in all directions.

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EMERGENCY RESPONSE

FIRE

Small Fires

- Dry chemical, CO_2, sand, earth, water spray or regular foam.

Large Fires

- Water spray, fog or regular foam.
- Move containers from fire area if you can do it without risk.

Fire involving Tanks or Car/Trailer Loads

- Cool containers with flooding quantities of water until well after fire is out.
- For massive fire, use unmanned hose holders or monitor nozzles; if this is impossible, withdraw from area and let fire burn.
- Withdraw immediately in case of rising sound from venting safety devices or discoloration of tank.
- ALWAYS stay away from tanks engulfed in fire.

SPILL OR LEAK

- ELIMINATE all ignition sources (no smoking, flares, sparks or flames in immediate area).
- Do not touch or walk through spilled material.

Small Dry Spills

- With clean shovel place material into clean, dry container and cover loosely; move containers from spill area.

Large Spills

- Wet down with water and dike for later disposal.
- Prevent entry into waterways, sewers, basements or confined areas.

FIRST AID

- Move victim to fresh air. • Call 911 or emergency medical service.
- Apply artificial respiration if victim is not breathing.
- Administer oxygen if breathing is difficult.
- Remove and isolate contaminated clothing and shoes.
- In case of contact with substance, immediately flush skin or eyes with running water for at least 20 minutes.
- Removal of solidified molten material from skin requires medical assistance.
- Keep victim warm and quiet.
- Ensure that medical personnel are aware of the material(s) involved, and take precautions to protect themselves.

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POTENTIAL HAZARDS

FIRE OR EXPLOSION

- Flammable/combustible material.
- May be ignited by friction, heat, sparks or flames.
- Some may burn rapidly with flare burning effect.
- Powders, dusts, shavings, borings, turnings or cuttings may explode or burn with explosive violence.
- Substance may be transported in a molten form.
- May re-ignite after fire is extinguished.

HEALTH

- Fire may produce irritating and/or toxic gases.
- Contact may cause burns to skin and eyes.
- Contact with molten substance may cause severe burns to skin and eyes.
- Runoff from fire control may cause pollution.

PUBLIC SAFETY

- **CALL Emergency Response Telephone Number on Shipping Paper first. If Shipping Paper not available or no answer, refer to appropriate telephone number listed on the inside back cover.**
- Isolate spill or leak area immediately for at least 10 to 25 meters (30 to 80 feet) in all directions.
- Keep unauthorized personnel away.
- Stay upwind.
- Keep out of low areas.

PROTECTIVE CLOTHING

- Wear positive pressure self-contained breathing apparatus (SCBA).
- Structural firefighters' protective clothing will only provide limited protection.

EVACUATION

Large Spill

- Consider initial downwind evacuation for at least 100 meters (330 feet).

Fire

- If tank, rail car or tank truck is involved in a fire, ISOLATE for 800 meters (1/2 mile) in all directions; also, consider initial evacuation for 800 meters (1/2 mile) in all directions.

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EMERGENCY RESPONSE

FIRE

Small Fires

- Dry chemical, CO_2 or water spray.

Large Fires

- Dry chemical, CO_2, alcohol-resistant foam or water spray.
- Move containers from fire area if you can do it without risk.
- Dike fire control water for later disposal; do not scatter the material.

Fire involving Tanks or Car/Trailer Loads

- Fight fire from maximum distance or use unmanned hose holders or monitor nozzles.
- Do not get water inside containers.
- Cool containers with flooding quantities of water until well after fire is out.
- Withdraw immediately in case of rising sound from venting safety devices or discoloration of tank.
- ALWAYS stay away from tanks engulfed in fire.

SPILL OR LEAK

- ELIMINATE all ignition sources (no smoking, flares, sparks or flames in immediate area).
- Do not touch damaged containers or spilled material unless wearing appropriate protective clothing.
- Stop leak if you can do it without risk.
- Prevent entry into waterways, sewers, basements or confined areas.
- Absorb or cover with dry earth, sand or other non-combustible material and transfer to containers.
- DO NOT GET WATER INSIDE CONTAINERS.

FIRST AID

- Move victim to fresh air. • Call 911 or emergency medical service.
- Apply artificial respiration if victim is not breathing.
- **Do not use mouth-to-mouth method if victim ingested or inhaled the substance; induce artificial respiration with the aid of a pocket mask equipped with a one-way valve or other proper respiratory medical device.**
- Administer oxygen if breathing is difficult.
- Remove and isolate contaminated clothing and shoes.
- In case of contact with substance, immediately flush skin or eyes with running water for at least 20 minutes.
- For minor skin contact, avoid spreading material on unaffected skin.
- Keep victim warm and quiet.
- Effects of exposure (inhalation, ingestion or skin contact) to substance may be delayed.
- Ensure that medical personnel are aware of the material(s) involved, and take precautions to protect themselves.

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POTENTIAL HAZARDS

HEALTH

- **TOXIC**; inhalation, ingestion, or skin contact with material may cause severe injury or death.
- Contact with molten substance may cause severe burns to skin and eyes.
- Avoid any skin contact.
- Effects of contact or inhalation may be delayed.
- Fire may produce irritating, corrosive and/or toxic gases.
- Runoff from fire control or dilution water may be corrosive and/or toxic and cause pollution.

FIRE OR EXPLOSION

- Combustible material: may burn but does not ignite readily.
- When heated, vapors may form explosive mixtures with air: indoors, outdoors, and sewers explosion hazards.
- Those substances designated with a **"P"** may polymerize explosively when heated or involved in a fire.
- Contact with metals may evolve flammable hydrogen gas.
- Containers may explode when heated.
- Runoff may pollute waterways.
- Substance may be transported in a molten form.

PUBLIC SAFETY

- **CALL Emergency Response Telephone Number on Shipping Paper first. If Shipping Paper not available or no answer, refer to appropriate telephone number listed on the inside back cover.**
- Isolate spill or leak area immediately for at least 25 to 50 meters (80 to 160 feet) in all directions.
- Keep unauthorized personnel away.
- Stay upwind.
- Keep out of low areas.
- Ventilate enclosed areas.

PROTECTIVE CLOTHING

- Wear positive pressure self-contained breathing apparatus (SCBA).
- Wear chemical protective clothing which is specifically recommended by the manufacturer. It may provide little or no thermal protection.
- Structural firefighters' protective clothing provides limited protection in fire situations ONLY; it is not effective in spill situations.

EVACUATION

Spill

- See the Table of Initial Isolation and Protective Action Distances for highlighted substances. For non-highlighted substances, increase, in the downwind direction, as necessary, the isolation distance shown under "PUBLIC SAFETY".

Fire

- If tank, rail car or tank truck is involved in a fire, ISOLATE for 800 meters (1/2 mile) in all directions; also, consider initial evacuation for 800 meters (1/2 mile) in all directions.

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EMERGENCY RESPONSE

FIRE

Small Fires

- Dry chemical, CO_2 or water spray.

Large Fires

- Dry chemical, CO_2, alcohol-resistant foam or water spray.
- Move containers from fire area if you can do it without risk.
- Dike fire control water for later disposal; do not scatter the material.

Fire involving Tanks or Car/Trailer Loads

- Fight fire from maximum distance or use unmanned hose holders or monitor nozzles.
- Do not get water inside containers.
- Cool containers with flooding quantities of water until well after fire is out.
- Withdraw immediately in case of rising sound from venting safety devices or discoloration of tank.
- ALWAYS stay away from tanks engulfed in fire.

SPILL OR LEAK

- ELIMINATE all ignition sources (no smoking, flares, sparks or flames in immediate area).
- Do not touch damaged containers or spilled material unless wearing appropriate protective clothing.
- Stop leak if you can do it without risk.
- Prevent entry into waterways, sewers, basements or confined areas.
- Absorb or cover with dry earth, sand or other non-combustible material and transfer to containers.
- DO NOT GET WATER INSIDE CONTAINERS.

FIRST AID

- Move victim to fresh air. • Call 911 or emergency medical service.
- Apply artificial respiration if victim is not breathing.
- **Do not use mouth-to-mouth method if victim ingested or inhaled the substance; induce artificial respiration with the aid of a pocket mask equipped with a one-way valve or other proper respiratory medical device.**
- Administer oxygen if breathing is difficult.
- Remove and isolate contaminated clothing and shoes.
- In case of contact with substance, immediately flush skin or eyes with running water for at least 20 minutes.
- For minor skin contact, avoid spreading material on unaffected skin.
- Keep victim warm and quiet.
- Effects of exposure (inhalation, ingestion or skin contact) to substance may be delayed.
- Ensure that medical personnel are aware of the material(s) involved, and take precautions to protect themselves.

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POTENTIAL HAZARDS

HEALTH

- **TOXIC**; inhalation, ingestion, or skin contact with material may cause severe injury or death.
- Contact with molten substance may cause severe burns to skin and eyes.
- Avoid any skin contact.
- Effects of contact or inhalation may be delayed.
- Fire may produce irritating, corrosive and/or toxic gases.
- Runoff from fire control or dilution water may be corrosive and/or toxic and cause pollution.

FIRE OR EXPLOSION

- Non-combustible, substance itself does not burn but may decompose upon heating to produce corrosive and/or toxic fumes.
- Some are oxidizers and may ignite combustibles (wood, paper, oil, clothing, etc.).
- Contact with metals may evolve flammable hydrogen gas.
- Containers may explode when heated.

PUBLIC SAFETY

- **CALL Emergency Response Telephone Number on Shipping Paper first. If Shipping Paper not available or no answer, refer to appropriate telephone number listed on the inside back cover.**
- Isolate spill or leak area immediately for at least 25 to 50 meters (80 to 160 feet) in all directions.
- Keep unauthorized personnel away.
- Stay upwind.
- Keep out of low areas.
- Ventilate enclosed areas.

PROTECTIVE CLOTHING

- Wear positive pressure self-contained breathing apparatus (SCBA).
- Wear chemical protective clothing which is specifically recommended by the manufacturer. It may provide little or no thermal protection.
- Structural firefighters' protective clothing provides limited protection in fire situations ONLY; it is not effective in spill situations.

EVACUATION

Spill

- See the Table of Initial Isolation and Protective Action Distances for highlighted substances. For non-highlighted substances, increase, in the downwind direction, as necessary, the isolation distance shown under "PUBLIC SAFETY".

Fire

- If tank, rail car or tank truck is involved in a fire, ISOLATE for 800 meters (1/2 mile) in all directions; also, consider initial evacuation for 800 meters (1/2 mile) in all directions.

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EMERGENCY RESPONSE

FIRE

Small Fires

- Dry chemical, CO_2, water spray or regular foam.

Large Fires

- Water spray, fog or regular foam.
- Move containers from fire area if you can do it without risk.
- Do not scatter spilled material with high pressure water streams.
- Dike fire-control water for later disposal.

Fire involving Tanks

- Cool containers with flooding quantities of water until well after fire is out.
- Withdraw immediately in case of rising sound from venting safety devices or discoloration of tank.
- ALWAYS stay away from tanks engulfed in fire.

SPILL OR LEAK

- Do not touch or walk through spilled material.
- Stop leak if you can do it without risk.
- Prevent dust cloud.
- Avoid inhalation of asbestos dust.

Small Dry Spills

- With clean shovel place material into clean, dry container and cover loosely; move containers from spill area.

Small Spills

- Take up with sand or other noncombustible absorbent material and place into containers for later disposal.

Large Spills

- Dike far ahead of liquid spill for later disposal.
- Cover powder spill with plastic sheet or tarp to minimize spreading.
- Prevent entry into waterways, sewers, basements or confined areas.

FIRST AID

- Move victim to fresh air.
- Call 911 or emergency medical service.
- Apply artificial respiration if victim is not breathing.
- Administer oxygen if breathing is difficult.
- Remove and isolate contaminated clothing and shoes.
- In case of contact with substance, immediately flush skin or eyes with running water for at least 20 minutes.
- Ensure that medical personnel are aware of the material(s) involved, and take precautions to protect themselves.

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POTENTIAL HAZARDS

FIRE OR EXPLOSION

- Some may burn but none ignite readily.
- Those substances designated with a **"P"** may polymerize explosively when heated or involved in a fire.
- Containers may explode when heated.
- Some may be transported hot.

HEALTH

- Inhalation of material may be harmful.
- Contact may cause burns to skin and eyes.
- Inhalation of Asbestos dust may have a damaging effect on the lungs.
- Fire may produce irritating, corrosive and/or toxic gases.
- Runoff from fire control may cause pollution.

PUBLIC SAFETY

- **CALL Emergency Response Telephone Number on Shipping Paper first. If Shipping Paper not available or no answer, refer to appropriate telephone number listed on the inside back cover.**
- Isolate spill or leak area immediately for at least 10 to 25 meters (30 to 80 feet) in all directions.
- Keep unauthorized personnel away.
- Stay upwind.

PROTECTIVE CLOTHING

- Wear positive pressure self-contained breathing apparatus (SCBA).
- Structural firefighters' protective clothing will only provide limited protection.

EVACUATION

Fire

- If tank, rail car or tank truck is involved in a fire, ISOLATE for 800 meters (1/2 mile) in all directions; also, consider initial evacuation for 800 meters (1/2 mile) in all directions.

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STRAIGHT BILL OF LADING – SHORT FORM
ORIGINAL – NOT NEGOTIABLE

RECEIVED, subject to the classifications and lawfully filed tariffs in effect on the date of issue of this Bill of Lading

Bill of Lading Number

KII-483084507

FROM: **Koppers Inc.** AT: **Cicero, Il** DATE: **3/14/03**

The property described below, in apparent good order, except as noted (contents and condition of contents of packages unknown), marked, consigned and destined as indicated below, which said company (the word company being understood throughout this contract as meaning any person or corporation in possession of the property under the contract) agrees to carry to its usual place of delivery at said destination, if on its own road or its own water line, otherwise to deliver to another carrier on the route to said destination. It is mutually agreed, as to each carrier of all or any of said property over all or any portion of said route to destination, and as to each party at any time interested in all or any of said property, that every service to be performed hereunder shall be subject to all conditions not prohibited by law, whether printed or written, herein contained, including classification bills of lading conditions, which are hereby agreed to be the shipper and accepted for himself and his assigns.

Freight Basis

PREPAID

Ship To: **Koppers Inc.**

Guthrie, KY

Route: **CSXT Direct**

Carrier / Vehicle # **GATX 36909**

Sold To: **N/A**

Shippers Order #

N/A

Customers P.O. Number

N/A

Packages No. and Kind	HM	DOT SHIPPING NAME/HAZARD CLASS (IF APPLICABLE) DESCRIPTION OF ARTICLES, SPECIAL MARKS & EXCEPTIONS		WEIGHT (Subject to Correction)
1 TC	**RQ**	**Environmentally Hazardous Liquid, N.O.S** **(Creosote)** **Class 9 UN3082 PG III** **Creosote** **STCC 2814125** **Placarded: Class 9 3082** **(Coal Tar Creosote - 17300001)** **Movement subject to Rate Authority CSXT 42511**	**Gross** **Tare** **Net**	**244400** **77400** **167000**

EMERGENCY CONTACT: CALL CHEMTREC 1-800-424-9300 OR 1-202-483-7616 FAX 1-800-242-7428

Subject to Section 7 of Conditions of applicable bill of lading, if this shipment is to be delivered to the consignee without recourse on the consignor, the consignor shall sign the following statement: **The carrier shall not make delivery of this shipment without payment of freight and all other lawful charges.**

Signature Of Consignor per **See ★ below**

"Note: Where the rate is dependent on value, shipper's are required to state specifically in writing the released or declared value of the property. The agreed or declared value of the property is hereby stated by the shipper to be not exceeding 170 cents per pounds for each distribution package."

PERMANENT POST-OFFICE ADDRESS OF SHIPPER:

Koppers Industries, Inc.
436 Seventh Avenue
Pittsburgh, PA 15219-1800

This is to certify that the above named materials are properly classified, described, packaged, marked and labeled and are in proper condition for transportation according to the applicable regulations of the Department of Transportation.

PER

♦ Shipper herby certifies that this shipment is correctly described; correct weight is shown and is subject to verification according to agreement with the Weighing and Inspection Bureau having jurisdiction.

PER

_____ Agent

Per

gnature of Shipper's agent next above is also intended as execution of Section 7
gnature above must appear in longhand

STRAIGHT BILL OF LADING – SHORT FORM
ORIGINAL – NOT NEGOTIABLE

RECEIVED, subject to the classifications and lawfully filed tariffs in effect on the date of issue of this Bill of Lading

Empty Tank Car Return Instructions

Bill of Lading Number

KII-483084507

FROM: **Koppers Inc.** AT: **Florence, SC** DATE: **3/14/03**

The property described below, in apparent good order, except as noted (contents and condition of contents of packages unknown), marked, consigned and destined as indicated below, which said company (the word company being understood throughout this contract as meaning any person or corporation in possession of the property under the contract) agrees to carry to its usual place of delivery at said destination, if on its own road or its own water line, otherwise to deliver to another carrier on the route to said destination. It is mutually agreed, as to each carrier of all or any of said property over all or any portion of said route to destination, and as to each party at any time interested in all or any of said property, that every service to be performed hereunder shall be subject to all conditions not prohibited by law, whether printed or written, herein contained, including classification bills of lading conditions, which are hereby agreed to be the shipper and accepted for himself and his assigns.

Freight Basis

PREPAID

Ship To: **Koppers Inc.**

Cicero, IL

Route: **CSXT (Chgo)-CN (Switch)**

Carrier / Vehicle # **ACFX 73899**

Sold To: **N/A**

Shippers Order #

N/A

Customers P.O. Number

N/A

Packages No. and Kind	HM	DOT SHIPPING NAME/HAZARD CLASS (IF APPLICABLE) DESCRIPTION OF ARTICLES, SPECIAL MARKS & EXCEPTIONS	WEIGHT (Subject to Correction)
1 TC	RQ	**Residue Last Contained:** **Environmentally Hazardous Liquid, N.O.S** **(Creosote)** **Class 9 UN3082 PG III** **Creosote** **STCC 2814125** **Placarded: Class 9 3082** **(Coal Tar Creosote - 17300001)**	**Gross 84000** **Tare 77400** **Net 6600**

EMERGENCY CONTACT: CALL CHEMTREC 1-800-424-9300 OR 1-202-483-7616 FAX 1-800-242-7428

Subject to Section 7 of Conditions of applicable bill of lading, if this shipment is to be delivered to the consignee without recourse on the consignor, the consignor shall sign the following statement: **The carrier shall not make delivery of this shipment without payment of freight and all other lawful charges.**

Signature Of Consignor per **See ★ below**

"Note: Where the rate is dependent on value, shipper's are required to state specifically in writing the released or declared value of the property. The agreed or declared value of the property is hereby stated by the shipper to be not exceeding 170 cents per pounds for each distribution package."

PERMANENT POST-OFFICE ADDRESS OF SHIPPER:

Koppers Industries, Inc.
436 Seventh Avenue
Pittsburgh, PA 15219-1800

This is to certify that the above named materials are properly classified, described, packaged, marked and labeled and are in proper condition for transportation according to the applicable regulations of the Department of Transportation.

♦ Shipper herby certifies that this shipment is correctly described; correct weight is shown and is subject to verification according to agreement with the Weighing and Inspection Bureau having jurisdiction.

PER

_____ Agent

Per

★ Signature of Shipper's agent next above is also intended as execution of Section 7
Signature above must appear in longhand

STRAIGHT BILL OF LADING – SHORT FORM
ORIGINAL – NOT NEGOTIABLE

RECEIVED, subject to the classifications and lawfully filed tariffs in effect on the date of issue of this Bill of Lading

Bill of Lading Number
KII-483056890

FROM: **Koppers Inc.** AT: **Woodward AL** DATE: **05/07/04**

The property described below, in apparent good order, except as noted (contents and condition of contents of packages unknown), marked, consigned and destined as indicated below, which said company (the word company being understood throughout this contract as meaning any person or corporation in possession of the property under the contract) agrees to carry to its usual place of delivery at said destination, if on its own road or its own water line, otherwise to deliver to another carrier on the route to said destination. It is mutually agreed, as to each carrier of all or any of said property over all or any portion of said route to destination, and as to each party at any time interested in all or any of said property, that every service to be performed hereunder shall be subject to all conditions not prohibited by law, whether printed or written, herein contained, including classification bills of lading conditions, which are hereby agreed to be the shipper and accepted for himself and his assigns.

Freight Basis
PREPAID

Ship To: **Alcoa Inc.**
Lake Charles LA.

Route: **BS-Ensly-NS-Newor-UP**

Carrier / Vehicle # **KIIX 10029**
Sold To: **N/A**

Shippers Order #
N/A

Customers P.O. Number
N/A

Packages No. and Kind	HM	DOT SHIPPING NAME/HAZARD CLASS (IF APPLICABLE)	DESCRIPTION OF ARTICLES, SPECIAL MARKS & EXCEPTIONS		WEIGHT (Subject to Correction)
1 TC	**RQ**	**Elevated Temperature Liquid, N.O.S** **(contains Benzo(a)Pyrene, Dibenzo(a,h)Anthracene)** **Class 9 UN3257 PG III** **Electrode Binder** **STCC 2899868** **Marked: HOT 3257** **(Hard Carbon Pitch - Liquid - 42600001)** **Movement subject to Rate Authority UP-C-37613**		**Gross** **Tare** **Net**	**244400** **77400** **167000**

EMERGENCY CONTACT: CALL CHEMTREC 1-800-424-9300 OR 1-202-483-7616 FAX 1-800-242-7428

Subject to Section 7 of Conditions of applicable bill of lading, if this shipment is to be delivered to the consignee without recourse on the consignor, the consignor shall sign the following statement: **The carrier shall not make delivery of this shipment without payment of freight and all other lawful charges.**

Signature Of Consignor per **See ★ below**

"Note: Where the rate is dependent on value, shipper's are required to state specifically in writing the released or declared value of the property. The agreed or declared value of the property is hereby stated by the shipper to be not exceeding 170 cents per pounds for each distribution package."

PERMANENT POST-OFFICE ADDRESS OF SHIPPER:
Koppers Industries, Inc.
436 Seventh Avenue
Pittsburgh, PA 15219-1800

This is to certify that the above named materials are properly classified, described, packaged, marked and labeled and are in proper condition for transportation according to the applicable regulations of the Department of Transportation.

♦ Shipper herby certifies that this shipment is correctly described; correct weight is shown and is subject to verification according to agreement with the Weighing and Inspection Bureau having jurisdiction.

PER

_____ Agent

Per

★ Signature of Shipper's agent next above is also intended as execution of Section 7
Signature above must appear in longhand

STRAIGHT BILL OF LADING – SHORT FORM
ORIGINAL – NOT NEGOTIABLE

RECEIVED, subject to the classifications and lawfully filed tariffs in effect on the date of issue of this Bill of Lading

Bill of Lading Number

KII-483056890

FROM: **Koppers Inc.** AT: **Woodward AL** DATE: **05/07/04**

The property described below, in apparent good order, except as noted (contents and condition of contents of packages unknown), marked, consigned and destined as indicated below, which said company (the word company being understood throughout this contract as meaning any person or corporation in possession of the property under the contract) agrees to carry to its usual place of delivery at said destination, if on its own road or its own water line, otherwise to deliver to another carrier on the route to said destination. It is mutually agreed, as to each carrier of all or any of said property over all or any portion of said route to destination, and as to each party at any time interested in all or any of said property, that every service to be performed hereunder shall be subject to all conditions not prohibited by law, whether printed or written, herein contained, including classification bills of lading conditions, which are hereby agreed to be the shipper and accepted for himself and his assigns.

Freight Basis

PREPAID

Ship To: **Alcoa Inc.**
Lake Charles LA.

Route: **BS-Ensly-NS-Newor-UP**

Carrier / Vehicle # **KIIX 10029**
Sold To: **N/A**

Shippers Order #

N/A

Customers P.O. Number

N/A

Packages No. and Kind	HM	DOT SHIPPING NAME/HAZARD CLASS (IF APPLICABLE) DESCRIPTION OF ARTICLES, SPECIAL MARKS & EXCEPTIONS		WEIGHT (Subject to Correction)
1 TC	RQ	**Elevated Temperature Liquid, N.O.S** **(contains Benzo(a)Pyrene, Dibenzo(a,h)Anthracene)** **Class 9 UN3257 PG III** **Electrode Binder** **STCC 2899868** **Marked: HOT 3257** **(Hard Carbon Pitch - Liquid - 42600001)** **Movement subject to Rate Authority UP-C-37613**	**Gross** **Tare** **Net**	**244400** **77400** **167000**

EMERGENCY CONTACT: CALL CHEMTREC 1-800-424-9300 OR 1-202-483-7616 FAX 1-800-242-7428

Subject to Section 7 of Conditions of applicable bill of lading, if this shipment is to be delivered to the consignee without recourse on the consignor, the consignor shall sign the following statement: **The carrier shall not make delivery of this shipment without payment of freight and all other lawful charges.**

Signature Of Consignor per **See ★ below**

"Note: Where the rate is dependent on value, shipper's are required to state specifically in writing the released or declared value of the property. The agreed or declared value of the property is hereby stated by the shipper to be not exceeding 170 cents per pounds for each distribution package."

PERMANENT POST-OFFICE ADDRESS OF SHIPPER:

Koppers Industries, Inc.
436 Seventh Avenue
Pittsburgh, PA 15219-1800

This is to certify that the above named materials are properly classified, described, packaged, marked and labeled and are in proper condition for transportation according to the applicable regulations of the Department of Transportation.

♦ Shipper herby certifies that this shipment is correctly described; correct weight is shown and is subject to verification according to agreement with the Weighing and Inspection Bureau having jurisdiction.

PER

_____ Agent

Per

Signature of Shipper's agent next above is also intended as execution of Section 7
Signature above must appear in longhand

STRAIGHT BILL OF LADING – SHORT FORM
ORIGINAL – NOT NEGOTIABLE

RECEIVED, subject to the classifications and lawfully filed tariffs in effect on the date of issue of this Bill of Lading

Bill of Lading Number

KII-483088675

FROM: **Koppers Inc.** AT: **Cicero, IL** DATE: **04/11/03**

The property described below, in apparent good order, except as noted (contents and condition of contents of packages unknown), marked, consigned and destined as indicated below, which said company (the word company being understood throughout this contract as meaning any person or corporation in possession of the property under the contract) agrees to carry to its usual place of delivery at said destination, if on its own road or its own water line, otherwise to deliver to another carrier on the route to said destination. It is mutually agreed, as to each carrier of all or any of said property over all or any portion of said route to destination, and as to each party at any time interested in all or any of said property, that every service to be performed hereunder shall be subject to all conditions not prohibited by law, whether printed or written, herein contained, including classification bills of lading conditions, which are hereby agreed to be the shipper and accepted for himself and his assigns.

Freight Basis

PREPAID

Ship To: **Alcoa Inc.**
Massena, NY

Route: **NS**

Carrier / Vehicle # **UTLX 650744**
Sold To: **N/A**

Shippers Order #

N/A

Customers P.O. Number

N/A

Packages No. and Kind	HM	DOT SHIPPING NAME/HAZARD CLASS (IF APPLICABLE)	DESCRIPTION OF ARTICLES, SPECIAL MARKS & EXCEPTIONS		WEIGHT (Subject to Correction)
1 TC	**RQ**	**Elevated Temperature Liquid, N.O.S** **(Phthalic Anhydride)** **Class 9 UN3257 PG III** **(Phthalic Anhydride)** **STCC 2815135** **Placarded: Class 9 UN 3257** **(Phthalic Anhydride-Molten 70101001)** **Movement subject to Rate Authority NSSC-82196**		**Gross** **Tare** **Net**	**244400** **77400** **167000**

EMERGENCY CONTACT: CALL CHEMTREC 1-800-424-9300 OR 1-202-483-7616 FAX 1-800-242-7428

Subject to Section 7 of Conditions of applicable bill of lading, if this shipment is to be delivered to the consignee without recourse on the consignor, the consignor shall sign the following statement: **The carrier shall not make delivery of this shipment without payment of freight and all other lawful charges.**

Signature
Of Consignor per **See ★ below**

"Note: Where the rate is dependent on value, shipper's are required to state specifically in writing the released or declared value of the property. The agreed or declared value of the property is hereby stated by the shipper to be not exceeding 170 cents per pounds for each distribution package."

PERMANENT POST-OFFICE ADDRESS OF SHIPPER:

Koppers Industries, Inc.
436 Seventh Avenue
Pittsburgh, PA 15219-1800

This is to certify that the above named materials are properly classified, described, packaged, marked and labeled and are in proper condition for transportation according to the applicable regulations of the Department of Transportation.

PER

♦ Shipper herby certifies that this shipment is correctly described; correct weight is shown and is subject to verification according to agreement with the Weighing and Inspection Bureau having jurisdiction.

PER

_____ Agent

Per

gnature of Shipper's agent next above is also intended as execution of Section 7
ignature above must appear in longhand

Section VI
Marking/Labeling/ Placarding

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PUBLISHER'S NOTE

This Subpart contains information on the required marking for each package containing a hazardous material. Marking also includes information which deals with the container itself—who made it, etc. These particular requirements are covered in Parts 178 and 179.

Certain information regarding the hazardous material must be marked on the outside of a non-bulk and bulk package. This information may include the proper shipping name, identification number, consignor or consignee, etc. The information required to be marked on the packaging can depend on whether it is non-bulk or bulk and the type of package. For example, the proper shipping name is required to be marked on all non-bulk packages, but, in the case of tank cars, it is only required for certain proper shipping names. On the other hand, the proper shipping name must be marked on all bulk portable tanks.

Subpart D

MARKING

§172.300 Applicability. **(a)** Each person who offers a hazardous material for transportation shall mark each package, freight container, and transport vehicle containing the hazardous material in the manner required by this subpart.

(b) When assigned the function by this subpart, each carrier that transports a hazardous material shall mark each package, freight container, and transport vehicle containing the hazardous material in the manner required by this subpart.

§172.301 General marking requirements for non-bulk packagings. (a) Proper shipping name and identification number.

(1) Except as otherwise provided by this subchapter, each person who offers for transportation a hazardous material in a non-bulk packaging shall mark the package with the proper shipping name and identification number (preceded by "UN" or "NA", as appropriate) for the material as shown in the §172.101 table. Identification numbers are not required on packages which contain only limited quantities, as defined in §171.8 of this subchapter, or ORM-D materials.

(2) The proper shipping name for a hazardous waste (as defined in §171.8 of this subchapter) is not required to include the word "waste" if the package bears the EPA marking prescribed by 40 CFR 262.32.

(3) Large quantities of a single hazardous material in non-bulk packages. A transport vehicle or freight container containing only a single hazardous material in non-bulk packages must be marked on each side and each end as specified in the §172.332 or §172.336, with the identification number specified for the hazardous material in the §172.101 Table, subject to the following provisions and limitations:

(i) Each package is marked with the same proper shipping name and identification number;

(ii) The aggregate gross weight of the hazardous material is 4,000 kg (8,820 pounds) or more;

(iii) All of the hazardous material is loaded at one loading facility;

(iv) The transport vehicle or freight container contains no other material, hazardous or otherwise; and

(v) The identification number marking requirement of this paragraph (a)(3) does not apply to Class 1, Class 7, or to non-bulk packagings for which identification numbers are not required.

(b) Technical names. In addition to the marking required by paragraph (a) of this section, each non-bulk packaging containing hazardous materials subject to the provisions of §172.203(k) of this part shall be marked with the technical name in parentheses in association with the proper shipping name in accordance with the requirements and exceptions specified for display of technical descriptions on shipping papers in §172.203(k) of this part.

(c) Exemption packagings. The outside of each package authorized by an exemption shall be plainly and durably marked "DOT-E" followed by the exemption number assigned.

(d) Consignee's or consignor's name and address. Each person who offers for transportation a hazardous material in a non-bulk package shall mark that package with the name and address of the consignor or consignee except when the package is—

(1) Transported by highway only and will not be transferred from one motor carrier to another; or

(2) Part of a carload lot, truckload lot or freight container load, and the entire contents of the rail car, truck or freight container are shipped from one consignor to one consignee.

(e) Previously marked packagings. A package which has been previously marked as required for the material it contains and on which the marking remains legible, need not be remarked. (For empty packagings, see §173.29 of this subchapter.)

§172.302 General marking requirements for bulk packagings.

(a) Identification numbers. Except as otherwise provided in this subpart, no person may offer for transportation or transport a hazardous material in a bulk packaging unless the packaging is marked as required by §172.332 with the identification number specified for the material in the §172.101 table—

(1) On each side and each end, if the packaging has a capacity of 3,785 L (1,000 gallons) or more;

(2) On two opposing sides, if the packaging has a capacity of less than 3,785 L (1,000 gallons); or

(3) For cylinders permanently installed on a tube trailer motor vehicle, on each side and each end of the motor vehicle.

(b) Size of markings. Except as otherwise provided, markings required by this subpart on bulk packagings must—

(1) Have a width of at least 6.0 mm (0.24 inch) and a height of at least 100 mm (3.9 inches) for rail cars;

(2) Have a width of at least 4.0 mm (0.16 inch) and a height of at least 25 mm (one inch) for portable tanks with capacities of less than 3,785 L (1,000 gallons) and IBCs; and

(3) Have a width of at least 6.0 mm (0.24 inch) and a height of at least 50 mm (2.0 inches) for cargo tanks and other bulk packagings.

(c) Exemption packagings. The outside of each bulk package used under the terms of an exemption shall be plainly and durably marked "DOT-E" followed by the exemption number assigned

(d) Each bulk packaging marked with a proper shipping name, common name or identification number as required by this subpart must remain marked when it is emptied unless it is—

(1) Sufficiently cleaned of residue and purged of vapors to remove any potential hazard; or

(2) Refilled, with a material requiring different markings or no markings, to such an extent that any residue remaining in the packaging is no longer hazardous.

(e) Additional requirements for marking portable tanks, cargo tanks, tank cars, multi-unit tank car tanks, and other bulk packagings are prescribed in §§172.326, 172.328, 172.330, and 172.331, respectively, of this subpart.

(f) A bulk packaging marked prior to October 1, 1991, in conformance to the regulations of this subchapter in effect on September 30, 1991, need not be remarked if the key words of the proper shipping name are identical to those currently specified in the §172.101 table. For example, a tank car marked "ANHYDROUS AMMONIA" need not be remarked "ANHYDROUS AMMONIA, LIQUEFIED".

(g) A rail car, freight container, truck body or trailer in which the lading has been fumigated with any hazardous material, or is undergoing fumigation, must be marked as specified in §173.9 of this subchapter.

§172.303 Prohibited marking. **(a)** No person may offer for transportation or transport a package which is marked with the proper

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shipping name or identification number of a hazardous material unless the package contains the identified hazardous material or its residue.

(b) This section does not apply to—

(1) Transportation of a package in a transport vehicle or freight container if the package is not visible during transportation and is loaded by the shipper and unloaded by the shipper or consignee.

(2) Markings on a package which are securely covered in transportation.

(3) The marking of a shipping name on a package when the name describes a material not regulated under this subchapter.

§172.304 Marking requirements. **(a)** The marking required in this subpart—

(1) Must be durable, in English and printed on or affixed to the surface of a package or on a label, tag, or sign.

(2) Must be displayed on a background of sharply contrasting color;

(3) Must be unobscured by labels or attachments; and

(4) Must be located away from any other marking (such as advertising) that could substantially reduce its effectiveness.

(b) [Reserved]

§172.306 [Reserved]

§172.308 Authorized abbreviations. **(a)** Abbreviations may not be used in a proper shipping name marking except as authorized in this section.

(b) The abbreviation "ORM" may be used in place of the words "Other Regulated Material."

(c) Abbreviations which appear as authorized descriptions in column 2 of the §172.101 table (e.g., "TNT" and "PCB") are authorized.

§172.310 Class 7 (radioactive) materials. In addition to any other markings required by this subpart, each package containing Class 7 (radioactive) materials must be marked as follows:

(a) Each package with a gross mass greater than 50 kg (110 pounds) must have its gross mass marked on the outside of the package.

(b) Each packaging must be marked on the outside of the package, in letters at least 13 mm (0.5 inch) high, with the words "TYPE A" or "TYPE B" as appropriate. A packaging which does not conform to Type A or Type B requirements may not be so marked.

(c) Each Type B, Type B(U) or Type B(M) packaging must be marked on the outside of the package with a radiation symbol that conforms to the requirements of appendix B to part 172.

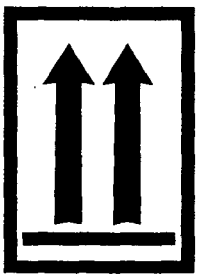
(d) Each package destined for export shipment must also be marked "USA" in conjunction with the specification marking, or other package certificate identification. (See §§173.471, 173.472, and 173.473 of this subchapter).

§172.312 Liquid hazardous materials in non-bulk packagings.

(a) Except as provided in this section, each non-bulk combination package having inner packagings containing liquid hazardous materials must be:

(1) Packed with closures upward, and

(2) Legibly marked, with package orientation markings that conform pictorially to the illustration shown in this paragraph, on two opposite vertical sides of the package with the arrows pointing in the correct upright direction. Depicting a rectangular border around the arrows is optional.



Package Orientation

(b) Arrows for purposes other than indicating proper package orientation may not be displayed on a package containing a liquid hazardous material.

(c) The requirements of paragraph (a) of this section do not apply to—

(1) A non-bulk package with inner packagings which are cylinders;

(2) Except when offered or intended for transportation by aircraft, packages containing flammable liquids in inner packagings of 1 L or less prepared in accordance with §173.150(b) or (c) of this subchapter.

(3) When offered or intended for transportation by aircraft, packages containing flammable liquids in inner packagings of 120 mL (4 fluid oz.) or less prepared in accordance with §173.150(b) or (c) of this subchapter when packed with sufficient absorption material between the inner and outer packagings to completely absorb the liquid contents.

(4) Liquids contained in manufactured articles (e.g., alcohol or mercury in thermometers) which are leak-tight in all orientations.

(5) A non-bulk package with hermetically-sealed inner packagings.

§172.313 Poisonous hazardous materials. In addition to any other markings required by this subpart:

(a) A material poisonous by inhalation (see §171.8 of this subchapter), shall be marked "Inhalation Hazard" in association with the required labels or placards, as appropriate, and shipping name when required. The marking must be on two opposing sides of a bulk packaging. (See §172.302(b) of this subpart for size of markings on bulk packages.) When the words "Inhalation Hazard" appear on the label, as prescribed in §§172.416 and 172.429, or placard, as prescribed in §§172.540 and 172.555, the "Inhalation Hazard" marking is not required on the package.

(b) Each non-bulk plastic outer packaging used as a single or composite packaging for materials meeting the definition of Division 6.1 (in §173.132 of this subchapter) shall be permanently marked, by embossment or other durable means, with the word "POISON" in letters at least 6.3 mm (0.25 inches) in height. Additional text or symbols related to hazard warning may be included in the marking. The marking shall be located within 150 mm (6 inches) of the closure of the packaging.

(c) A transport vehicle or freight container containing a material poisonous by inhalation in non-bulk packages shall be marked, on each side and each end as specified in §172.332 or §172.336, with the identification number specified for the hazardous material in the §172.101 table, subject to the following provisions and limitations:

(1) The material is in Hazard Zone A or B;

(2) The transport vehicle or freight container is loaded at one facility with 1,000 kg (2,205 pounds) or more aggregate gross weight of the material in non-bulk packages marked with the same proper shipping name and identification number; and

(3) If the transport vehicle or freight container contains more than one material meeting the provisions of this paragraph (c), it shall be marked with the identification number for one material, determined as follows:

(i) For different materials in the same hazard zone, with the identification number of the material having the greatest aggregate gross weight; and

(ii) For different materials in both Hazard Zones A and B, with the identification number for the Hazard Zone A material.

(d) For a packaging containing a Division 6.1 PG III material, "PG III" may be marked adjacent to the POISON label. (See §172.405(c).)

§172.316 Packagings containing materials classed as ORM-D.

(a) Each non-bulk packaging containing a material classed as ORM-D must be marked on at least one side or end with the ORM-D designation immediately following or below the proper shipping name of the material. The ORM designation must be placed within a rectangle that is approximately 6.3 mm (0.25 inches) larger on each side than the designation. The designation for ORM-D must be:

(1) ORM-D-AIR for an ORM-D that is prepared for air shipment and packaged in accordance with the provisions of §173.27 of this subchapter.

(2) ORM-D for an ORM-D other than as described in paragraph (a)(1) of this section.

(b) When the ORM-D marking including the proper shipping name cannot be affixed on the package surface, it may be on an attached tag.

(c) The marking ORM-D is the certification by the person offering the packaging for transportation that the material is properly described,

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classed, packaged, marked and labeled (when appropriate) and in proper condition for transportation according to the applicable regulations of this subchapter. This form of certification does not preclude the requirement for a certificate on a shipping paper when required by subpart C of this part.

§172.320 Explosive hazardous materials. **(a)** Except as otherwise provided in paragraphs (b), (c), (d) and (e) of this section, each package containing a Class 1 material must be marked with the EX-number for each substance, article or device contained therein.

(b) Except for fireworks approved in accordance with §173.56(j) of this subchapter, a package of Class 1 materials may be marked in lieu of the EX-number required by paragraph (a) of this section, with a national stock number issued by the Department of Defense or identifying information, such as a product code required by regulations for commercial explosives specified in 27 CFR part 55, if the national stock number or identifying information can be specifically associated with the EX-number assigned.

(c) When more than five different Class 1 materials are packed in the same package, the package may be marked with only five of the EX-numbers, national stock numbers, product codes, or combination thereof.

(d) The requirements of this section do not apply if the EX-number, product code or national stock number of each explosive item described under a proper shipping description is shown in association with the shipping description required by §172.202(a) of this part. Product codes and national stock numbers must be traceable to the specific EX-number assigned by the Associate Administrator.

(e) The requirements of this section do not apply to the following Class 1 materials:

(1) Those being shipped to a testing agency in accordance with §173.56(d) of this subchapter;

(2) Those being shipped in accordance with §173.56(e) of this subchapter, for the purposes of developmental testing;

(3) Those which meet the requirements of §173.56(h) of this subchapter and therefore are not subject to the approval process of §173.56 of this subchapter;

(4) Until October 1, 1993, those which are shipped under §171.19 of this subchapter; and

(5) Those that are transported in accordance with §173.56(c)(2) of this subchapter and, therefore, are covered by a national security classification currently in effect.

§172.322 Marine pollutants. **(a)** For vessel transportation of each non-bulk packaging that contains a marine pollutant—

(1) If the proper shipping name for a material which is a marine pollutant does not identify by name the component which makes the material a marine pollutant, the name of that component must be marked on the package in parentheses in association with the marked proper shipping name. Where two or more components which make a material a marine pollutant are present, the names of at least two of the components most predominantly contributing to the marine pollutant designation must appear in parentheses in association with the marked proper shipping name; and

(2) The MARINE POLLUTANT mark shall be placed in association with the hazard warning labels required by subpart E of this part or, in the absence of any labels, in association with the marked proper shipping name.

(b) A bulk packaging that contains a marine pollutant must—

(1) Be marked with the MARINE POLLUTANT mark on at least two opposing sides or two ends other than the bottom if the packaging has a capacity of less than 3,785 L (1,000 gallons). The mark must be visible from the direction it faces. The mark may be displayed in black lettering on a square-on-point configuration having the same outside dimensions as a placard; or

(2) Be marked on each end and each side with the MARINE POLLUTANT mark if the packaging has a capacity of 3,785 L (1,000 gallons) or more. The mark must be visible from the direction it faces. The mark may be displayed in black lettering on a square-on-point configuration having the same outside dimensions as a placard.

(c) A transport vehicle or freight container that contains a package subject to the marking requirements of paragraph (a) or (b) of this section must be marked with the MARINE POLLUTANT mark. The mark must appear on each side and each end of the transport vehicle or freight container, and must be visible from the direction it faces. This requirement may be met by the marking displayed on a freight container or portable tank loaded on a motor vehicle or rail car. This mark may be displayed in black lettering on a white square-on-point configuration having the same outside dimensions as a placard.

(d) The MARINE POLLUTANT mark is not required—

(1) On a combination package containing a severe marine pollutant (see appendix B to §172.101), in inner packagings each of which contains:

(i) 0.5 L (17 ounces) or less net capacity for liquids; or

(ii) 500 g (17.6 ounces) or less net capacity for solids.

(2) On a combination packaging containing a marine pollutant, other than a severe marine pollutant, in inner packagings each of which contains:

(i) 5 L (1.3 gallons) or less net capacity for liquids; or

(ii) 5 kg (11 pounds) or less net capacity for solids.

(3) Except for transportation by vessel, on a bulk packaging, freight container or transport vehicle that bears a label or placard specified in subparts E or F of this part.

(e) MARINE POLLUTANT mark. The MARINE POLLUTANT mark must conform to the following:

(1) Except for size, the MARINE POLLUTANT mark must appear as follows:

(2) The symbol, letters and border must be black and the background white, or the symbol, letters, border and background must be of contrasting color to the surface to which the mark is affixed. Each side of the mark must be—

(i) At least 100 mm (3.9 inches) for marks applied to:

(A) Non-bulk packagings, except in the case of packagings which, because of their size, can only bear smaller marks; or

(B) Bulk packagings with a capacity of less than 3785 L (1,000 gallons); or

(ii) At least 250 mm (9.8 inches) for marks applied to all other bulk packagings.

§172.323 Infectious substances. **(a)** In addition to other requirements of this subpart, after September 30, 2003, a bulk packaging containing a regulated medical waste, as defined in §173.134(a)(5) of this subchapter, must be marked with a BIOHAZARD marking conforming to 29 CFR 1910.1030(g)(1)(i).

(1) On two opposing sides or two ends other than the bottom if the packaging has a capacity of less than 3,785 L (1,000 gallons), the BIOHAZARD marking must measure at least 152.4 mm (6 inches) on each side and must be visible from the direction it faces.

(2) On each end and each side if the packaging has a capacity of 3,785 L (1,000 gallons) or more. The BIOHAZARD marking must measure at least 152.4 mm (6 inches) on each side and must be visible from the direction it faces.

(b) For a bulk packaging contained in or on a transport vehicle or freight container, if the BIOHAZARD marking on the bulk packaging is not visible, the transport vehicle or freight container must be marked as required by paragraph (a) of this section on each side and each end.

(c) The background color for the BIOHAZARD marking required by paragraph (a) of this section must be orange and the symbol and letters must be black. Except for size, the BIOHAZARD marking must appear as follows:

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(d) The BIOHAZARD marking required by paragraph (a) of this section must be displayed on a background of contrasting color. It may be displayed on a plain white square-on-point configuration having the same outside dimensions as a placard, as specified in §172.519(c) of this part.

§172.324 Hazardous substances in non-bulk packagings. For each non-bulk package that contains a hazardous substance—

(a) Except for packages of radioactive material labeled in accordance with §172.403, if the proper shipping name of a material that is a hazardous substance does not identify the hazardous substance by name, the name of the hazardous substance must be marked on the package, in parentheses, in association with the proper shipping name. If the material contains two or more hazardous substances, at least two hazardous substances, including the two with the lowest reportable quantities (RQs), must be identified. For a hazardous waste, the waste code (e.g., D001), if appropriate, may be used to identify the hazardous substance.

(b) The letters "RQ" shall be marked on the package in association with the proper shipping name.

§172.325 Elevated temperature materials. (a) Except as provided in paragraph (b) of this section, a bulk packaging containing an elevated temperature material must be marked on two opposing sides with the word "HOT" in black or white Gothic lettering on a contrasting background. The marking must be displayed on the packaging itself or in black lettering on a plain white square-on-point configuration having the same outside dimensions as a placard. (See §172.302(b) for size of markings on bulk packagings.)

(b) Bulk packagings containing molten aluminum or molten sulfur must be marked "MOLTEN ALUMINUM" or "MOLTEN SULFUR", respectively, in the same manner as prescribed in paragraph (a) of this section.

(c) If the identification number is displayed on a white-square-on-point display configuration, as prescribed in §172.336(b), the word "HOT" may be displayed in the upper corner of the same white-square-on-point display configuration. The word "HOT" must be in black letters having a height of at least 50 mm (2.0 inches). Except for size, these markings shall be as illustrated for an Elevated temperature material, liquid, n.o.s.:

§172.326 Portable tanks. (a) Shipping name. No person may offer for transportation or transport a portable tank containing a hazardous material unless it is legibly marked on two opposing sides with the proper shipping name specified for the material in the §172.101 table.

(b) Owner's name. The name of the owner or of the lessee, if applicable, must be displayed on a portable tank that contains a hazardous material.

(c) Identification numbers. (1) If the identification number markings required by §172.302(a) are not visible, a transport vehicle or freight container used to transport a portable tank containing a hazardous material must be marked on each side and each end as required by §172.332 with the identification number specified for the material in the §172.101 table.

(2) Each person who offers a portable tank containing a hazardous material to a motor carrier, for transportation in a transport vehicle or freight container, shall provide the motor carrier with the required identification numbers on placards, orange panels, or the white square-on-point configuration, as appropriate, for each side and each end of the transport vehicle or freight container from which identification numbers on the portable tank are not visible.

§172.328 Cargo tanks. (a) Providing and affixing identification numbers. Unless a cargo tank is already marked with the identification numbers required by this subpart, the identification numbers must be provided or affixed as follows:

(1) A person who offers a hazardous material to a motor carrier for transportation in a cargo tank shall provide the motor carrier the identification numbers on placards or shall affix orange panels containing the required identification numbers, prior to or at the time the material is offered for transportation.

(2) A person who offers a cargo tank containing a hazardous material for transportation shall affix the required identification numbers on panels or placards prior to or at the time the cargo tank is offered for transportation.

(3) For a cargo tank transported on or in a transport vehicle or freight container, if the identification number marking on the cargo tank required by §172.302(a) would not normally be visible during transportation—

(i) The transport vehicle or freight container must be marked as required by §172.332 on each side and each end with the identification number specified for the material in the §172.101 table; and

(ii) When the cargo tank is permanently installed within an enclosed cargo body of the transport vehicle or freight container, the identification number marking required by §172.302(a) need only be displayed on each side and end of a cargo tank that is visible when the cargo tank is accessed.

(b) Required markings: Gases. Except for certain nurse tanks which must be marked as specified in §173.315(m) of this subchapter, each cargo tank transporting a Class 2 material subject to this subchapter must be marked, in lettering no less than 50 mm (2.0 inches), on each side and each end with—

(1) The proper shipping name specified for the gas in the §172.101 table; or

(2) An appropriate common name for the material (e.g., "Refrigerant Gas").

(c) QT/NQT markings. Each MC 330 and MC 331 cargo tank must be marked near the specification plate, in letters no less than 50 mm (2.0 inches) in height, with—

(1) "QT", if the cargo tank is constructed of quenched and tempered steel; or

(2) "NQT", if the cargo tank is constructed of other than quenched and tempered steel.

§172.330 Tank cars and multi-unit tank car tanks. (a) Shipping name and identification number. No person may offer for transportation or transport a hazardous material—

(1) In a tank car unless the following conditions are met:

(i) The tank car must be marked on each side and each end as required by §172.302 with the identification number specified for the material in the §172.101 table; and

(ii) A tank car containing any of the following materials must be marked on each side with the key words of the proper shipping name specified for the material in the §172.101 table, or with a common name authorized for the material in this subchapter (e.g., "Refrigerant Gas"):

Acrolein, stabilized
Ammonia, anhydrous, liquefied
Ammonia solutions (more than 50% ammonia)
Bromine *or* Bromine solutions
Bromine chloride

PART 172

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Chloroprene, stabilized
Dispersant gas *or* Refrigerant gas (as defined in §173.115 of this subchapter)
Division 2.1 materials
Division 2.2 materials (in Class DOT 107 tank cars only)
Division 2.3 materials
Formic acid
Hydrocyanic acid, aqueous solutions
Hydrofluoric acid, solution
Hydrogen cyanide, stabilized (less than 3% water)
Hydrogen fluoride, anhydrous
Hydrogen peroxide, aqueous solutions (greater than 20% hydrogen peroxide)
Hydrogen peroxide, stabilized
Hydrogen peroxide and peroxyacetic acid mixtures
Nitric acid (other than red fuming)
Phosphorus, amorphous
Phosphorus, white dry *or* Phosphorus, white, under water *or* Phosphorus white, in solution, *or* Phosphorus, yellow dry *or* Phosphorus, yellow, under water *or* Phosphorus, yellow, in solution
Phosphorus white, molten
Potassium nitrate and sodium nitrate mixtures
Potassium permanganate
Sulfur trioxide, stabilized
Sulfur trioxide, uninhibited

(2) In a multi-unit tank car tank, unless the tank is marked on two opposing sides, in letters and numerals no less than 50 mm (2.0 inches) high—

(i) With the proper shipping name specified for the material in the §172.101 table or with a common name authorized for the material in this subchapter (e.g., "Refrigerant Gas"); and

(ii) With the identification number specified for the material in the §172.101 Table, unless marked in accordance with §§172.302(a) and 172.332 of this subpart.

(b) A motor vehicle or rail car used to transport a multi-unit tank car tank containing a hazardous material must be marked on each side and each end, as required by §172.332, with the identification number specified for the material in the §172.101 table.

§172.331 Bulk packagings other than portable tanks, cargo tanks, tank cars and multi-unit tank car tanks. **(a)** Each person who offers a hazardous material to a motor carrier for transportation in a bulk packaging shall provide the motor carrier with the required identification numbers on placards or plain white square-on-point display configurations, as authorized, or shall affix orange panels containing the required identification numbers to the packaging prior to or at the time the material is offered for transportation, unless the packaging is already marked with the identification number as required by this subchapter.

(b) Each person who offers a bulk packaging containing a hazardous material for transportation shall affix to the packaging the required identification numbers on orange panels, square-on-point configurations or placards, as appropriate, prior to, or at the time the packaging is offered for transportation unless it is already marked with identification numbers as required by this subchapter.

(c) For a bulk packaging contained in or on a transport vehicle or freight container, if the identification number marking on the bulk packaging (e.g., an IBC) required by §172.302(a) is not visible, the transport vehicle or freight container must be marked as required by §172.332 on each side and each end with the identification number specified for the material in the §172.101 table.

§172.332 Identification number markings. (a) General. When required by §§172.301, 172.302, 172.313, 172.326, 172.328, 172.330, or 172.331, identification number markings must be displayed on orange panels or placards as specified in this section, or on white square-on-point configurations as prescribed in §172.336(b).

(b) Orange panels. Display of an identification number on an orange panel shall be in conformance with the following:

(1) The orange panel must be 160 mm (6.3 inches) high by 400 mm (15.7 inches) wide with a 15 mm (0.6 inches) black outer border. The identification number shall be displayed in 100 mm (3.9 inches) black Helvetica Medium numerals on the orange panel. Measurements may vary from those specified plus or minus 5 mm (0.2 inches).

(2) The orange panel may be made of any durable material prescribed for placards in §172.519, and shall be of the orange color specified for labels or placards in appendix A to this part.

(3) The name and hazard class of a material may be shown in the upper left border of the orange panel in letters not more than 18 points high.

(4) Except for size and color, the orange panel and identification numbers shall be as illustrated for Liquefied petroleum gas:

(c) Placards. Display of an identification number on a hazard warning placard shall be in conformance with the following:

(1) The identification number shall be displayed across the center area of the placard in 88 mm (3.5 inches) black Alpine Gothic or Alternate Gothic No. 3 numerals on a white background 100 mm (3.9 inches) high and approximately 215 mm (8.5 inches) wide and may be outlined with a solid or dotted line border.

(2) The top of the 100 mm (3.9 inches) high white background shall be approximately 40 mm (1.6 inches) above the placard horizontal center line.

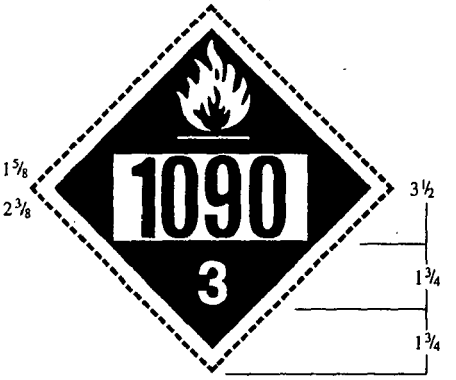
(3) An identification number may be displayed only on a placard corresponding to the primary hazard class of the hazardous material.

(4) For a COMBUSTIBLE placard used to display an identification number, the entire background below the white background for the identification number must be white during transportation by rail and may be white during transportation by highway.

(5) The name of the hazardous material and the hazard class may be shown in letters not more than 18 points high immediately within the upper border of the space on the placard bearing the identification number of the material.

(6) If an identification number is placed over the word(s) on a placard, the word(s) should be substantially covered to maximize the effectiveness of the identification number.

(d) Except for size and color, the display of an identification number on a placard shall be as illustrated for Acetone:



§172.334 Identification numbers; prohibited display. (a) No person may display an identification number on a RADIOACTIVE, EXPLOSIVES 1.1, 1.2, 1.3, 1.4, 1.5 or 1.6, DANGEROUS, or subsidiary hazard placard.

(b) No person may display an identification number on a placard, orange panel or white square-on-point display configuration unless—

(1) The identification number is specified for the material in §172.101;

(2) The identification number is displayed on the placard, orange panel or white square-on-point configuration authorized by §172.332 or §172.336(b), as appropriate, and any placard used for display of the identification number corresponds to the hazard class of the material specified in §172.504;

(3) Except as provided under §172.336(c)(4) or (c)(5), the package, freight container, or transport vehicle on which the number is displayed contains the hazardous material associated with that identification number in §172.101.

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(c) Except as required by §172.332(c)(4) for a combustible liquid, the identification number of a material may be displayed only on the placards required by the tables in §172.504.

(d) Except as provided in §172.336, a placard bearing an identification number may not be used to meet the requirements of subpart F of this part unless it is the correct identification number for all hazardous materials of the same class in the transport vehicle or freight container on which it is displayed.

(e) Except as specified in §172.338, an identification number may not be displayed on an orange panel on a cargo tank unless affixed to the cargo tank by the person offering the hazardous material for transportation in the cargo tank.

(f) If a placard is required by §172.504, an identification number may not be displayed on an orange panel unless it is displayed in proximity to the placard.

(g) No person shall add any color, number, letter, symbol, or word other than as specified in this subchapter, to any identification number marking display which is required or authorized by this subchapter.

§172.336 Identification numbers; special provisions. (a) When not required or prohibited by this subpart, identification numbers may be displayed on a transport vehicle or a freight container in the manner prescribed by this subpart.

(b) Identification numbers, when required, must be displayed on either orange panels (see §172.332(b)) or on a plain white square-on-point display configuration having the same outside dimensions as a placard. In addition, for materials in hazard classes for which placards are specified and identification number displays are required, but for which identification numbers may not be displayed on the placards authorized for the material (see §172.334(a)), identification numbers must be displayed on orange panels or on the plain white square-on-point display configuration in association with the required placards. An identification number displayed on a white square-on-point display configuration is not considered to be a placard.

(1) The 100 mm (3.9 inch) by 215 mm (8.5 inches) area containing the identification number shall be located as prescribed by §172.332(c)(1) and (c)(2) and may be outlined with a solid or dotted line border.

(2) [Reserved]

(c) Identification numbers are not required:

(1) On the ends of a portable tank, cargo tank or tank car having more than one compartment if hazardous materials having different identification numbers are being transported therein. In such a circumstance, the identification numbers on the sides of the tank shall be displayed in the same sequence as the compartments containing the materials they identify.

(2) On a cargo tank containing only gasoline, if the cargo tank is marked "Gasoline" on each side and rear in letters no less than 50 mm (2 inches) high, or is placarded in accordance with §172.542(c).

(3) On a cargo tank containing only fuel oil, if the cargo tank is marked "Fuel Oil" on each side and rear in letters no less than 50 mm (2 inches) high, or is placarded in accordance with §172.544(c).

(4) For each of the different liquid petroleum distillate fuels, including gasoline and gasohol in a compartmented cargo tank or tank car, if the identification number is displayed for the distillate fuel having the lowest flash point.

(5) For each of the different liquid petroleum distillate fuels, including gasoline and gasohol transported in a cargo tank, if the identification number is displayed for the liquid petroleum distillate fuel having the lowest flash point.

(6) On nurse tanks meeting the provisions of §173.315(m) of this subchapter.

§172.338 Replacement of identification numbers. If more than one of the identification number markings on placards, orange panels, or white square-on-point display configurations that are required to be displayed are lost, damaged or destroyed during transportation, the carrier shall replace all the missing or damaged identification numbers as soon as practicable. However, in such a case, the numbers may be entered by hand on the appropriate placard, orange panel or white square-on-point display configuration providing the correct identification numbers are entered legibly using an indelible marking material. When entered by hand, the identification numbers must be located in the white display area specified in §172.332. This section does not preclude required compliance with the placarding requirements of subpart F of this subchapter.

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PUBLISHER'S NOTE

This Subpart contains information on the type and number of labels required on a package. Labeling applies to non-bulk packaging, however, certain freight containers which contain hazardous material packagings and some bulk packagings less than a certain size can be either labeled or placarded (placards are covered in the next Subpart). The labels required are prescribed in column (6) of the §172.101 Hazardous Materials Table. Labels are square-on-point shaped and roughly 4 inches on each side. The description of each label appears in this Subpart beginning on §172.411.

Labeling is an important part of the hazardous communications requirements. A label is a permanent feature of the package applied by the shipper, the person tendering the package for transportation. The labels identify primary and secondary hazards assigned by RSPA to the particular hazardous material. Some materials can require up to three labels. The label is intended to covey the risks presented by the material in transportation.

Subpart E

LABELING

§172.400 General labeling requirements. (a) Except as specified in §172.400a, each person who offers for transportation or transports a hazardous material in any of the following packages or containment devices, shall label the package or containment device with labels specified for the material in the §172.101 table and in this subpart:

(1) A non-bulk package;

(2) A bulk packaging, other than a cargo tank, portable tank, or tank car, with a volumetric capacity of less than 18 m^3 (640 cubic feet), unless placarded in accordance with subpart F of this part;

(3) A portable tank of less than 3785 L (1000 gallons) capacity, unless placarded in accordance with subpart F of this part;

(4) A DOT Specification 106 or 110 multi-unit tank car tank, unless placarded in accordance with subpart F of this part; and

(5) An overpack, freight container or unit load device, of less than 18 m^3 (640 cubic feet), which contains a package for which labels are required, unless placarded or marked in accordance with §172.512 of this part.

(b) Labeling is required for a hazardous material which meets one or more hazard class definitions, in accordance with column 6 of the §172.101 table and the following table:

Hazard class or division	Label name	Label design or section reference
1.1	EXPLOSIVES 1.1	172.411
1.2	EXPLOSIVES 1.2	172.411
1.3	EXPLOSIVES 1.3	172.411
1.4	EXPLOSIVES 1.4	172.411
1.5	EXPLOSIVES 1.5	172.411
1.6	EXPLOSIVES 1.6	172.411
2.1	FLAMMABLE GAS	172.417
2.2	NONFLAMMABLE GAS	172.415
2.3	POISON GAS	172.416
3 (flammable liquid) Combustible liquid	FLAMMABLE LIQUID (none)	172.419
4.1	FLAMMABLE SOLID	172.420
4.2	SPONTANEOUSLY COMBUSTIBLE	172.422
4.3	DANGEROUS WHEN WET	172.423
5.1	OXIDIZER	172.426
5.2	ORGANIC PEROXIDE	172.427
6.1 (inhalation hazard, Zone A or B)	POISON INHALATION HAZARD	172.429
6.1 (other than inhalation hazard, Zone A or B)	POISON	172.430
6.2	INFECTIOUS SUBSTANCE[1]	172.432
7 (see §172.403)	RADIOACTIVE WHITE-I	172.436
7	RADIOACTIVE YELLOW-II	172.438
7	RADIOACTIVE YELLOW-III	172.440
7 (empty packages, see §173.428 of this subchapter)	EMPTY	172.450
8	CORROSIVE	172.442
9	CLASS 9	172.446

[1]The ETIOLOGIC AGENT label specified in regulations of the Department of Health and Human Services at 42 CFR 72.3 may apply to packages of infectious substances.

§172.400a Exceptions from labeling. (a) Notwithstanding the provisions of §172.400, a label is not required on—

(1) A cylinder, or a Dewar flask conforming to §173.320 of this subchapter containing a Division 2.1 or Division 2.2 gas that is—

(i) Not poisonous;
(ii) Carried by a private or contract motor carrier;
(iii) Not overpacked; and
(iv) Durably and legibly marked in accordance with CGA Pamphlet C-7, appendix A.

(2) A package or unit of military explosives (including ammunition) shipped by or on behalf of the DOD when in—

(i) Freight containerload, carload or truckload shipments, if loaded and unloaded by the shipper or DOD; or
(ii) Unitized or palletized break-bulk shipments by cargo vessel under charter to DOD if at least one required label is displayed on each unitized or palletized load.

(3) A package containing a hazardous material other than ammunition that is—

(i) Loaded and unloaded under the supervision of DOD personnel, and
(ii) Escorted by DOD personnel in a separate vehicle.

(4) A compressed gas cylinder permanently mounted in or on a transport vehicle.

(5) A freight container, aircraft unit load device or portable tank, which—

(i) Is placarded in accordance with subpart F of this part, or
(ii) Conforms to paragraph (a)(3) or (b)(3) of §172.512.

(6) An overpack or unit load device in or on which labels representative of each hazardous material in the overpack or unit load device are visible.

(7) A package of low specific activity radioactive material and surface contaminated objects, when transported under §173.427(a)(6)(vi) of this subchapter.

(b) Certain exceptions to labeling requirements are provided for small quantities and limited quantities in applicable sections in part 173 of this subchapter.

(c) Notwithstanding the provisions of §172.402(a), a subsidiary hazard label is not required on a package containing a Class 8 (corrosive) material which has a subsidiary hazard of Division 6.1 (poisonous) if the toxicity of the material is based solely on the corrosive destruction of tissue rather then systemic poisoning.

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(d) A package containing a material poisonous by inhalation (see §171.8 of this subchapter) in a closed transport vehicle or freight container may be excepted from the POISON INHALATION HAZARD or POISON GAS label or placard, under the conditions set forth in §§171.12 and 171.12a of this subchapter.

§172.401 Prohibited labeling. (a) Except as otherwise provided in this section, no person may offer for transportation and no carrier may transport a package bearing a label specified in this subpart unless:

(1) The package contains a material that is a hazardous material, and

(2) The label represents a hazard of the hazardous material in the package.

(b) No person may offer for transportation and no carrier may transport a package bearing any marking or label which by its color, design, or shape could be confused with or conflict with a label prescribed by this part.

(c) The restrictions in paragraphs (a) and (b) of this section, do not apply to packages labeled in conformance with:

(1) The UN Recommendations (see §171.7 of this subchapter);

(2) The IMDG Code (see §171.7 of this subchapter);

(3) The ICAO Technical Instructions (see §171.7 of this subchapter);

(4) The TDG Regulations (see §171.7 of this subchapter).

(d) The provisions of paragraph (a) of this section do not apply to a packaging bearing a label if that packaging is:

(1) Unused or cleaned and purged of all residue;

(2) Transported in a transport vehicle or freight container in such a manner that the packaging is not visible during transportation; and

(3) Loaded by the shipper and unloaded by the shipper or consignee.

§172.402 Additional labeling requirements. (a) Subsidiary hazard labels. Each package containing a hazardous material—

(1) Shall be labeled with primary and subsidiary hazard labels as specified in column 6 of the §172.101 table (unless excepted in paragraph (a)(2) of this section); and

(2) For other than Class 1 or Class 2 materials (for subsidiary labeling requirements for Class 1 or Class 2 materials see paragraph (e) or paragraphs (f) and (g), respectively of this section), if not already labeled under paragraph (a)(1) of this section, shall be labeled with subsidiary hazard labels in accordance with the following table:

SUBSIDIARY HAZARD LABELS

Subsidiary hazard level (packing group)	Subsidiary Hazard (Class or Division)						
	3	4.1	4.2	4.3	5.1	6.1	8
I	X	***	***	X	X	X	X
II	X	X	X	X	X	X	X
III	*	X	X	X	X	X	X

X— Required for all modes
*— Required for all modes, except for a material with a flash point at or above 38°C (100°F) transported by rail or highway.
**— Reserved.
***— Impossible as subsidiary hazard.

(b) Display of hazard class on labels. The appropriate hazard class or division number must be displayed in the lower corner of a primary hazard label and a subsidiary hazard label. A subsidiary label meeting the specifications of this section which were in effect on September 30, 2001, such as, a label without the hazard class or division number displayed in the lower corner of the label) may continue to be used as a subsidiary label in domestic transportation by rail or highway until October 1, 2005, provided the color tolerances are maintained and are in accordance with the display requirements in this subchapter.

(c) Cargo Aircraft Only Label. Each person who offers for transportation or transports by aircraft a package containing a hazardous material which is authorized on cargo aircraft only shall label the package with a CARGO AIRCRAFT ONLY label specified in §172.448 of this subpart.

(d) Class 7 (Radioactive) Materials. Except as otherwise provided in this paragraph, each package containing a Class 7 material that also meets the definition of one or more additional hazard classes must be labeled as a Class 7 material as required by §172.403 of this subpart and for each additional hazard. A subsidiary hazard label is not required on a package containing a Class 7 material that conforms to criteria specified in §173.4 of this subchapter, except §173.4(a)(1)(iv) of this subchapter.

(e) Class 1 (explosive) Materials. In addition to the label specified in column 6 of the §172.101 table, each package of Class 1 materia that also meets the definition for:

(1) Division 6.1, Packing Groups I or II, shall be labeled POISON or POISON INHALATION HAZARD, as appropriate.

(2) Class 7, shall be labeled in accordance with §172.403 of this subpart.

(f) Division 2.2 materials. In addition to the label specified in column 6 of the §172.101 table, each package of Division 2.2 material that also meets the definition for an oxidizing gas (see §171.8 of this subchapter) must be labeled OXIDIZER.

(g) Division 2.3 materials. In addition to the label specified in column 6 of the §172.101 table, each package of Division 2.3 material that also meets the definition for:

(1) Division 2.1, must be labeled Flammable Gas;

(2) Division 5.1, must be labeled Oxidizer; and

(3) Class 8, must be labeled Corrosive.

§172.403 Class 7 (radioactive) material. (a) Unless excepted from labeling by §§173.421 through 173.427 of this subchapter, each package of radioactive material must be labeled as provided in this section.

(b) The proper label to affix to a package of Class 7 (radioactive) material is based on the radiation level at the surface of the package and the transport index. The proper category of label must be determined in accordance with paragraph (c) of this section. The label to be applied must be the highest category required for any of the two determining conditions for the package. RADIOACTIVE WHITE-I is the lowest category and RADIOACTIVE YELLOW-III is the highest. For example, a package with a transport index of 0.8 and a maximum surface radiation level of 0.6 millisievert (60 millirems) per hour must bear a RADIOACTIVE YELLOW-III label.

(c) Category of label to be applied to Class 7 (radioactive) materials packages:

Transport index	Maximum radiation level at any point on the external surface	Label category[1]
0[2]	Less than or equal to 0.005 mSv/h (0.5 mrem/ h).	WHITE-I
More than 0 but not more than 1	Greater than 0.005 mSv/h (0.5 mrem/h) but less than or equal to 0.5 mSv/h (50 mrem/h)	YELLOW-II
More than 1 but not more than 10	Greater than 0.5 mSv/h (50 mrem/h) but less than or equal to 2 mSv/h (200 mrem/h)	YELLOW-III
More than 10	Greater than 2 mSv/h (200 mrem/h) but less than or equal to 10 mSv/h (1,000 mrem/h)	YELLOW-III (Must be shipped under exclusive use provisions; see 173.441(b) of this subchapter)

[1]Any package containing a "highway route controlled quantity" (§173.403 of this subchapter) must be labeled as RADIOACTIVE YELLOW-III.
[2]If the measured TI is not greater than 0.05, the value may be considered to be zero.

(d) EMPTY label. See §173.428(d) of this subchapter for EMPTY labeling requirements.

(e) [Reserved]

(f) Each package required by this section to be labeled with a RADIOACTIVE label must have two of these labels, affixed to opposite sides of the package. (See §172.406(e)(3) for freight container label requirements).

(g) The following applicable items of information must be entered in the blank spaces on the RADIOACTIVE label by legible printing (manual or mechanical), using a durable weather resistant means of marking:

(1) Contents. The name of the radionuclides as taken from the listing of radionuclides in §173.435 of this subchapter (symbols which conform to established radiation protection terminology are authorized, i.e., ^{99}Mo, ^{60}Co, etc.). For mixtures of radionuclides, with consideration of space available on the label, the radionuclides that must be shown must be determined in accordance with §173.433(f) of this subchapter.

(2) Activity. Activity units must be expressed in appropriate SI units (e.g., Becquerels (Bq), Terabecquerels (TBq), etc.) or in both appropriate SI units and appropriate customary units (Curies (Ci), MilliCuries (mCi), microCuries (uCi), etc.). Except for plutonium-238, plutonium-239, and plutonium-241, the weight in grams or kilograms

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of fissile radionuclides may be inserted instead of activity units. For plutonium-238, plutonium-239, and plutonium-241, the weight in grams or kilograms of fissile radionuclides may be inserted in addition to the activity units.

(3) Transport index. (See §173.403 of this subchapter.)

§172.404 Labels for mixed and consolidated packaging.

(a) Mixed packaging. When hazardous materials having different hazard classes are packed within the same packaging, or within the same outside container or overpack as described in §173.25 and authorized by §173.21 of this subchapter, the packaging, outside container or overpack must be labeled as required for each class of hazardous material contained therein.

(b) Consolidated packaging. When two or more packages containing compatible hazardous material (see §173.21 of this subchapter) are placed within the same outside container or overpack, the outside container or overpack must be labeled as required for each class of hazardous material contained therein.

§172.405 Authorized label modifications. (a) For Classes 1, 2, 3, 4, 5, 6, and 8, text indicating a hazard (for example FLAMMABLE LIQUID) is not required on a primary or subsidiary label.

(b) For a package containing Oxygen, compressed, or Oxygen, refrigerated liquid, the OXIDIZER label specified in §172.426 of this subpart, modified to display the word "OXYGEN" instead of "OXIDIZER" and the class number "2" instead of "5.1", may be used in place of the NON-FLAMMABLE GAS and OXIDIZER labels. Notwithstanding the provisions of paragraph (a) of this section, the word "OXYGEN" must appear on the label.

(c) For a package containing a Division 6.1, Packing Group III material, the POISON label specified in §172.430 may be modified to display the text "PG III" instead of "POISON" or "TOXIC" below the mid line of the label. Also see §172.313(d).

§172.406 Placement of labels. (a) General. (1) Except as provided in paragraphs (b) and (e) of this section, each label required by this subpart must—

(i) Be printed on or affixed to a surface (other than the bottom) of the package or containment device containing the hazardous material; and

(ii) Be located on the same surface of the package and near the proper shipping name marking, if the package dimensions are adequate.

(2) Except as provided in paragraph (e) of this section, duplicate labeling is not required on a package or containment device (such as to satisfy redundant labeling requirements).

(b) Exceptions. A label may be printed on or placed on a securely affixed tag, or may be affixed by other suitable means to:

(1) A package that contains no radioactive material and which has dimensions less than those of the required label;

(2) A cylinder; and

(3) A package which has such an irregular surface that a label cannot be satisfactorily affixed.

(c) Placement of multiple labels. When primary and subsidiary hazard labels are required, they must be displayed next to each other. Placement conforms to this requirement if labels are within 150 mm (6 inches) of one another.

(d) Contrast with background. Each label must be printed on or affixed to a background of contrasting color, or must have a dotted or solid line outer border.

(e) Duplicate labeling. Generally, only one of each different required label must be displayed on a package. However, duplicate labels must be displayed on at least two sides or two ends (other than the bottom) of—

(1) Each package or overpack having a volume of 1.8 m^3 (64 cubic feet) or more;

(2) Each non-bulk package containing a radioactive material;

(3) Each DOT 106 or 110 multi-unit tank car tank. Labels must be displayed on each end;

(4) Each portable tank of less than 3,785 L (1000 gallons) capacity; and

(5) Each freight container or aircraft unit load device having a volume of 1.8 m^3 (64 cubic feet) or more, but less than 18 m^3 (640 cubic feet). One of each required label must be displayed on or near the closure.

(f) Visibility. A label must be clearly visible and may not be obscured by markings or attachments.

§172.407 Label specifications. (a) Durability. Each label, whether printed on or affixed to a package, must be durable and weather resistant. A label on a package must be able to withstand, without deterioration or a substantial change in color, a 30-day exposure to conditions incident to transportation that reasonably could be expected to be encountered by the labeled package.

(b) Design. (1) Except for size and color, the printing, inner border, and symbol on each label must be as shown in §§172.411 through 172.448 of this subpart, as appropriate.

(2) The dotted line border shown on each label is not part of the label specification, except when used as an alternative for the solid line outer border to meet the requirements of §172.406(d) of this subpart.

(c) Size. (1) Each diamond (square-on-point) label prescribed in this subpart must be at least 100 mm (3.9 inches) on each side with each side having a solid line inner border 5.0 to 6.3 mm (0.2 to 0.25 inches) from the edge.

(2) The CARGO AIRCRAFT ONLY label must be a rectangle measuring at least 110 mm (4.3 inches) in height by 120 mm (4.7 inches) in width. The word "DANGER" must be shown in letters measuring at least 12.7 mm (0.5 inches) in height.

(3) Except as otherwise provided in this subpart, the hazard class number, or division number, as appropriate, must be at least 6.3 mm (0.25 inches) and not greater than 12.7 mm (0.5 inches).

(4) When text indicating a hazard is displayed on a label, the label name must be shown in letters measuring at least 7.6 mm (0.3 inches) in height. For SPONTANEOUSLY COMBUSTIBLE or DANGEROUS WHEN WET labels, the words "Spontaneously" and "When Wet" must be shown in letters measuring at least 5.1 mm (0.2 inches) in height.

(5) The symbol on each label must be proportionate in size to that shown in the appropriate section of this subpart.

(d) Color. (1) The background color on each label must be as prescribed in §§172.411 through 172.448 of this subpart, as appropriate.

(2) The symbol, text, numbers, and border must be shown in black on a label except that—

(i) White may be used on a label with a one color background of green, red or blue; and

(ii) White must be used for the text and class number for the CORROSIVE label.

(3) Black and any color on a label must be able to withstand, without substantial change, a 72-hour fadeometer test (for a description of equipment designed for this purpose, see ASTM G 23-69 (1975) or ASTM G 26-70).

(4) (i) A color on a label, upon visual examination, must fall within the color tolerances—

(A) Displayed on color charts conforming to the technical specifications for charts set forth in table 1 or 2 in appendix A to this part; or

(B) For labels printed on packaging surfaces, specified in table 3 in appendix A to this part.

(ii) Color charts conforming to appendix A to this part are on display in Office of Hazardous Materials Safety, Office of ★ Hazardous Materials Standards, Room 8422, Nassif Building, 400 Seventh Street, SW., Washington, DC 20590-0001.

(5) The specified label color must extend to the edge of the label in the area designated on each label except the CORROSIVE, RADIOACTIVE YELLOW-II and RADIOACTIVE YELLOW-III labels on which the color must extend only to the inner border.

(e) Form identification. A label may contain form identification information, including the name of its maker, provided that information is printed outside the solid line inner border in no larger than 10-point type.

(f) Exceptions. Except for materials poisonous by inhalation (See §171.8 of this subchapter), a label conforming to specifications in the UN Recommendations may be used in place of a corresponding label that conforms to the requirements of this subpart.

(g) Trefoil symbol. The trefoil symbol on the RADIOACTIVE WHITE-I, RADIOACTIVE YELLOW-II, and RADIOACTIVE YELLOW-III labels must meet the appropriate specifications in appendix B of this part.

§172.411 EXPLOSIVE 1.1, 1.2, 1.3, 1.4, 1.5 and 1.6 labels. (a) Except for size and color, the EXPLOSIVE 1.1, EXPLOSIVE 1.2 and EXPLOSIVE 1.3 labels must be as follows:

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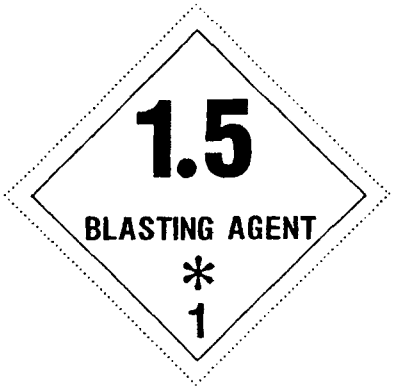
(b) In addition to complying with §172.407, the background color on the EXPLOSIVE 1.1, EXPLOSIVE 1.2 and EXPLOSIVE 1.3 labels must be orange. The "**" shall be replaced with the appropriate division number and compatibility group. The compatibility group letter must be the same size as the division number and must be shown as a capitalized Roman letter.

(c) Except for size and color, the EXPLOSIVE 1.4, EXPLOSIVE 1.5 and EXPLOSIVE 1.6 labels must be as follows:

EXPLOSIVE 1.4:

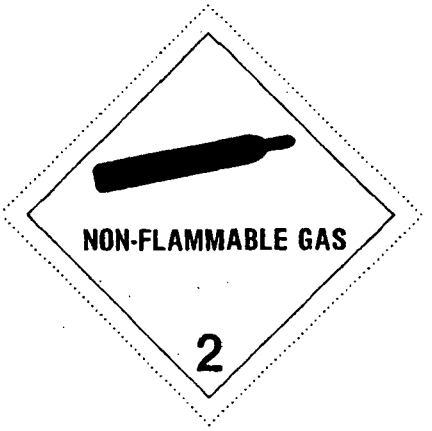
EXPLOSIVE 1.5:



EXPLOSIVE 1.6:

(d) In addition to complying with §172.407, the background color on the EXPLOSIVE 1.4, EXPLOSIVE 1.5, EXPLOSIVE 1.6, and EXPLOSIVE subsidiary label must be orange. The "*" shall be replaced with the appropriate compatibility group. The compatibility group letter must be shown as a capitalized Roman letter. Division numerals must measure at least 30 mm (1.2 inches) in height and at least 5 mm (0.2 inches) in width.

§172.415 NON-FLAMMABLE GAS label. (a) Except for size and color, the NON-FLAMMABLE GAS label must be as follows:



(b) In addition to complying with §172.407, the background color on the NON-FLAMMABLE GAS label must be green.

§172.416 POISON GAS label. (a) Except for size and color, the POISON GAS label must be as follows:

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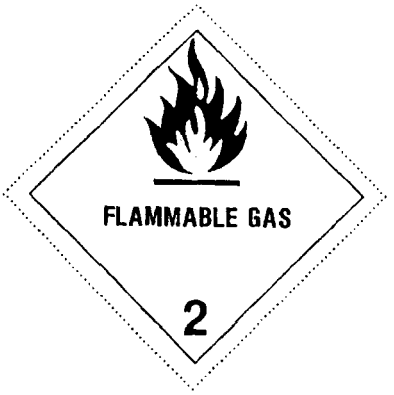
(b) In addition to complying with §172.407, the background on the POISON GAS label and the symbol must be white. The background of the upper diamond must be black and the lower point of the upper diamond must be 14 mm (0.54 inches) above the horizontal center line.

§172.417 FLAMMABLE GAS label. (a) Except for size and color, the FLAMMABLE GAS label must be as follows:

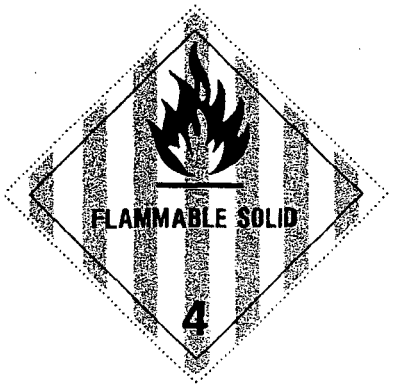


(b) In addition to complying with §172.407, the background color on the FLAMMABLE GAS label must be red.

§172.419 FLAMMABLE LIQUID label. (a) Except for size and color, the FLAMMABLE LIQUID label must be as follows:

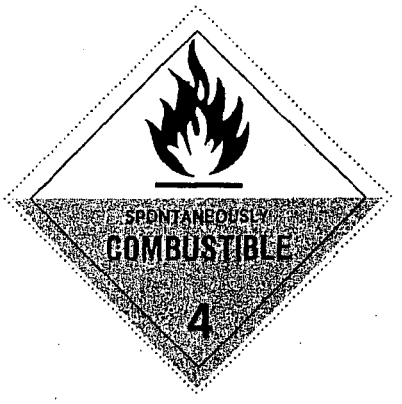
(b) In addition to complying with §172.407, the background color on the FLAMMABLE LIQUID label must be red.

§172.420 FLAMMABLE SOLID label. (a) Except for size and color, the FLAMMABLE SOLID label must be as follows:



(b) In addition to complying with §172.407, the background on the FLAMMABLE SOLID label must be white with vertical red stripes equally spaced on each side of a red stripe placed in the center of the label. The red vertical stripes must be spaced so that, visually, they appear equal in width to the white spaces between them. The symbol (flame) and text (when used) must be overprinted. The text "FLAMMABLE SOLID" may be placed in a white rectangle.

§172.422 SPONTANEOUSLY COMBUSTIBLE label. (a) Except for size and color, the SPONTANEOUSLY COMBUSTIBLE label must be as follows:



(b) In addition to complying with §172.407, the background color on the lower half of the SPONTANEOUSLY COMBUSTIBLE label must be red and the upper half must be white.

§172.423 DANGEROUS WHEN WET label. (a) Except for size and color, the DANGEROUS WHEN WET label must be as follows:

(b) In addition to complying with §172.407, the background color on the DANGEROUS WHEN WET label must be blue.

§172.426 OXIDIZER label. (a) Except for size and color, the OXIDIZER label must be as follows:

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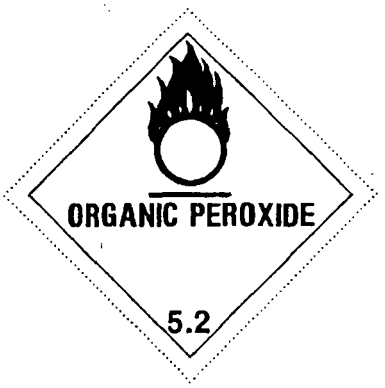
(b) In addition to complying with §172.407, the background color on the OXIDIZER label must be yellow.

§172.427 ORGANIC PEROXIDE label. (a) Except for size and color, the ORGANIC PEROXIDE label must be as follows:



(b) In addition to complying with §172.407, the background color on the **ORGANIC PEROXIDE** label must be yellow.

§172.429 POISON INHALATION HAZARD label. (a) Except for size and color, the POISON INHALATION HAZARD label must be as follows:

(b) In addition to complying with §172.407, the background on the POISON INHALATION HAZARD label and the symbol must be white. The background of the upper diamond must be black and the lower point of the upper diamond must be 14 mm (0.54 inches) above the horizontal center line.

§172.430 POISON label. (a) Except for size and color, the POISON label must be as follows:

(b) In addition to complying with §172.407, the background on the POISON label must be white. The word "TOXIC" may be used in lieu of the word "POISON".

§172.431 [Reserved]

§172.432 INFECTIOUS SUBSTANCE label. (a) Except for size and color, the INFECTIOUS SUBSTANCE label must be as follows:

(b) In addition to complying with §172.407, the background on the INFECTIOUS SUBSTANCE label must be white.

§172.436 RADIOACTIVE WHITE-I label. (a) Except for size and color, the RADIOACTIVE WHITE-I label must be as follows:

(b) In addition to complying with §172.407, the background on the RADIOACTIVE WHITE-I label must be white. The printing and symbol must be black, except for the "I" which must be red.

§172.438 RADIOACTIVE YELLOW-II label. (a) Except for size and color, the RADIOACTIVE YELLOW-II label must be as follows:

(b) In addition to complying with §172.407, the background color on the RADIOACTIVE YELLOW-II label must be yellow in the top half

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and white in the lower half. The printing and symbol must be black, except for the "II" which must be red.

§172.440 RADIOACTIVE YELLOW-III label. **(a)** Except for size and color, the RADIOACTIVE YELLOW-III label must be as follows:

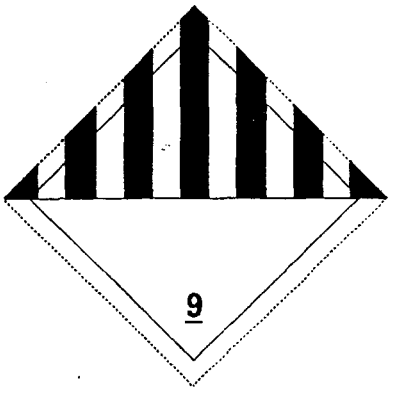
(b) In addition to complying with §172.407, the background color on the RADIOACTIVE YELLOW-III label must be yellow in the top half and white in the lower half. The printing and symbol must be black, except for the "III" which must be red.

§172.442 CORROSIVE label. **(a)** Except for size and color, the CORROSIVE label must be as follows:

(b) In addition to complying with §172.407, the background on the CORROSIVE label must be white in the top half and black in the lower half.

§172.444 [Reserved]

§172.446 CLASS 9 label. **(a)** Except for size and color, the "CLASS 9" (miscellaneous hazardous materials) label must be as follows:

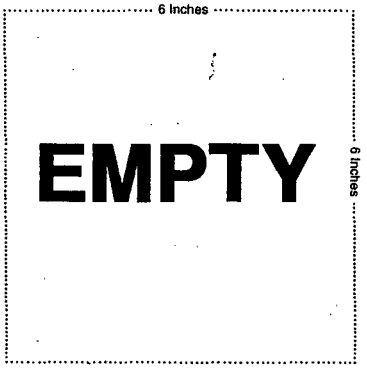


(b) In addition to complying with §172.407, the background on the CLASS 9 label must be white with seven black vertical stripes on the top half. The black vertical stripes must be spaced, so that, visually, they appear equal in width to the six white spaces between them. The lower half of the label must be white with the class number **"9"** underlined and centered at the bottom.

§172.448 CARGO AIRCRAFT ONLY label. **(a)** Except for size and color, the CARGO AIRCRAFT ONLY label must be as follows:

(b) The CARGO AIRCRAFT ONLY label must be black on an orange background.

§172.450 EMPTY label. **(a)** Each EMPTY label, except for size, must be as follows:



(1) Each side must be at least 6 inches (152 mm.) with each letter at least 1 inch (25.4 mm.) in height.
(2) The label must be white with black printing.
(b) [Reserved]

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PUBLISHER'S NOTE

This Subpart contains information on the type of placard required on a transport vehicle. In general, the placard is an enlarged label. Except for a few instances, unlike labeling, a placard is only required for the primary hazard. A mixed load of certain hazardous materials may be placarded with a "DANGEROUS" placard. Also, freight containers that contain packages, the total of which is less than 454 kg (1,001 lbs.) of certain classes of hazardous materials, are not required to be placarded.

Placarding is not required for those freight containers and bulk packages less than a certain size that can be either labeled or placarded. If they are labeled they need not be placarded.

A description of each placard begins with §172.521. As with labeling, placarding is an important element of the hazardous communications requirements.

Subpart F

PLACARDING

§172.500 Applicability of placarding requirements. (a) Each person who offers for transportation or transports any hazardous material subject to this subchapter shall comply with the applicable placarding requirements of this subpart.

(b) This subpart does not apply to—

(1) Infectious substances;

(2) Hazardous materials classed as ORM-D;

(3) Hazardous materials authorized by this subchapter to be offered for transportation as Limited Quantities when identified as such on shipping papers in accordance with §172.203(b);

(4) Hazardous materials prepared in accordance with §173.13 of this subchapter;

(5) Hazardous materials which are packaged as small quantities under the provisions of §173.4 of this subchapter; and

(6) Combustible liquids in non-bulk packagings.

§172.502 Prohibited and permissive placarding. (a) Prohibited placarding. Except as provided in paragraph (b) of this section, no person may affix or display on a packaging, freight container, unit load device, motor vehicle or rail car—

(1) Any placard described in this subpart unless—

(i) The material being offered or transported is a hazardous material;

(ii) The placard represents a hazard of the hazardous material being offered or transported; and

(iii) Any placarding conforms to the requirements of this subpart.

(2) Any sign, advertisement, slogan (such as "Drive Safely"), or device that, by its color, design, shape or content, could be confused with any placard prescribed in this subpart.

(b) Exceptions. (1) The restrictions in paragraph (a) of this section do not apply to a bulk packaging, freight container, unit load device, transport vehicle or rail car which is placarded in conformance with TDG Regulations, the IMDG Code or the UN Recommendations (see §171.7 of this subchapter).

(2) The restrictions of paragraph (a) of this section do not apply ★ to the display of a BIOHAZARD marking, a "HOT" marking, or an identification number on a white square-on-point configuration in ac- ★ cordance with §§172.323(c), 172.325(c), or 172.336(b) of this part, respectively.

(3) The restrictions in paragraph (a)(2) of this section do not apply until October 1, 2001 to a safety sign or safety slogan (e.g., "Drive Safely" or "Drive Carefully"), which was permanently marked on a transport vehicle, bulk packaging, or freight container on or before August 21, 1997.

(c) Permissive placarding. Placards may be displayed for a hazardous material, even when not required, if the placarding otherwise conforms to the requirements of this subpart.

§172.503 Identification number display on placards. For procedures and limitations pertaining to the display of identification numbers on placards, see §172.334.

§172.504 General placarding requirements. (a) General. Except as otherwise provided in this subchapter, each bulk packaging, freight container, unit load device, transport vehicle or rail car containing any quantity of a hazardous material must be placarded on each side and each end with the type of placards specified in tables 1 and 2 of this section and in accordance with other placarding requirements of this subpart, including the specifications for the placards named in the tables and described in detail in §§172.519 through 172.560.

(b) DANGEROUS placard. A freight container, unit load device, transport vehicle, or rail car which contains non-bulk packages with two or more categories of hazardous materials that require different placards specified in table 2 of paragraph (e) of this section may be placarded with a DANGEROUS placard instead of the separate placarding specified for each of the materials in table 2 of paragraph (e) of this section. However, when 1,000 kg (2,205 pounds) aggregate gross weight or more of one category of material is loaded therein at one loading facility on a freight container, unit load device, transport vehicle, or rail car, the placard specified in table 2 of paragraph (e) of this section for that category must be applied.

(c) Exception for less than 454 kg (1,001 pounds). Except for bulk packagings and hazardous materials subject to §172.505, when hazardous materials covered by table 2 of this section are transported by highway or rail, placards are not required on—

(1) A transport vehicle or freight container which contains less than 454 kg (1001 pounds) aggregate gross weight of hazardous materials covered by table 2 of paragraph (e) of this section; or

(2) A rail car loaded with transport vehicles or freight containers, none of which is required to be placarded. The exceptions provided in paragraph (c) of this section do not prohibit the display of placards in the manner prescribed in this subpart, if not otherwise prohibited (see §172.502), on transport vehicles or freight containers which are not required to be placarded.

(d) Exception for empty non-bulk packages. A non-bulk packaging that contains only the residue of a hazardous material covered by table 2 of paragraph (e) of this section need not be included in determining placarding requirements.

(e) Placarding tables. Placards are specified for hazardous materials in accordance with the following tables:

TABLE 1

Category of material (Hazard class or division number and additional description, as appropriate)	Placard name	Placard design section references (§)
1.1	EXPLOSIVES 1.1	172.522
1.2	EXPLOSIVES 1.2	172.522
1.3	EXPLOSIVES 1.3	172.522
2.3	POISON GAS	172.540
4.3	DANGEROUS WHEN WET	172.548
5.2 (Organic peroxide, Type B, liquid or solid, temperature controlled)	ORGANIC PEROXIDE	172.552
6.1 (inhalation hazard, Zone A or B)	POISON INHALATION HAZARD	172.555
7 (Radioactive Yellow III label only)	RADIOACTIVE[1]	172.556

[1]RADIOACTIVE placard also required for exclusive use shipments of low specific activity material and surface contaminated objects transported in accordance with §173.427(a) of this subchapter.

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TABLE 2

Category of material (Hazard class or division number and additional description, as appropriate)	Placard name	Placard design section reference (§)
1.4	EXPLOSIVES 1.4	172.523
1.5	EXPLOSIVES 1.5	172.524
1.6	EXPLOSIVES 1.6	172.525
2.1	FLAMMABLE GAS	172.532
2.2	NON-FLAMMABLE GAS	172.528
3	FLAMMABLE	172.542
Combustible liquid	COMBUSTIBLE	172.544
4.1	FLAMMABLE SOLID	172.546
4.2	SPONTANEOUSLY COMBUSTIBLE	172.547
5.1	OXIDIZER	172.550
5.2 (Other than organic peroxide, Type B, liquid or solid, temperature controlled)	ORGANIC PEROXIDE	172.552
6.1 (other than inhalation hazard, Zone A or B)	POISON	172.554
6.2	(none)	
8	CORROSIVE	172.558
9	CLASS 9 (see §172.504(f)(9))	172.560
ORM-D	(none)	

(f) Additional placarding exceptions. **(1)** When more than one division placard is required for Class 1 materials on a transport vehicle, rail car, freight container or unit load device, only the placard representing the lowest division number may be displayed.

(2) A FLAMMABLE placard may be used in place of a COMBUSTIBLE placard on—

(i) A cargo tank or portable tank.

(ii) A compartmented tank car which contains both flammable and combustible liquids.

(3) A NON-FLAMMABLE GAS placard is not required on a transport vehicle which contains non-flammable gas if the transport vehicle also contains flammable gas or oxygen and it is placarded with FLAMMABLE GAS or OXYGEN placards, as required.

(4) OXIDIZER placards are not required for Division 5.1 materials on freight containers, unit load devices, transport vehicles or rail cars which also contain Division 1.1 or 1.2 materials and which are placarded with EXPLOSIVES 1.1 or 1.2 placards, as required.

(5) For transportation by transport vehicle or rail car only, an OXIDIZER placard is not required for Division 5.1 materials on a transport vehicle, rail car or freight container which also contains Division 1.5 explosives and is placarded with EXPLOSIVES 1.5 placards, as required.

(6) The EXPLOSIVE 1.4 placard is not required for those Division 1.4 Compatibility Group S (1.4S) materials that are not required to be labeled 1.4S.

(7) For domestic transportation of oxygen, compressed or oxygen, refrigerated liquid, the OXYGEN placard in §172.530 of this subpart may be used in place of a NON-FLAMMABLE GAS placard.

(8) For domestic transportation, a POISON INHALATION HAZARD placard is not required on a transport vehicle or freight container that is already placarded with the POISON GAS placard.

(9) For domestic transportation, a Class 9 placard is not required. A bulk packaging containing a Class 9 material must be marked with the appropriate identification number displayed on a Class 9 placard, an orange panel or a white square-on-point display configuration as required by subpart D of this part.

(10) For Division 6.1, PG III materials, a POISON placard may be modified to display the text "PG III" below the mid line of the placard.

(11) For domestic transportation, a POISON placard is not required on a transport vehicle or freight container required to display a POISON INHALATION HAZARD or POISON GAS placard.

(g) For shipments of Class 1 (explosive) materials by aircraft or vessel, the applicable compatibility group letter must be displayed on the placards required by this section. When more than one compatibility group placard is required for Class 1 materials, only one placard is required to be displayed as follows:

(1) Explosive articles of compatibility groups C, D or E may be placarded displaying compatibility group E.

(2) Explosive articles of compatibility groups C, D, E or N may be placarded displaying compatibility group D.

(3) Explosive substances of compatibility groups C and D may be placarded displaying compatibility group D.

(4) Explosive articles of compatibility groups C, D, E or G, except for fireworks, may be placarded displaying compatibility group E.

§172.505 Placarding for subsidiary hazards. **(a)** Each transport vehicle, freight container, portable tank, unit load device, or rail car that contains a poisonous material subject to the "Poison Inhalation Hazard" shipping description of §172.203(m)(2) must be placarded with a POISON INHALATION HAZARD or POISON GAS placard, as appropriate, on each side and each end, in addition to any other placard required for that material in §172.504. Duplication of the POISON INHALATION HAZARD or POISON GAS placard is not required.

(b) In addition to the RADIOACTIVE placard which may be required by §172.504(e) of this subpart, each transport vehicle, portable tank or freight container that contains 454 kg (1001 pounds) or more gross weight of fissile or low specific activity uranium hexafluoride shall be placarded with a CORROSIVE placard on each side and each end.

(c) Each transport vehicle, portable tank, freight container or unit load device that contains a material which has a subsidiary hazard of being dangerous when wet, as defined in §173.124 of this subchapter, shall be placarded with DANGEROUS WHEN WET placards, on each side and each end, in addition to the placards required by §172.504.

(d) Hazardous materials that possess secondary hazards may exhibit subsidiary placards that correspond to the placards described in this part, even when not required by this part (see also §172.519(b)(4) of this subpart).

§172.506 Providing and affixing placards: Highway. **(a)** Each person offering a motor carrier a hazardous material for transportation by highway shall provide to the motor carrier the required placards for the material being offered prior to or at the same time the material is offered for transportation, unless the carrier's motor vehicle is already placarded for the material as required by this subpart.

(1) No motor carrier may transport a hazardous material in a motor vehicle, unless the placards required for the hazardous material are affixed thereto as required by this subpart.

(2) [Reserved]

(b) [Reserved]

§172.507 Special placarding provisions: Highway. **(a)** Each motor vehicle used to transport a package of highway route controlled quantity Class 7 (radioactive) materials (see §173.403 of this subchapter) must have the required RADIOACTIVE warning placard placed on a square background as described in §172.527.

(b) A nurse tank, meeting the provisions of §173.315(m) of this subchapter, is not required to be placarded on an end containing valves, fittings, regulators or gauges when those appurtenances prevent the markings and placard from being properly placed and visible.

§172.508 Placarding and affixing placards: Rail. **(a)** Each person offering a hazardous material for transportation by rail shall affix to the rail car containing the material, the placards specified by this subpart. Placards displayed on motor vehicles, transport containers, or portable tanks may be used to satisfy this requirement, if the placards otherwise conform to the provisions of this subpart.

(b) No rail carrier may accept a rail car containing a hazardous material for transportation unless the placards for the hazardous material are affixed thereto as required by this subpart.

§172.510 Special placarding provisions: Rail **(a) White square background.** The following must have the specified placards placed on a white square background, as described in §172.527:

(1) Division 1.1 and 1.2 (explosive) materials which require EXPLOSIVES 1.1 or EXPLOSIVES 1.2 placards affixed to the rail car;

(2) Materials classed in Division 2.3 Hazard Zone A or 6.1 Packing Group I Hazard Zone A which require POISON GAS or POISON placards affixed to the rail car, including tank cars containing only a residue of the material; and

(3) Class DOT 113 tank cars used to transport a Division 2.1 (flammable gas) material, including tank cars containing only a residue of the material.

(b) Chemical ammunition. Each rail car containing Division 1.1 or 1.2 (explosive) ammunition which also meets the definition of a material poisonous by inhalation (see §171.8 of this subchapter) must be placarded EXPLOSIVES 1.1 or EXPLOSIVES 1.2 and POISON GAS or POISON INHALATION HAZARD.

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§172.512 Freight containers and aircraft unit load devices.

(a) Capacity of 640 cubic feet or more. Each person who offers for transportation, and each person who loads and transports, a hazardous material in a freight container or aircraft unit load device having a capacity of 640 cubic feet or more shall affix to the freight container or aircraft unit load device the placards specified for the material in accordance with §172.504. However:

(1) The placarding exception provided in §172.504(c) applies to motor vehicles transporting freight containers and aircraft unit load devices,

(2) The placarding exception provided in §172.504(c) applies to each freight container and aircraft unit load device being transported for delivery to a consignee immediately following an air or water shipment, and,

(3) Placarding is not required on a freight container or aircraft unit load device if it is only transported by air and is identified as containing a hazardous material in the manner provided in part 5, chapter 2, section 2.7, of the ICAO Technical Instructions (see §171.7 of this subchapter).

(b) Capacity less than 18 m^3 (640 cubic feet). Each person who offers for transportation by air, and each person who loads and transports by air, a hazardous material in a freight container or aircraft unit load device having a capacity of less than 18 m^3 (640 cubic feet) shall affix one placard of the type specified by paragraph (a) of this section unless the freight container or aircraft unit load device:

(1) Is labeled in accordance with subpart E of this part, including §172.406(e);

(2) Contains radioactive materials requiring the Radioactive Yellow III label and is placarded with one Radioactive placard and is labeled in accordance with subpart E of this part, including §172.406(e); or,

(3) Is identified as containing a hazardous material in the manner provided in part 5, chapter 2, section 2.7, of the ICAO Technical Instructions.

When hazardous materials are offered for transportation, not involving air transportation, in a freight container having a capacity of less than 640 cubic feet the freight container need not be placarded. However, if not placarded it must be labeled in accordance with subpart E of this part.

(c) Notwithstanding paragraphs (a) and (b) of this section, packages containing hazardous materials, other than ORM-D, offered for transportation by air in freight containers are subject to the inspection requirements of §175.30 of this chapter.

§172.514 Bulk packagings. (a) Except as provided in paragraph (c) of this section, each person who offers for transportation a bulk packaging which contains a hazardous material, shall affix the placards specified for the material in §§172.504 and 172.505.

(b) Each bulk packaging that is required to be placarded when it contains a hazardous material, must remain placarded when it is emptied, unless it is—

(1) Sufficiently cleaned of residue and purged of vapors to remove any potential hazard; or

(2) Refilled, with a material requiring different placards or no placards, to such an extent that any residue remaining in the packaging is no longer hazardous.

(c) Exceptions. The following packagings may be placarded on only two opposite sides or, alternatively, may be labeled instead of placarded in accordance with subpart E of this part:

(1) A portable tank having a capacity of less than 3,785 L (1,000 gallons);

(2) A DOT 106 or 110 multi-unit tank car tank;

(3) A bulk packaging other than a portable tank, cargo tank, or tank car (e.g., a bulk bag or box) with a volumetric capacity of less than 18 m^3 (640 cubic feet); and

(4) An IBC.

§172.516 Visibility and display of placards. (a) Each placard on a motor vehicle and each placard on a rail car must be clearly visible from the direction it faces, except from the direction of another motor vehicle or rail car to which the motor vehicle or rail car is coupled. This requirement may be met by the placards displayed on the freight containers or portable tanks loaded on a motor vehicle or rail car.

(b) The required placarding of the front of a motor vehicle may be on the front of a truck-tractor instead of or in addition to the placarding on the front of the cargo body to which a truck-tractor is attached.

(c) Each placard on a transport vehicle, bulk packaging, freight container or aircraft unit load device must—

(1) Be securely attached or affixed thereto or placed in a holder thereon. (See appendix C to this part.);

(2) Be located clear of appurtenances and devices such as ladders, pipes, doors, and tarpaulins;

(3) So far as practicable, be located so that dirt or water is not directed to it from the wheels of the transport vehicle;

(4) Be located away from any marking (such as advertising) that could substantially reduce its effectiveness, and in any case at least 3 inches (76.0 mm.) away from such marking;

(5) Have the words or identification number (when authorized) printed on it displayed horizontally, reading from left to right;

(6) Be maintained by the carrier in a condition so that the format, legibility, color, and visibility of the placard will not be substantially reduced due to damage, deterioration, or obscurement by dirt or other matter;

(7) Be affixed to a background of contrasting color, or must have a dotted or solid line outer border which contrasts with the background color.

(d) Recommended specifications for a placard holder are set forth in appendix C of this part. Except for a placard holder similar to that contained in appendix C to this part, the means used to attach a placard may not obscure any part of its surface other than the borders.

(e) A placard or placard holder may be hinged provided the required format, color, and legibility of the placard are maintained.

§172.519 General specifications for placards. (a) Strength and durability. Placards must conform to the following:

(1) A placard may be made of any plastic, metal or other material capable of withstanding, without deterioration or a substantial reduction in effectiveness, a 30-day exposure to open weather conditions.

(2) A placard made of tagboard must be at least equal to that designated commercially as white tagboard. Tagboard must have a weight of at least 80 kg (176 pounds) per ream of 610 by 910 mm (24 by 36-inch) sheets, waterproofing materials included. In addition, each placard made of tagboard must be able to pass a 414 kPa (60 p.s.i.) Mullen test.

(3) Reflective or retroreflective materials may be used on a placard if the prescribed colors, strength and durability are maintained.

(b) Design. (1) Except as provided in §172.332 of this part, each placard must be as described in this subpart, and except for size and color, the printing, inner border and symbol must be as shown in §§172.521 through 172.560 of this subpart, as appropriate.

(2) The dotted line border shown on each placard is not part of the placard specification. However, a dotted or solid line outer border may be used when needed to indicate the full size of a placard that is part of a larger format or is on a background of a non-contrasting color.

(3) For other than Class 7 or the DANGEROUS placard, text indicating a hazard (for example, "FLAMMABLE") is not required. Text may be omitted from the OXYGEN placard only if the specific identification number is displayed on the placard.

(4) For a placard corresponding to the primary or subsidiary hazard class of a material, the hazard class or division number must be displayed in the lower corner of the placard. However, a permanently affixed subsidiary placard meeting the specifications of this section which were in effect on October 1, 2001, (such as, a placard without ★ the hazard class or division number displayed in the lower corner of the placard) and which was installed prior to September 30, 2001, may continue to be used as a subsidiary placard in domestic transportation by rail or highway, provided the color tolerances are maintained and are in accordance with the display requirements in this subchapter. Stocks of non-permanently affixed subsidiary placards in compliance with the requirements in effect on September 30, 2001, may continue to be used in domestic transportation by rail or highway until October 1, 2005, or until current stocks are depleted, whichever occurs first.

(c) Size. (1) Each placard prescribed in this subpart must measure at least 273 mm (10.8 inches) on each side and must have a solid line inner border approximately 12.7 mm (0.5 inches) from each edge.

(2) Except as otherwise provided in this subpart, the hazard class or division number, as appropriate, must be shown in numerals measuring at least 41 mm (1.6 inches) in height.

(3) Except as otherwise provided in this subpart, when text indicating a hazard is displayed on a placard, the printing must be in letters measuring at least 41 mm (1.6 inches) in height.

(d) Color. (1) The background color, symbol, text, numerals and inner border on a placard must be as specified in §§172.521 through

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172.560 of this subpart, as appropriate.

(2) Black and any color on a placard must be able to withstand, without substantial change—

(i) A 72-hour fadeometer test (for a description of equipment designed for this purpose, see ASTM G 23-69 or ASTM G 26-70); and

(ii) A 30-day exposure to open weather.

(3) Upon visual examination, a color on a placard must fall within the color tolerances displayed on the appropriate Hazardous Materials Label and Placard Color Tolerance Chart (see §172.407(d)(4)).

(4) The placard color must extend to the inner border and may extend to the edge of the placard in the area designated on each placard except the color on the CORROSIVE and RADIOACTIVE placards (black and yellow, respectively) must extend only to the inner border.

(e) Form identification. A placard may contain form identification information, including the name of its maker, provided that information is printed outside of the solid line inner border in no larger than 10-point type.

(f) Exceptions. When hazardous materials are offered for transportation or transported under the provisions of §§171.11, 171.12, or §171.12a of this subchapter, a placard conforming to specifications in the ICAO Technical Instructions, the IMDG Code, or the TDG Regulations, respectively, may be used in place of a corresponding placard which conforms to the requirements of this subpart; except that a bulk packaging, transport vehicle, or freight container containing a material poisonous by inhalation (see §171.8 of this subchapter) must be placarded in accordance with this subpart (see §§171.12(b)(8), 171.12(e) and 171.12a(b)(5) of this subchapter).

(g) Trefoil symbol. The trefoil symbol on the RADIOACTIVE placard must meet the appropriate specification in appendix B of this part.

§172.521 DANGEROUS placard. (a) Except for size and color, the DANGEROUS placard must be as follows:

(b) In addition to meeting the requirements of §172.519, appendix B to this part, the DANGEROUS placard must have a red upper and lower triangle. The placard center area and ½-inch (12.7 mm.) border must be white. The inscription must be black with the ⅛-inch (3.2 mm.) border marker in the white area at each end of the inscription red.

§172.522 EXPLOSIVES 1.1, EXPLOSIVES 1.2 and EXPLOSIVES 1.3 placards. (a) Except for size and color, the EXPLOSIVES 1.1, EXPLOSIVES 1.2 and EXPLOSIVES 1.3 placards must be as follows:

(b) In addition to complying with §172.519 of this subpart, the background color on the EXPLOSIVES 1.1, EXPLOSIVES 1.2, and EXPLOSIVES 1.3 placards must be orange. The "*" shall be replaced with the appropriate division number and, when required, appropriate compatibility group letter. The symbol, text, numerals and inner border must be black.

§172.523 EXPLOSIVES 1.4 placard. (a) Except for size and color, the EXPLOSIVES 1.4 placard must be as follows:

(b) In addition to complying with §172.519 of this subpart, the background color on the EXPLOSIVES 1.4 placard must be orange. The "*" shall be replaced, when required, with the appropriate compatability group letter. The division numeral, 1.4, must measure at least 64 mm (2.5 inches) in height. The text, numerals and inner border must be black.

§172.524 EXPLOSIVES 1.5 placard. (a) Except for size and color, the EXPLOSIVES 1.5 placard must be as follows:

(b) In addition to complying with §172.519 of this subpart, the background color on EXPLOSIVES 1.5 placard must be orange. The "*" shall be replaced, when required, with the appropriate compatability group letter. The division numeral, 1.5, must measure at least 64 mm (2.5 inches) in height. The text, numerals and inner border must be black.

§172.525 EXPLOSIVES 1.6 placard. (a) Except for size and color, the EXPLOSIVES 1.6 placard must be as follows:

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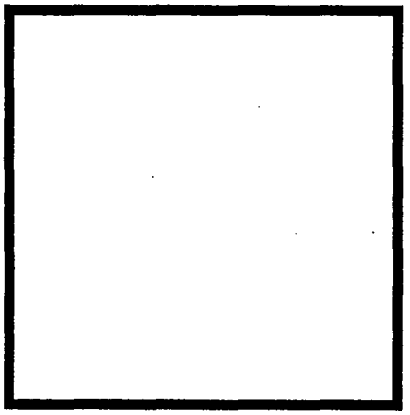
(b) In addition to complying with §172.519 of this subpart, the background color on the EXPLOSIVES 1.6 placard must be orange. The "✻" shall be replaced, when required, with the appropriate compatability group letter. The division numerals, 1.6, must measure at least 64 mm (2.5 inches) in height. The text, numerals and inner border must be black.

§172.526 [Reserved]

§172.527 Background requirements for certain placards.

(a) Except for size and color, the square background required by §172.510(a) for certain placards on rail cars, and §172.507 for placards on motor vehicles containing a package of highway route controlled quantity radioactive materials, must be as follows:

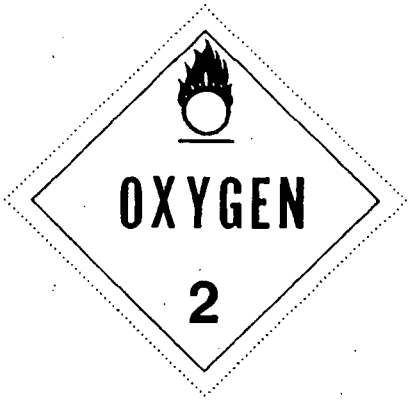


(b) In addition to meeting the requirements of §172.519 for minimum durability and strength, the square background must consist of a white square measuring 14¼ inches (362.0 mm.) on each side surrounded by a black border extending to 15¼ inches (387.0 mm.) on each side.

§172.528 NON-FLAMMABLE GAS placard. (a) Except for size and color, the NON-FLAMMABLE GAS placard must be as follows:

(b) In addition to complying with §172.519, the background color on the NON-FLAMMABLE GAS placard must be green. The letters in both words must be at least 38 mm (1.5 inches) high. The symbol, text, class number and inner border must be white.

§172.530 OXYGEN placard. (a) Except for size and color, the OXYGEN placard must be as follows:



(b) In addition to complying with §172.519, the background color on the OXYGEN placard must be yellow. The symbol, text, class number and inner border must be black.

§172.532 FLAMMABLE GAS placard. (a) Except for size and color, the FLAMMABLE GAS placard must be as follows:

(b) In addition to complying with §172.519, the background color on the FLAMMABLE GAS placard must be red. The symbol, text, class number and inner border must be white.

§172.536 [Reserved]

§172.540 POISON GAS placard. (a) Except for size and color, the POISON GAS placard must be as follows:

(b) In addition to complying with §172.519, the background on the POISON GAS placard and the symbol must be white. The background of the upper diamond must be black and the lower point of the upper diamond must be 65 mm. (2⅝ inches) above the horizontal center line. The text, class number, and inner border must be black.

§172.542 FLAMMABLE placard. (a) Except for size and color, the FLAMMABLE placard must be as follows:

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(b) In addition to complying with §172.519, the background color on the FLAMMABLE placard must be red. The symbol, text, class number and inner border must be white.

(c) The word "GASOLINE" may be used in place of the word "FLAMMABLE" on a placard that is displayed on a cargo tank or a portable tank being used to transport gasoline by highway. The word "GASOLINE" must be shown in white.

§172.544 COMBUSTIBLE placard. **(a)** Except for size and color, the COMBUSTIBLE placard must be as follows:

(b) In addition to complying with §172.519, the background color on the COMBUSTIBLE placard must be red. The symbol, text, class number and inner border must be white. On a COMBUSTIBLE placard with a white bottom as prescribed by §172.332(c)(4), the class number must be red or black.

(c) The words "FUEL OIL" may be used in place of the word "COMBUSTIBLE" on a placard that is displayed on a cargo tank or portable tank being used to transport by highway fuel oil that is not classed as a flammable liquid. The words "FUEL OIL" must be white.

§172.546 FLAMMABLE SOLID placard. **(a)** Except for size and color, the FLAMMABLE SOLID placard must be as follows:

(b) In addition to complying with §172.519, the background on the FLAMMABLE SOLID placard must be white with seven vertical red stripes. The stripes must be equally spaced, with one red stripe placed in the center of the label. Each red stripe and each white space between two red stripes must be 25 mm (1.0 inches) wide. The letters in the word "SOLID" must be at least 38.1 mm (1.5 inches) high. The symbol, text, class number and inner border must be black.

§172.547 SPONTANEOUSLY COMBUSTIBLE placard.

(a) Except for size and color, the SPONTANEOUSLY COMBUSTIBLE placard must be as follows:

(b) In addition to complying with §172.519, the background color on the SPONTANEOUSLY COMBUSTIBLE placard must be red in the lower half and white in upper half. The letters in the word "SPONTANEOUSLY" must be at least 12 mm (0.5 inches) high. The symbol, text, class number and inner border must be black.

§172.548 DANGEROUS WHEN WET placard. **(a)** Except for size and color, the DANGEROUS WHEN WET placard must be as follows:

(b) In addition to complying with §172.519, the background color on the DANGEROUS WHEN WET placard must be blue. The letters in the words "WHEN WET" must be at least 25 mm (1.0 inches) high. The symbol, text, class number and inner border must be white.

§172.550 OXIDIZER placard. **(a)** Except for size and color, the OXIDIZER placard must be as follows:

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(b) In addition to complying with §172.519, the background color on the OXIDIZER placard must be yellow. The symbol, text, division number and inner border must be black.

§172.552 ORGANIC PEROXIDE placard. (a) Except for size and color, the ORGANIC PEROXIDE placard must be as follows:

(b) In addition to complying with §172.519, the background color on the ORGANIC PEROXIDE placard must be yellow. The symbol, text, division number and inner border must be black.

§172.553 [Reserved]

§172.554 POISON placard. (a) Except for size and color, the POISON placard must be as follows:

(b) In addition to complying with §172.519, the background on the **POISON** placard must be white. The symbol, text, class number and inner border must be black. The word "TOXIC" may be used in lieu of the word "POISON".

§172.555 POISON INHALATION HAZARD placard.

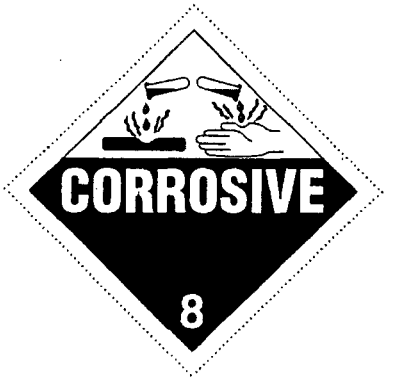
(a) Except for size and color, the POISON INHALATION HAZARD placard must be as follows:

(b) In addition to complying with §172.519, the background on the POISON INHALATION HAZARD placard and the symbol must be white. The background of the upper diamond must be black and the lower point of the upper diamond must be 65 mm. ($2\frac{5}{8}$ inches) above the horizontal center line. The text, class number, and inner border must be black.

§172.556 RADIOACTIVE placard. (a) Except for size and color, the RADIOACTIVE placard must be as follows:

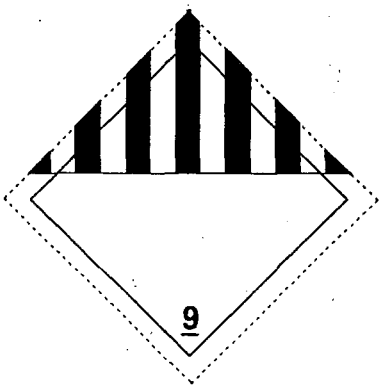
(b) In addition to complying with §172.519, the background color on the RADIOACTIVE placard must be white in the lower portion with a yellow triangle in the upper portion. The base of the yellow triangle must be 29 mm ±5 mm (1.1 inches ±0.2 inches) above the placard horizontal center line. The symbol, text, class number and inner border must be black.

§172.558 CORROSIVE placard. (a) Except for size and color, the CORROSIVE placard must be as follows:



(b) In addition to complying with §172.519, the background color on the CORROSIVE placard must be black in the lower portion with a white triangle in the upper portion. The base of the white triangle must be 38 mm ±5 mm (1.5 inches ±0.2 inches) above the placard horizontal center line. The text and class number must be white. The symbol and inner border must be black.

§172.560 CLASS 9 placard. (a) Except for size and color, the CLASS 9 (miscellaneous hazardous materials) placard must be as follows:



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(b) In addition to conformance with §172.519, the background on the CLASS 9 placard must be white with seven black vertical stripes on the top half extending from the top of the placard to one inch above the horizontal centerline. The black vertical stripes must be spaced so that, visually, they appear equal in width to the six white spaces between them. The space below the vertical lines must be white with the class number 9 underlined and centered at the bottom.

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Section VII
Tankcar Loading/ Unloading

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(1) Any hazardous material shipping name and identification number markings, any hazard warning labels or placards, and any other markings indicating that the material is hazardous (e.g., RQ, INHALATION HAZARD) are removed, obliterated, or securely covered in transportation. This provision does not apply to transportation in a transport vehicle or a freight container if the packaging is not visible in transportation and the packaging is loaded by the shipper and unloaded by the shipper or consignee;

(2) The packaging—

(i) Is unused;

(ii) Is sufficiently cleaned of residue and purged of vapors to remove any potential hazard;

(iii) Is refilled with a material which is not hazardous to such an extent that any residue remaining in the packaging no longer poses a hazard; or

(iv) Contains only the residue of—

(A) An ORM-D material; or

(B) A Division 2.2 non-flammable gas, other than ammonia, anhydrous, and with no subsidiary hazard, at an absolute pressure less than 280 kPa (40.6 psia); at 20°C (68°F); and

(3) Any material contained in the packaging does not meet the definitions in §171.8 of this subchapter for a hazardous substance, a hazardous waste, or a marine pollutant.

(c) A non-bulk packaging containing only the residue of a hazardous material covered by table 2 of §172.504 of this subchapter—

(1) Does not have to be included in determining the applicability of the placarding requirements of subpart F of part 172 of this subchapter; and

(2) Is not subject to the shipping paper requirements of this subchapter when collected and transported by a contract or private carrier for reconditioning, remanufacture or reuse.

(d) Notwithstanding the stowage requirements in Column 10a of the §172.101 table for transportation by vessel, an empty drum or cylinder may be stowed on deck or under deck.

(e) Specific provisions for describing an empty packaging on a shipping paper appear in §172.203(e) of this subchapter.

(f) [Reserved]

(g) A package which contains a residue of an elevated temperature material may remain marked in the same manner as when it contained a greater quanitity of the material even though it no longer meets the definition in §171.8 of this subchapter for an elevated temperature material.

§173.30 Loading and unloading of transport vehicles. A person who loads or unloads hazardous materials into or from a transport vehicle or vessel shall comply with the applicable loading and unloading requirements of parts 174, 175, 176, and 177 of this subchapter.

§173.31 Use of tank cars. (a) General. (1) No person may offer a hazardous material for transportation in a tank car unless the tank car meets the applicable specification and packaging requirements of this subchapter or, when this subchapter authorizes the use of an non-DOT specification tank car, the applicable specification to which the tank was constructed.

(2) Tank cars and appurtenances may be used for the transportation of any commodity for which they are authorized in this part and specified on the certificate of construction (AAR Form 4-2 or by addendum on Form R-1). See §179.5 of this subchapter. Transfer of a tank car from one specified service on its certificate of construction to another may be made only by the owner or with the owner's authorization. A tank car proposed for a commodity service other than specified on its certificate of construction must be approved for such service by the AAR's Tank Car Committee.

(3) No person may fill a tank car overdue for periodic inspection with a hazardous material and then offer it for transportation. Any tank car marked as meeting a DOT specification and any non-specification tank car transporting a hazardous material must have a periodic inspection and test conforming to subpart F of part 180 of this subchapter.

(4) No railroad tank car, regardless of its construction date, may be used for the transportation in commerce of any hazardous material unless the air brake equipment support attachments of such tank car conform to the standards for attachments set forth in §§179.100-16 and 179.200-19 of this subchapter.

(5) No railroad tank car, regardless of its construction date, may be used for the transportation in commerce of any hazardous material with a self-energized manway located below the liquid level of the lading.

(6) Unless otherwise specifically provided in this part:

(i) When the tank car delimiter is an "A," offerors may also use tank cars with a delimiter "S," "J" or "T".

(ii) When the tank car delimiter is an "S," offerors may also use tank cars with a delimiter "J" or "T".

(iii) When a tank car delimiter is a "T" offerors may also use tank cars with a delimiter of "J".

(iv) When a tank car delimiter is a "J", offerors may not use a tank car with any other delimiter.

(b) Safety systems—(1) Coupler vertical restraint. Each tank car conforming to a DOT specification and any other tank car used for transportation of a hazardous material must be equipped with a coupler vertical restraint system that meets the requirements of §179.14 of this subchapter.

(2) Pressure relief devices. (i) Pressure relief devices on tank cars must conform to part 179 of this subchapter.

(ii) Except for shipments of chloroprene, stabilized, in class DOT 115 tank cars, single-unit tank cars used for materials meeting the definition for Division 6.1 liquid, Packing Group I or II, Class 2 materials, or Class 3 or 4 liquids, must have reclosing pressure relief devices. However, a tank car built before January 1, 1991, and equipped with a non-closing pressure relief device may be used to transport a Division 6.1 or Class 4 liquid if the liquid is not poisonous by inhalation. Unless otherwise specifically provided in this subchapter, rupture discs may not have any perforated holes to allow for venting.

(3) Tank-head puncture-resistance requirements. The following tank cars must have a tank-head puncture-resistance system that conforms to the requirements in §179.16 of this subchapter, or to the corresponding requirements in effect at the time of installation:

(i) Tank cars transporting a Class 2 material.

(ii) Tank cars constructed from aluminum or nickel plate that are used to transport hazardous material.

(iii) Except as provided in paragraph (b)(3)(iv) of this section, those tank cars specified in paragraphs (b)(3)(i) and (ii) of this section not requiring a tank-head puncture resistance system prior to July 1, 1996, must have a tank-head puncture resistance system installed no later than July 1, 2006.

(iv) Class DOT 105A tank cars built prior to September 1, 1981, having a tank capacity less than 70 kl (18,500 gallons), and used to transport a Division 2.1 (flammable gas) material, must have a tank-head puncture-resistant system installed no later than July 1, 2001.

(4) Thermal protection requirements. The following tank cars must have thermal protection that conforms to the requirements of §179.18 of this subchapter.

(i) Tank cars transporting a Class 2 material, except for a class 106, 107A, 110, and 113 tank car. A tank car equipped with a thermal protection system conforming to §179.18 of this subchapter, or that has an insulation system having an overall thermal conductance of no more than 0.613 kilojoules per hour, per square meter, per degree Celsius temperature differential (0.03 B.t.u. per square foot, per hour, per degree Fahrenheit temperature differential), conforms to this requirement.

(ii) A tank car transporting a Class 2 material that was not required to have thermal protection prior to July 1, 1996, must be equipped with thermal protection no later than July 1, 2006.

(5) Bottom-discontinuity protection requirements. No person may offer for transportation a hazardous material in a tank car with bottom discontinuity protection unless the tank car has bottom-discontinuity protection that conforms to the requirements of E9.00 and E10.00 of the AAR Specifications for Tank Cars. Tank cars not requiring bottom-discontinuity protection under the terms of appendix Y of the AAR Specifications for Tank Cars as of July 1, 1996, must conform to these requirements no later than July 1, 2006. Tank cars modified before July 1, 1996, may conform to the bottom-discontinuity protection requirements of appendix Y of the 1992 edition of the AAR Specifications for Tank Cars.

(6) Scheduling of modifications and progress reporting. The date of conformance for the continued use of tank cars subject to paragraphs (b)(3), (b)(4), (b)(5), (e)(2), and (f) of this section and §§173.314(j) and 173.323(c)(1) is subject to the following conditions and limitations.

(i) Each tank car owner shall modify, reassign, retire, or remove at least 50 percent of their in-service tank car fleet within the first half of the compliance period and the remainder of their in-service tank car fleet during the second half of the compliance

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period.

(ii) By October 1 of each year, each owner of a tank car subject to this paragraph (b)(6) shall submit to the Federal Railroad Administration, Hazardous Materials Division, Office of Safety Assurance and Compliance, 1120 Vermont Avenue, Mail Stop 25, Washington, DC 20590, a progress report that shows the total number of in-service tank cars that need head protection, thermal protection, or bottom-discontinuity protection; the number of new or different tank cars acquired to replace those tank cars required to be upgraded to a higher service pressure; and the total number of tank cars modified, reassigned, acquired, retired, or removed from service the previous year.

(c) Tank car test pressure. A tank car used for the transportation of a hazardous material must have a tank test pressure equal to or greater than the greatest of the following:

(1) Except for shipments of carbon dioxide, anhydrous hydrogen chloride, vinyl fluoride, ethylene, or hydrogen, 133 percent of the sum of lading vapor pressure at the reference temperature of 46°C (115°F) for non-insulated tank cars or 41°C (105°F) for insulated tank cars plus static head, plus gas padding pressure in the vacant space of a tank car;

(2) 133 percent of the maximum loading or unloading pressure, whichever is greater;

(3) 20.7 Bar (300 psig) for materials that are poisonous by inhalation (see §173.31(e)(2)(ii) for compliance dates);

(4) The minimum pressure prescribed by the specification in part 179 of this subchapter; or

(5) The minimum test pressure prescribed for the specific hazardous material in the applicable packaging section in subpart F or G of this part.

(d) Examination before shipping. (1) No person may offer for transportation a tank car containing a hazardous material or a residue of a hazardous material unless that person determines that the tank car is in proper condition and safe for transportation. As a minimum, each person offering a tank car for transportation must perform an external visual inspection that includes:

(i) Except where insulation or a thermal protection system precludes an inspection, the tank shell and heads for abrasion, corrosion, cracks, dents, distortions, defects in welds, or any other condition that makes the tank car unsafe for transportation;

(ii) The piping, valves, fittings, and gaskets for corrosion, damage, or any other condition that makes the tank car unsafe for transportation;

(iii) For missing or loose bolts, nuts, or elements that make the tank car unsafe for transportation;

(iv) All closures on tank cars and determine that the closures and all fastenings securing them are properly tightened in place by the use of a bar, wrench, or other suitable tool;

(v) Protective housings for proper securement;

(vi) The pressure relief device, including a careful inspection of the rupture disc in non-reclosing pressure relief devices, for corrosion or damage that may alter the intended operation of the device;

(vii) Each tell-tale indicator after filling and prior to transportation to ensure the integrity of the rupture disc;

(viii) The external thermal protection system, tank-head puncture resistance system, coupler vertical restraint system, and bottom discontinuity protection for conditions that make the tank car unsafe for transportation;

(ix) The required markings on the tank car for legibility; and

(x) The periodic inspection date markings to ensure that the inspection and test intervals are within the prescribed intervals.

(2) Closures on tank cars are required, in accordance with this subchapter, to be designed and closed so that under conditions normally incident to transportation, including the effects of temperature and vibration, there will be no identifiable release of a hazardous material to the environment. In any action brought to enforce this section, the lack of securement of any closure to a tool-tight condition, detected at any point, will establish a rebuttable presumption that a proper inspection was not performed by the offeror of the car. That presumption may be rebutted by any evidence indicating that the lack of securement resulted from a specific cause not within the control of the offeror.

(e) Special requirements for materials poisonous by inhalation—

(1) Interior heater coils. Tank cars used for materials poisonous by inhalation may not have interior heater coils.

(2) Tank car specifications. A tank car used for a material poisonous by inhalation must have a tank test pressure of 20.7 Bar (300 psig) ▲ or greater, head protection, and a metal jacket (e.g., DOT 105S300W), except that—

(i) A higher test pressure is required if otherwise specified in this subchapter; and

(ii) Other than as provided in paragraph (b)(6) of this section, a tank car which does not conform to the requirements of this paragraph (e)(2), and was authorized for the material poisonous by inhalation under the regulations in effect on June 30, 1996, may continue in use until July 1, 2006.

(f) Special requirements for hazardous substances. (1) A tank car used for a hazardous substance listed in paragraph (f)(2) of this section must have a tank test pressure of at least 13.8 Bar (200 psig), ▲ head protection and a metal jacket, except that—

(i) No metal jacket is required if—

(A) The tank test pressure is 23.4 Bar (340 psig) or higher; or ▲

(B) The tank shell and heads are manufactured from AAR steel specification TC-128, normalized;

(ii) A higher test pressure is required if otherwise specified in this subchapter; and

(iii) Other than as provided in paragraph (b)(6) of this section, a tank car which does not conform to the requirements of this paragraph (f)(1), and was authorized for a hazardous substance under the regulations in effect on June 30, 1996, may continue in use until July 1, 2006.

(2) List of hazardous substances. Hazardous substances for which the provisions of this paragraph (f) apply are as follows:

Aldrin
Allyl chloride
alpha-BHC
beta-BHC
delta-BHC
gamma-BHC
Bis(2-chloroethyl) ether
Bromoform
Carbon tetrachloride
Chlordane
p-Chloroaniline
Chlorobenzene
Chlorobenzilate
p-Chloro-m-cresol
2-Chlorethyl vinyl ether
Chloroform
2-Chloronapthalene
o-Chlorophenol
3-Chloropropionitrile
DDE
DDT
1,2-Dibromo-3-chloropropane
m-Dichlorobenzene
o-Dichlorobenzene
p-Dichlorobenzene
3,3'-Dichlorobenzidine
1,4-Dichloro-2-butene
1,1-Dichloroethane
1,2-Dichloroethane
1,1-Dichloroethylene
Dichloroisopropyl ether
Dichloromethane @
2,4-Dichlorophenol
2,6-Dichlorophenol
1,2-Dichloropropane
1,3-Dichloropropene
Dieldrin
alpha-Endosulfan
beta-Endosulfan
Endrin
Endrin aldehyde
Heptachlor
Heptachlor epoxide
Hexachlorobenzene
Hexachlorobutadiene
Hexachloroethane
Hexachlorophene
Hexachloropropene

PART 173

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Isodrin
Kepone
Methoxychlor
4,4'-Methylenebis(2-chloroaniline)
Methylene bromide
Pentachlorobenzene
Pentachloroethane
Pentachloronitrobenzene (PCNB)
Pentachlorophenol
Polychlorinated biphenyls (PCBs)
Pronamide
Silvex (2,4,5-TP)
2,4,5-T
TDE
1,2,4,5-Tetrachlorobenzene
2,3,7,8-Tetrachlorodibenzo-p-dioxin (TCDD)
Tetrachloroethane
Tetrachloroethylene
2,3,4,6-Tetrachlorophenol
Toxaphene
1,2,4-Trichlorobenzene
1,1,1-Trichloroethane
1,1,2-Trichloroethane
Trichloroethylene
2,4,5-Trichlorophenol
2,4,6-Trichlorophenol
Tris(2,3-dibromopropyl) phosphate

§173.32 Requirements for the use of portable tanks.

(a) General requirements. No person may offer a hazardous material for transportation in a portable tank except as authorized by this subchapter.

(1) Except as otherwise provided in this subpart, no person may use a portable tank for the transportation of a hazardous material unless it meets the requirements of this subchapter.

(2) No person may fill and offer for transportation a portable tank when the prescribed periodic test or inspection under subpart G of part 180 of this subchapter has become due until the test or inspection has been successfully completed. This requirement does not apply to any portable tank filled prior to the test or inspection due date.

(3) When a portable tank is used as a cargo tank motor vehicle, it must conform to all the requirements prescribed for cargo tank motor vehicles. (See §173.33.)

(b) Substitute packagings. A particular Specification portable tank may be substituted for another portable tank as follows:

(1) An IM or UN portable tank may be used whenever an IM or UN portable tank having less stringent requirements is authorized provided the portable tank meets or exceeds the requirements for pressure-relief devices, bottom outlets and any other special provisions specified in §172.102(c)(7)(vi) of this subchapter.

(2) Where a Specification IM101 or IM102 portable tank is prescribed, a UN portable tank or Specification 51 portable tank otherwise conforming to the special commodity requirements of §172.102(c)(7) of this subchapter for the material to be transported may be used.

(3) A DOT Specification 51 portable tank may be used whenever a DOT Specification 56, 57, or 60 portable tank is authorized. A DOT Specification 60 portable tank may be used whenever a DOT Specification 56 or 57 portable tank is authorized. A higher integrity tank used instead of a specified portable tank must meet the same design profile; for example, a DOT Specification 51 portable tank must be lined if used instead of a lined DOT Specification 60 portable tank.

(c) Grandfather provisions for portable tanks—(1) Continued use of Specification 56 and 57 portable tanks. Continued use of an existing portable tank constructed to DOT Specification 56 or 57 is authorized only for a portable tank constructed before October 1, 1996. A stainless steel portable tank internally lined with polyethylene that was constructed on or before October 1, 1996, and that meets all requirements of DOT Specification 57 except for being equipped with a polypropylene discharge ball valve and polypropylene secondary discharge opening closure, may be marked as a Specification 57 portable tank and used in accordance with the provisions of this section.

(2) A DOT Specification 51, IM 101, or IM 102 portable tank may not be manufactured after January 1, 2003; however, such tanks may continue to be used for the transportation of a hazardous material provided they meet the requirements of this subchapter, including the specification requirements and the requirements of this subchapter for the transportation of the particular hazardous material according to the T codes ★ in effect on September 30, 2001 or the new T codes in §172.102(c)(7)(i) (see §171.14(d)(4) for transitional provisions applicable to T codes) ★ and provided it conforms to the periodic inspection and tests specified for the particular portable tank in subpart G of part 180 of this subchapter. After January 1, 2003, all newly manufactured portable tanks must conform to the requirements for the design, construction and approval of UN portable tanks as specified in §§178.273, 178.274, 178.275, 178.276, 178.277 and part 180, subpart G, of this subchapter.

(3) A DOT Specification portable tank manufactured prior to January 1, 1992 that is equipped with a non-reclosing pressure relief device may continue in service for the hazardous materials for which it is authorized. Except for a DOT Specification 56 or 57 portable tank, a DOT Specification portable tank manufactured after January 1, 1992, used for materials meeting the definition for Division 6.1 liquids, Packing Group I or II, Class 2 gases, or Class 3 or 4 liquids, must be equipped with a reclosing pressure relief valve having adequately sized venting capacity unless otherwise specified in this subchapter (see §§178.275(f)(4) and 178.277 of this subchapter).

(4) Any portable tank container constructed prior to May 15, 1950, complying with the requirements of either the ASME Code for Unfired Pressure Vessels, 1946 Edition, or the API ASME Code for Unfired Pressure Vessels, 1943 Edition (see §171.7 of this subchapter), may be used for the transportation of liquefied compressed gas, provided it fulfills all the requirements of the part and specifications for the particular gas or gases to be transported. Such portable tanks must be marked "ICC Specification 51X" on the plate required by the specification, except as modified by any or all of the following:

(i) Portable tanks designed and constructed in accordance with Pars. U-68, U-69, or U-201 of the ASME Code (see §171.7 of this subchapter) may be used. Portable tanks designed and constructed in accordance with Par. U-68 or Par. U-69 may be re-rated at a working pressure 25 percent in excess of the design pressure for which the portable tank was originally constructed. If the portable tank is re-rated, the re-rated pressure must be marked on the plate as follows: "Re-rated working pressure—psig."

Note to Paragraph (c)(4)(i): For purposes of setting safety relief valves, pressure control valves, establishing retest pressure and maximum and minimum design pressures, the re-rated working pressure must be considered as the equivalent of the design pressure as defined in the specification.

(ii) Loading and unloading accessories, valves, piping, fittings, safety and gauging devices, do not have to comply with the requirements for the particular location on the portable tank.

(5) Any ICC Specification 50 portable tank fulfilling the requirements of that specification may be continued in service for transportation of a liquefied petroleum gas if it is retested every five years in accordance with the requirements in §180.605 of this subchapter. Use of existing portable tanks is authorized. New construction is not authorized.

(d) Determination of an authorized portable tank. Prior to filling and offering a portable tank for transportation, the shipper must ensure that the portable tank conforms to the authorized specification and meets the applicable requirements in this subchapter for the hazardous material. The shipper must ensure that the MAWP, design pressure or test pressure of the portable tank, as applicable, is appropriate for the hazardous material being transported. Determination of the applicable pressure must take into account the maximum pressure used to load or unload the hazardous material, the vapor pressure, static head and surge pressures of the hazardous material and the temperatures that the hazardous material will experience during transportation.

(e) External inspection prior to filling. Each portable tank must be given a complete external inspection prior to filling. Any unsafe condition must be corrected prior to its being filled and offered for transportation. The external inspection shall include a visual inspection of:

(1) The shell, piping, valves and other appurtenances for corroded

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Subpart C

GENERAL HANDLING AND LOADING REQUIREMENTS

§174.55 General requirements. **(a)** Each package containing a hazardous material being transported by rail in a freight container or transport vehicle must be loaded so that it cannot fall or slide and must be safeguarded in such a manner that other freight cannot fall onto or slide into it under conditions normally incident to transportation. When this protection cannot be provided by using other freight, it must be provided by blocking and bracing. For examples of blocking and bracing in freight containers and transport vehicles, see Bureau of Explosives Pamphlet Nos. 6 and 6C.

(b) Each package containing a hazardous material bearing package orientation markings prescribed in §172.312 of this subchapter must be loaded within a transport vehicle or freight container to remain in the correct position indicated by those markings during transportation.

(c) The doors of a freight container or transport vehicle may not be used to secure a load that includes a package containing a hazardous material unless the doors meet the design strength requirements of Specification M-930 (for freight containers) and M-931 (for trailers) in the AAR's Manual of Standards and Recommended Practices and the load is also within the limits of the design strength requirements for the doors.

§174.57 Cleaning cars. All hazardous material which has leaked from a package in any rail car or on other railroad property must be carefully removed.

§174.59 Marking and placarding of rail cars. No person may transport a rail car carrying hazardous materials unless it is marked and placarded as required by this subchapter. Placards and car certificates lost in transit must be replaced at the next inspection point, and those not required must be removed at the next terminal where the train is classified. For Canadian shipments, required placards lost in transit must be replaced either by those required by part 172 of this subchapter or by those authorized under §171.12a.

§174.61 Transport vehicles and freight containers on flat cars.

(a) A transport vehicle, freight container, or package containing a hazardous material must be designed and loaded so that it will not become damaged to an extent that would affect its integrity under conditions normally incident to transportation. Each unit must be secured on a flatcar so that it cannot permanently change position during transit. Packages of hazardous materials contained therein must be loaded and braced as provided by §§174.101, 174.112, 174.115 and 174.55. Placards must be applied when prescribed by part 172 of this subchapter and part 174.

(b) Except as specified in §173.21, a truck body, trailer, or freight container equipped with heating or refrigerating equipment which has fuel or any article classed as a hazardous material may be loaded and transported on a flat car as part of a joint rail highway movement. The heating or refrigerating equipment is considered to be a part of the truck body or trailer and is not subject to any other requirements of this subchapter. The truck body, trailer, or freight container must be secured on the flatcar so that it cannot change position during transit.

§174.63 Portable tanks, IM portable tanks, IBCs, cargo tanks, and multi-unit tank car tanks. **(a)** A carrier may not transport a bulk packaging (e.g., portable tank, IM portable tank, IBC, cargo tank, or multi-unit tank car tank) containing a hazardous material in container-on-flatcar (COFC) or trailer-on-flatcar (TOFC) service except as authorized by this section or unless approved for transportation by the Associate Administrator for Safety, FRA.

(b) A bulk packaging containing a hazardous material (including IM 101 and IM 102 when appropriate according to dimensions and weight distribution) may be transported inside a fully closed transport vehicle or fully closed freight container provided it is properly secured with a restraint system that will prevent it from changing position, sliding into other packages, or contacting the side or end walls (including doors) under conditions normally incident to transportation.

(c) When not transported in conformance with and subject to paragraph (b) of this section, a bulk packaging may be transported in COFC service or TOFC service subject to the following conditions as applicable:

(1) The bulk packaging contains a material packaged in accordance with §§173.240, 173.241, 173.242, or 173.243 of this subchapter;

(2) The tank and flatcar conform to requirements in AAR 600 of the AAR Specifications for Tank Cars, Specification M-1002, entitled "Specifications for Acceptability of Tank Containers";

(3) For TOFC service, the trailer chassis conforms to requirements in paragraphs 3, 4, 5, and 6 of AAR Specificiation M-943 "Container Chassis For TOFC Service" of the AAR specification for "Specially Equipped Freight Car and Intermodal Equipment";

(4) For COFC service, the container support and securement systems conform to requirements in Specification M-952 "Intermodal Container Support and Securement Systems for Freight Cars", of the AAR specification for "Specially Equipped Freight Car and Intermodal Equipment";

(5) If transported in a well car—

(i) The tank is not in a double-stacked configuration (i.e., no freight container or portable tank is placed above or below the tank); and

(ii) The tank is transported in the well with its outlet valve facing outward towards the end of the well and away from any adjacent tank or container; and

(6) All securement fittings shall be fully engaged and in the locked position, provided; however, if the tank is transported in a well car, it must be loaded into a well appropriate for the length of the container and any void filling device present must be secured in its designed appropriate position.

(d) An approval in effect on February 28, 1991 for the transportation of portable tanks or IM portable tanks in TOFC or COFC service expires on the date stated in the approval letter or June 15, 1995, whichever is later.

(e) A carrier may not transport a cargo tank or multi-unit tank car tank containing a hazardous material in TOFC or COFC service unless approved for such service by the Associate Administrator for Safety, FRA. However, in the event of an accident or incident, no such approval is necessary for the transportation of a cargo tank containing a hazardous material in TOFC service under the following condition(s):

(1) There is an emergency need for the cargo tank in order to mitigate the consequences of an incident; and

(2) Movement of the cargo tank is limited to transportation necessary for emergency purposes.

§174.67 Tank car unloading. **(a)** In unloading tank cars, the following rules must be observed (see subpart F of this part for gases):

(1) Unloading operations must be performed only by reliable persons properly instructed in unloading hazardous materials and made responsible for careful compliance with this part.

(2) Brakes must be set and wheels blocked on all cars being unloaded.

(3) Caution signs must be so placed on the track or cars to give necessary warning to persons approaching the cars from the open end of a siding and must be left up until after the cars are unloaded and disconnected from the discharge connection. The signs must be of metal or other comparable material, at least 30 cm (12 inches) high by 38 cm (15 inches) wide in size, and bear the words, "STOP— Tank Car Connected," or "STOP—Men at Work," the word "STOP" being in letters at least 10 cm (3.9 inches) high and the other words in letters at least 5 cm (2 inches) high. The letters must be white on a blue background.

(4) Before a manhole cover or outlet valve cap is removed from a tank car, the car must be relieved of all interior pressure by cooling the tank with water or by venting the tank by raising the safety valve or opening the dome vent at short intervals. However, if venting to relieve pressure will cause a dangerous amount of vapor to collect outside the car, venting and unloading must be deferred until the pressure is reduced by allowing the car to stand overnight or otherwise cooling the contents. These precautions are not necessary when the car is equipped with a manhole cover which hinges inward or with an inner manhole cover which does not have to be removed to unload the car, and when pressure is relieved by piping vapor into a condenser or storage tank.

(b) After the pressure is released, the seal must be broken and the manhole cover removed as follows:

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(1) Screw type. The cover must be loosened by placing a bar between the manhole cover lug and knob. After two complete turns, so that vent openings are exposed, the operation must be stopped, and if there is any sound of escaping vapor, the cover must be screwed down tightly and the interior pressure relieved as prescribed in paragraph (a)(4) of this section, before again attempting to remove the cover.

(2) Hinged and bolted type. All nuts must be unscrewed one complete turn, after which same precautions as prescribed for screw type cover must be observed.

(3) Interior type. All dirt and cinders must be carefully removed from around the cover before the yoke is unscrewed.

(c) When the car is unloaded through a bottom outlet valve, the manhole cover must be adjusted as follows:

(1) Screw type. The cover must be put in place, but not entirely screwed down, so that air may enter the tank through the vent holes in threaded flange of the cover.

(2) Hinged and bolted type. A non-metallic block must be placed under one edge of the cover.

(3) Interior type. The screw must be tightened up in the yoke so that the cover is brought up within one-half inch of the closed position.

(d) When unloading through the bottom outlet of a car equipped with an interior manhole type cover, and in each case where unloading is done through the manhole (unless a special cover with a safety vent opening and a tight connection for the discharge outlet is used), the manhole must be protected by asbestos or metal covers against the entrance of sparks or other sources of ignition of vapor, or by being covered and surrounded with wet burlap or similar cloth material. The burlap or other cloth must be kept damp by the replacement or the application of water as needed.

(e) Seals or other substances must not be thrown into the tank and the contents may not be spilled over the car or tank.

(f) The valve rod handle or control in the dome must be operated several times to see that outlet valve in bottom of tank is on its seat before valve cap is removed.

(g) The valve cap, or the reducer when a large outlet is to be used, must be removed with a suitable wrench after the set screws are loosened and a pail must be placed in position to catch any liquid that may be in the outlet chamber. If the valve cap or reducer does not unscrew easily, it may be tapped lightly with a mallet or wooden block in an upward direction. If leakage shows upon starting the removal, the cap or reducer may not be entirely unscrewed. Sufficient threads must be left engaged and sufficient time allowed to permit controlled escape of any accumulation of liquid in the outlet chamber. If the leakage stops or the rate of leakage diminishes materially, the cap or reducer may be entirely removed. If the initial rate of leakage continues, further efforts must be made to seat the outlet valve (see paragraph (f) of this section). If this fails, the cap or reducer must be screwed up tight and the tank must be unloaded through the dome. If upon removal of the outlet cap the outlet chamber is found to be blocked with frozen liquid or any other matter, the cap must be replaced immediately and a careful examination must be made to determine whether the outlet casting has been cracked. If the obstruction is not frozen liquid, the car must be unloaded through the dome. If the obstruction is frozen liquid and no crack has been found in the outlet casting, the car may, if circumstances require it, be unloaded from the bottom by removing the cap and attaching unloading connections immediately. Before opening the valve inside the tank car, steam must be applied to the outside of the outlet casting or wrap casting with burlap or other rags and hot water must be applied to melt the frozen liquid.

(h) Unloading connections must be securely attached to unloading pipes on the dome or to the bottom discharge outlets before any discharge valves are opened.

(i) Tank cars may not be allowed to stand with unloading connections attached after unloading is completed. Throughout the entire period of unloading, and while car is connected to unloading device, the car must be attended by the unloader.

(j) If necessary to discontinue unloading a tank car for any reason, all unloading connections must be disconnected. All valves must first be tightly closed, and the closures of all other openings securely applied.

(k) As soon as a tank car is completely unloaded, all valves must be made tight by the use of a bar, wrench or other suitable tool, the unloading connections must be removed and all other closures made tight.

(l) Railroad defect cards may not be removed.

(m) If oil or gasoline has been spilled on the ground around connections, it must be covered with fresh, dry sand or dirt.

(n) All tools and implements used in connection with unloading must be kept free of oil, dirt, and grit.

§174.81 Segregation of hazardous materials.

(a) This section applies to materials which meet one or more of the hazard classes defined in this subchapter and are in packages which are required to be labeled or placarded under the provisions of part 172 of this subchapter.

(b) When a rail car is to be transported by vessel, other than a ferry vessel, hazardous materials on or within that rail car must be stowed and segregated in accordance with §176.83(b) of this subchapter.

(c) In addition to the provisions of paragraph (d) of this section, cyanides or cyanide mixtures may not be loaded or stored with acids.

(d) Hazardous materials may not be loaded, transported, or stored together, except as provided in this section, and in accordance with the following table:

SEGREGATION TABLE FOR HAZARDOUS MATERIALS

Class or Division	Notes	1.1, 1.2	1.3	1.4	1.5	1.6	2.1	2.2	2.3 gas Zone A	2.3 gas Zone B	3	4.1	4.2	4.3	5.1	5.2	6.1 liquids PG I Zone A	7	8 liquids only
Explosives, 1.1 and 1.2	A	*	*	*	*	*	X	X	X	X	X	X	X	X	X	X	X	X	X
Explosives, 1.3		*	*	*	*	*	X		X	X	X		X	X	X	X	X		X
Explosives, 1.4		*	*	*	*	*	O		O	O	O		O				O		O
Very insensitive explosives, 1.5	A	*	*	*	*	*	X	X	X	X	X	X	X	X	X	X	X	X	X
Extremely insensitive explosives, 1.6		*	*	*	*	*													
Flammable gases, 2.1		X	X	O	X				X	O							O	O	
Non-toxic, non-flammable gases, 2.2		X			X														
Poisonous gas Zone A, 2.3		X	X	O	X		X				X	X	X	X	X	X			X
Poisonous gas Zone B, 2.3		X	X	O	X		O				O	O	O	O	O	O			O
Flammable liquids, 3		X	X	O	X				X	O					O		X		
Flammable solids, 4.1		X			X				X	O							X		O
Spontaneously combustible materials, 4.2		X	X	O	X				X	O							X		X
Dangerous when wet materials, 4.3		X	X		X				X	O							X		O
Oxidizers, 5.1	A	X	X		X				X	O	O						X		O
Organic peroxides, 5.2		X	X		X				X	O							X		O
Poisonous liquids PG I Zone A, 6.1		X	X	O	X		O				X	X	X	X	X	X			X
Radioactive materials, 7		X			X		O												
Corrosive liquids, 8		X	X	O	X				X	O		O	X	O	O	O	X		

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(e) Instructions for using the segregation table for hazardous materials in paragraph (d) of this section are as follows:

(1) The absence of any hazard class or division, or a blank space in the table indicates that no restrictions apply.

(2) The letter "X" in the table indicates that these materials may not be loaded, transported, or stored together in the same rail car or storage facility during the course of transportation.

(3) The letter "O" in the table indicates that these materials may not be loaded, transported, or stored together in the same rail car or storage facility during the course of transportation unless separated in a manner that, in the event of leakage from packages under conditions normally incident to transportation, commingling of hazardous materials would not occur. Notwithstanding the methods of separation employed, Class 8 (corrosive) liquids may not be loaded above or adjacent to Class 4 (flammable) or Class 5 (oxidizing) materials; except that shippers may load carload shipments of such materials together when it is known that the mixture of contents would not cause a fire or a dangerous evolution of heat or gas.

(4) The "*" in the table indicates that segregation among different Class 1 (explosive) materials is governed by the compatibility table in paragraph (f) of this section.

(5) The note "A" in the second column of the table means that, notwithstanding the requirements of the letter "X", ammonium nitrate fertilizer may be loaded or stored with Division 1.1 (explosive) or Division 1.5 materials.

(6) When the §172.101 table or §172.402 of this subchapter requires a package to bear a subsidiary hazard label, segregation appropriate to the subsidiary hazard must be applied when that segregation is more restrictive than that required by the primary hazard. However, hazardous materials of the same class may be loaded and ★ transported together without regard to segregation required by any secondary hazard if the materials are not capable of reacting dangerously with each other and causing combustion or dangerous evolution of heat, evolution of flammable, poisonous, or asphyxiant gases, or formation of corrosive or unstable materials.

(f) Class 1 (explosive) materials may not be loaded, transported, or stored together, except as provided in this section, and in accordance with the following table:

COMPATIBILITY TABLE FOR CLASS 1 (EXPLOSIVE) MATERIALS

Compatibility group	A	B	C	D	E	F	G	H	J	K	L	N	S
A		X	X	X	X	X	X	X	X	X	X	X	X
B	X		X	4	X	X	X	X	X	X	X	X	4/5
C	X	X		2	2	X	6	X	X	X	X	3	4/5
D	X	4	2		2	X	6	X	X	X	X	3	4/5
E	X	X	2	2		X	6	X	X	X	X	3	4/5
F	X	X	X	X	X		X	X	X	X	X	X	4/5
G	X	X	6	6	6	X		X	X	X	X	X	4/5
H	X	X	X	X	X	X	X		X	X	X	X	4/5
J	X	X	X	X	X	X	X	X		X	X	X	4/5
K	X	X	X	X	X	X	X	X	X		X	X	4/5
L	X	X	X	X	X	X	X	X	X	X	1	X	X
N	X	X	3	3	3	X	X	X	X	X	X		4/5
S	X	4/5	4/5	4/5	4/5	4/5	4/5	4/5	4/5	4/5	X	4/5	

(g) Instructions for using the compatibility table for Class 1 (explosive) materials in paragraph (f) of this section are as follows:

(1) A blank space in the table indicates that no restrictions apply.

(2) The letter "X" in the table indicates that explosives of different compatibility groups may not be carried on the same rail car, unless packed in separate freight containers (e.g., two or more freight containers mounted upon the same rail car).

(3) The numbers in the table mean the following:

(i) "1" means explosives from compatibility group L may only be carried on the same rail car with an identical explosive.

(ii) "2" means any combination of explosives from compatibility groups C, D, or E is assigned to compatibility group E.

(iii) "3" means any combination of explosives from compatibility groups C, D, or E with those in compatibility group N is assigned to compatibility group D.

(iv) "4" means detonators and detonating primers, Division 1.4S (explosives), may not be loaded in the same car with Division 1.1 and 1.2 (explosive) materials.

(v) "5" means Division 1.4S fireworks may not be loaded in the same car with Division 1.1 or 1.2 (explosive) materials.

(vi) "6" means explosive articles in compatibility group G, other than fireworks and those requiring special stowage, may be loaded and transported with articles of compatibility groups C, ★ D and E, provided no explosive substances are carried in the same rail car.

(h) Except as provided in paragraph (i) of this section, explosives of the same compatibility group but of different divisions may be transported together provided that the whole shipment is transported as though its entire contents were of the lower numerical division (i.e., Division 1.1 being lower than Division 1.2). For example, a mixed shipment of Division 1.2 (explosive) materials and Division 1.4 (explosive) materials, compatibility group D, must be transported as Division 1.2 (explosive) materials.

(i) When Division 1.5 materials, compatibility group D are transported in the same freight container as Division 1.2 (explosive) materials, compatibility group D, the shipment must be transported as Division 1.1 (explosive) materials, compatibility group D.

PART 174

Subpart D

HANDLING OF PLACARDED RAIL CARS, TRANSPORT VEHICLES AND FREIGHT CONTAINERS

§174.82 General requirements for the handling of placarded rail cars, transport vehicles, freight containers, and bulk packages. **(a)** Unless otherwise specified, this subpart does not apply to the handling of rail cars, transport vehicles, freight containers, or bulk packagings, which contain Division 1.6, combustible liquids, Division 6.1 PG III materials, Class 9 materials, or ORM-D materials.

(b) A placarded rail car, transport vehicle, freight container, or bulk package may not be transported in a passenger train.

§174.83 Switching placarded rail cars, transport vehicles, freight containers, and bulk packagings. **(a)** In switching operations where the use of hand brakes is necessary—

(1) It must be determined by trial whether a loaded, placarded car, or a car occupied by a rider in a draft containing a placarded car, has its hand brakes in proper working condition before it is cut off;

(2) A loaded, placarded tank car or a draft which includes a loaded placarded tank car may not be cut off until the preceding rail car clears the ladder track; and

(3) A loaded, placarded tank car or a draft which includes a loaded placarded tank car must clear the ladder track before another rail car is allowed to follow.

(b) Any loaded rail car placarded for a Division 1.1 or Division 1.2 explosive, a Division 2.3 Hazard Zone A gas or a Division 6.1 PG I Hazard Zone A material, or a Class DOT 113 tank car

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PAMPHLET 34:

RECOMMENDED METHODS FOR THE SAFE LOADING AND UNLOADING OF NON-PRESSURE TANK CARS

Association of American Railroads, June, 1992.

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PAMPHLET 34:
RECOMMENDED METHODS FOR THE SAFE LOADING AND UNLOADING OF NON-PRESSURE TANK CARS

PREFACE

This pamphlet outlines methods for the selection of non-pressure tank cars and recommended procedures for loading and unloading of the cars. These methods are applicable for the transportation of loaded tank cars as well as for the return of tank cars containing residue.

These procedures are general guidelines only. Each user is encouraged to develop specific procedures using these guidelines. A particular location may require the use of additional, or different, precautions for the loading or unloading operations to be performed safely. Experienced, trained personnel, who are knowledgeable about the safety requirements for the specific loading and unloading operation being performed, must be utilized. Appropriate individual company procedures and applicable governmental requirements, including U.S. Department of Transportation or Transport Canada hazardous materials regulations, must be followed.

GENERAL INSTRUCTIONS AND INFORMATION

1. A car containing the residue of a product must be offered for transportation in the same condition as a loaded car.
2. Any product spillage on the tank should be removed. Spills on the ground should be removed or should be collected in accordance with standard plant procedures.

   NOTE: Certain spills must be reported to the EPA.

3. Railroad defect cards must not be removed from their holders. Only the car owner or his authorized agent is permitted to remove a card. If a car enters a load/unload area having cardable defects without a defect card to cover, a joint inspection with the delivering carrier should be initiated.
4. All tools and equipment used in connection with load/unload operations should be kept clean and serviceable at all times.
5. Tank cars containing a flammable or combustible liquid must be electrically grounded during load/unload operations. Grounding of cars carrying other commodities is recommended.

GENERAL REQUIREMENTS FOR LOADING AND UNLOADING TANK CARS

1. Both loading and unloading operations, including connecting and disconnecting procedures, must be performed by qualified persons who have been properly trained and who will be responsible for complying with all procedures during the complete operation. Procedures as prescribed by various recognized industry safety recommendations should be followed.
2. All pre-loading and post-loading inspections should be properly documented through use of a check list or other method.
3. The loading or unloading area should have adequate illumination and be free of obstacles or unnecessary equipment.
4. During all times that a car is connected for loading or unloading, the hand brake must be set and the wheels blocked. Caution signs must be placed on the track at the open end or ends of the siding. Unless the track is protected by a closed and locked switch that is within two car lengths of the last car, a derailer service should be installed.

   Caution signs should be made of metal, plastic or other suitable material, be 12 inches high by 15 inches wide,and bear the words "Stop—Tank Car Connected" or "Stop—Men At Work". The word "Stop" must be in 4-inch letters, and the other words in at least 2-inch letters. All letters must be white on blue background.

LOADING A TANK CAR

1. Selection and qualification of tank car

(a) A tank car should be used that is in accord with the AAR's *Manual of Standards and Recommended Practices, Section C-Part III, (Specifications for Tank Cars, Specification M-1002).* For reference, the relevant DOT regulations are published in the current issue of Bureau of Explosives Tariff No. BOE-6000. In Canada, the regulations of Transport Canada must be followed.

(b) A tank car must meet the following minimum requirements for transporting the commodity, whether regulated or non-regulated:

(1) The tank car must not leak or have defects which could cause the product to escape.

(2) The car must have been properly tested and marked.

(3) A tank car is to be loaded only with the commodity for which it is authorized by the current Certificate of Construction or Exhibit R-1, and as may be stenciled on the car.

(4) Before a tank car can be used for transporting a commodity for which it is not currently authorized, approval must be obtained from the car owner or his agent, supported by AAR and governmental approval, if required.

Before modifying a tank car, the owner must file a Certificate of Construction or an Exhibit R-1 (depending on the nature of the modification) with the Secretary, Mechanical Division, Association of American Railroads and with the Bureau of Explosives, as required by M-1002, *Specifications for Tank Cars.* This includes any change in the loading/unloading arrangements, including manway closures, safety valves or vents, top unloading, or bottom unloading (including auxiliary valves).

2. Shipper responsibility

Before loading a tank car, the shipper is responsible for the following:

(a) Safety appurtenances and fittings must be proper for safe transportation of the lading.

(b) Fittings, closures, openings and accessible gasket surfaces must be free of corrosion or damage.

(c) Valve packings, gaskets and hold-down bolts must be serviceable, not corroded, and be compatible with the commodity. Defective items must be replaced before loading the car.

(d) Unless the car is clean, the last contents of the tank must be compatible with the commodity to be loaded.

(e) The tank, safety valve and interior heater system (if so equipped) must not be overdue for tests as indicated by the "test due" stencils.

(f) The integrity and marked burst pressure of rupture disc, if car is so equipped, must be verified by removal from disc holder. Examine both sides of disc and reinstall disc properly.

(g) On tank car with bottom discharge outlet:

(1) Remove outlet cap, outlet plug or open auxiliary valve. Be prepared to collect possible leakage. Cap and plug is to remain off, or auxiliary valve to remain open during loading, to check for leaking primary outlet valve.

(2) With outlet leg empty, open and close the bottom outlet valve to assure that it functions properly. Lock handle in closed position.

(h) On tank cars equipped with interior heater coils, inlet and outlet caps must be removed prior to loading to check for leakage.

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3. Loading procedures and considerations

(a) *Outage requirements*—Sufficient outage must be left in the tank to allow for expansion of the commodity while in transit. Section 2.4.1 of M-1002 requires that the tank car must be so loaded that sufficient outage is provided to prevent significant release of the material to the environment under conditions normal to transportation. Consideration must be given to the volumetric expansion characteristics of the liquid and the ambient temperatures to which it will be subjected in transit. Calculations must use a minimum "design liquid temperature" of 105°F for insulated tank cars and 115°F for uninsulated tank cars. "Design liquid temperature" is defined as the temperature at which the tank car will become liquid full if the liquid product reaches that temperature. Below that product temperature the tank will not be liquid full.

The shipper must use the greater of the DOT-specified minimum outage or the shipper's calculated required outage percentage. In Canada, consult Transport Canada regulations.

Effective after October 1, 1993, DOT will require 1% outage at 105°F for insulated tank cars or 115°F for non-insulated tank cars. For PIH (poison-inhalation hazard) liquids, a 5% outage will be required under these respective conditions.

(b) *Maximum weight*—Do not exceed stenciled or starred load limit. The maximum loaded weight of car (lading weight plus lightweight) offered for transportation must not exceed the allowable gross rail load limit for the truck size. See Rule 70B.3.b in the AAR Field Manual.

(c) *Check for leaks*—A loaded tank car tank that shows any evidence of leaking at seams, valves, fittings, connections or heater coils must not be offered for transportation until proper repairs are made.

(1) A bottom discharge outlet which permits more than a dropping of liquid through the open cap or plug opening *must not* be offered for transportation.

(2) If unable to stop leakage, transfer product to another car. Contact car owner or his authorized agent for disposition of leaking tank car. The tank must be stenciled in 3 inch letters "LEAKY TANK. DO NOT LOAD UNTIL REPAIRED", and the leak location marked with an "X". See Rule I in the AAR Field Manual.

(d) *Secure all openings and their protective housings*

(1) Close all openings with the appropriate closures, i.e., plugs, flanges or caps, wrench-tight.

(2) Tighten the bottom outlet cap with a wrench having a handle which is at least 36 inches long. Auxiliary valve caps and plugs are tightened with a suitably sized wrench. Use non-sparking tools, if necessary.

(3) Use gaskets that are compatible with the commodity to seal manway covers and outlet valve caps. Luting materials (any substance used to stop a leak; e.g., sodium silicate/water glass) are prohibited on bottom outlet cap or on outlet plug threads. PTFE paste, or a maximum of three wraps of PTFE tape, is acceptable.

(4) Interior heater coil caps must be secured wrench-tight before shipping a loaded car.

(e) *Car seals—Use of 1/8" steel cable is recommended to secure bottom outlet operating mechanisms that are designed to accept such seals, reference M-1002, Paragraph A4.03 (h).* Car seals may be applied to manway cover, top unloading housing, top operating mechanism (for bottom outlet valve) and to the bottom outlet valve or connections to deter tampering with fittings.

4. Post-load (Pre-trip) leak test

After loading, and after all openings have been properly closed and secured, a suitable leak detection test is recommended for tank cars loaded with phosphoric acid, hydrochloric acid, sulfuric acid, or caustic soda prior to release in interchange. Post-load leak testing is desirable for all other commodities.

(a) Pressurize the tank to at least 10 psi with inert gas or other medium compatible with the shipper's safety and product quality requirements. Use an appropriate pressure regulator. Relieve pressure after inspection and prior to shipment.

(b) Check all flanges, valve packing glands and opening closures using a suitable leak detection solution, sonic instrument or by monitoring the pressure over a period of time.

(c) If leak is found, make appropriate repair and retest. If leak cannot be repaired, DO NOT SHIP CAR.

5. Placards

Apply appropriate placards.

UNLOADING A TANK CAR

1. Pre-unload procedures

(a) Examine all fittings seals before removal for evidence of tampering.

(b) Examine all valves to be certain that they are closed before removing caps, plugs or flanges.

(c) Remove dirt and foreign matter from manway cover, valve caps and closures prior to opening.

2. Unloading a tank car *without* heater coils

(a) Before opening the manway cover or outlet cap, relieve tank pressure by one of the following means:

(1) by opening the vent valve,

(2) by carefully opening the fillhole cover,

(3) by carefully depressing the vacuum relief valve,

(4) by venting to a vapor collection system or scrubber.

Caution: Venting to atmosphere may create a safety or environmental hazard.

(b) Venting is not required when car is to be pressure unloaded, but a means external to the tank's fittings must be provided to limit pressure buildup in the tank car tank.

Unloading pressure should not exceed 80% of the safety relief valve setting or approximately 25 psi below the burst pressure of the safety vent, if so equipped.

(c) After pressure or vacuum is released, the seal on the hinged and bolted manway cover can be broken. All nuts may be loosened one to two turns. The cover should be lifted to verify that all pressure has been released from the tank. Manway bolting is designed to allow venting of the tank while preventing the cover from blowing open, but precautions must be taken in event this safety arrangement is inoperative.

(d) When bottom unloading with manway cover open, care must be taken to prevent product contamination from foreign objects or materials entering the tank. Block manway cover open with a non-metallic block.

(e) On cars equipped with top-operated bottom outlet valves, the valve rod handle at top of car must be checked to make sure that the valve is closed prior to the removal of the bottom outlet cap or plug.

CAUTION: Be prepared to collect possible leakage in a suitable container before removing outlet cap. If leakage occurs as the outlet cap is being removed, it should not be entirely unscrewed Sufficient threads should be left engaged and sufficient time allowed to permit controlled release into the container of any accumulated liquid in the outlet chamber. When leakage stops or is materially reduced, the cap may be removed and the unloading connection made. In the event initial leakage rate continues, try closing the outlet valve again. If this fails, retighten outlet cap and top unload car. If a leak develops during pressure unloading, relieve pressure before making repairs or attempting to tighten unloading connection. Leakage should be contained.

(f) Before opening top or bottom unloading valves, securely attach unloading connections to car.

(g) When bottom unloading a tank not equipped with a vacuum relief or vent valve, block open the manway cover with a non-metallic block to permit full flow from outlet valve to prevent the possibility of creating a vacuum and collapsing the tank.

(h) Tank cars must be attended, or monitored by a DOT-approved monitoring system, during the entire unloading period.

(i) Do not allow tank cars to stand unattended or unmonitored with unloading connections attached after completing unloading.

(j) If necessary to discontinue unloading for a period of time, valves should be closed and unloading connections disconnected. Openings should have closures applied and properly tightened.

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CAUTION: On resuming unloading, check for pressure or vacuum buildup. (See C.2(a).

(k) Pressure used to unload car must be relieved prior to offering car for transportation. A nominal nitrogen pressure pad, up to 15 psig, may be left on car, in which case a caution tag should be applied so indicating.

(l) Operations on private tracks in private facilities will also be subject to local operational and safety procedures.

3. Unloading a tank car *with* heater coils

For commodities that tend to solidify when in transportation, some tank cars are equipped with various types of internal or external heater systems as indicated by stenciling on car. The following instructions relate to the heater systems only. Unloading procedures as outlined under C.2, **Unloading of tank cars** *without* **heater coils,** also apply to these cars.

(a) Remove interior coil pipe caps. Check for evidence of leakage. Connect steam hose or hoses to inlet connections of the heater coil system. Use a shutoff valve to control steam entering the system. Tank should be vented before and during steaming to prevent excessive pressure buildup. Attendance is required per C.2(h).

(b) A steam trap or shutoff valve may be applied to the outlet connection or connections to control the condensate.

(c) Caution must be observed when applying steam to the system. Coils can be broken due to rapid expansion of the coil pipes and hammering of the coils.

(d) Bubbling of steam through the commodity is an indication that an interior coil is broken. Immediately shut off steam. If car is equipped with a dual heater system, one bank of coils may still be operable. Connect steam to each bank to locate the good coil. In event both coils are defective, contact lessee or car owner for a portable coil or for disposition of car.

(e) During the last hours of heating, steam should be applied to the steam jacket of the bottom outlet valve, if so equipped, to melt any solidified product in the outlet chamber. Under no circumstances should steam be applied directly into the outlet chamber, as this could lift the valve and allow condensate to enter tank, possibly resulting in a dangerous condition.

4. Post-unload procedures

As soon as the car has been unloaded to the maximum extent possible:

(a) Close all valves.

(b) Remove unloading connections.

(c) Apply all other closures (plugs, caps, blind flanges, quick disconnects, etc.) and secure using suitably sized wrenches.

(d) Install primary bottom outlet valve cap with a wrench having a handle at least 36″ long.

(e) Heater system inlet and outlet caps, on empty cars so equipped, must be left hanging.

(f) If manway has been opened, check manway cover gasket and replace it if necessary. Close manway cover and tighten all bolts (in a cross pattern) with a suitable sized wrench.

(g) Check rupture disc. Replace the disc if damaged or blown.

(h) Except for those cars containing the residue of a material regulated solely due to its temperature (elevated temperature materials), tank cars containing a residue of a hazardous material should remain placarded as a load.

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REVISION NUMBER: # PAGE X OF XX

EFFECTIVE DATE:

WRITTEN BY J. S. Sebbens POLICY NUMBER

APPROVED BY: KII-__ - 00_

SUBJECT: **Tankcar Unloading / Loading Attendance Requirements**

SCOPE: **All Koppers Facilities**

PURPOSE: Draft Revision 2 (February 26, 2003) J.

Dietz/Sebbens input included.

The purpose of this policy is to provide facility managers with guidance on how to:

- ✓ Determine what training is required for tankcar operations and personnel.
- ✓ Determine what training has to be conducted by Koppers.
- ✓ Comply with regulatory requirements relating to tankcar operations.
- ✓ Prescribe procedures for safety in Unloading/Loading tankcars within a facility
- ✓ Comply with requirements for tankcar securement prior to transportation

This policy is responsive to Section XX.X of the SH&E Management System Manual and is intended to supplement existing plant procedures for tankcar operations.

Koppers Australia will develop and implement an equivalent document to this policy.

DEFINITIONS:

Attendance – A qualified person "attends" the unloading or loading of a cargo tank if, throughout the process, he (she) is alert, has an unobstructed view of the cargo tank, and is within 7.62 meters (25 feet) of the cargo tank and unloading or loading operation.

CCTV- Close circuit television, or visual monitoring equipment.

D.O.T. Approved Monitoring System – A system designed to automatically alert the unloader/loader in the event of an emergency; or is capable of immediately halting the flow of product. Currently such systems are only authorized by D.O.T. Exemption.

Hazmat Employee – a person who is employed by a hazmat employer and who in the course of employment performs job duties which directly affects hazardous materials transportation safety.

NAR – "Non Accidental Release" A release of product during transportation not related to accidental circumstances. Product release from a tankcar during transportation related but not limited to unsecured fittings, loose or missing parts, inappropriate or unauthorized parts or

fittings, inoperable safety devices, or failure of a tank or fittings not due to accident, derailment, or mishandling.

Others – non-Koppers personnel, other than contractors, who may be on Koppers property to conduct business [includes, but is not limited to visitors, customers, truck drivers, vendors (uniform rental company representative), suppliers, inspectors, salesmen, plant tours, utility inspectors, applicants, etc.]

Qualified Person – a person having knowedge of the hazardous characteristics of the product, MSDS information, instructed in safety procedures and trained in the unloading / loading operations of cargo tanks and made responsible for careful vigilance during such operations.

Unloading / Loading Devices – Pipes, hoses, valves, quick disconnects or couplings, steam connections, electrical heating connections, vapor recovery lines or a similar pollution control device, or pumps while attached or connected to the tankcar..

TRAINING:

All corporate/facility purchasing personnel, SH&E personnel and personnel responsible for hiring, training and/or supervising employees, (e.g., engineering, plant managers) must be trained on this policy.

All facility or plant personnel involved with unloading / loading tankcars must receive training in tankcar operations as a hazmat employee. Koppers is required to provide this training and ensure each hazmat employee receives this training initially and on a recurrent basis every 3 years. The training must ensure each hazmat employee has familiarity with the hazardous materials regulations, is able to recognize and identify hazardous materials, has knowledge of the requirements relating to performing specific functions governed by the regulations, has knowledge of emergency response information, self-protections measures, and accident prevention methods and procedures.

Plants will track employee training on their training matrix. (Dietz)

POLICY:

It is Koppers policy to:

1. Ensure compliance with all appropriate governmental regulations, Company policies and procedures, and local plant and facility practices.
2. Ensure all personnel involved with unloading / loading tankcars have the necessary training to ensure their safety while performing or attending tankcar unloading / loading operations.

RESPONSIBILITIES:

Corporate Services Group:

1. Develops and maintains this policy, provides regulatory/policy guidance to all Koppers' facilities and plants.
2. Reviews plant compliance with this policy during audits.

Logistics Department:

1. Provides Recurrent Training and Certification in Hazardous Materials Transportation as required by 49 CFR Subpart H Training to Plant and Facility Managers and their designated key employees.
2. Maintains Training Records for initial and recurrent training at Corporate Headquarters or Koppers' principal place of business
3. Monitors and communicates changes in existing Hazardous Materials Transportation Regulations.
4. Provides regulatory guidance for compliance with the Hazardous Materials Transportation Regulations.

Plant Manager or his/her designee:

1. Ensure all hazmat employees are properly trained in this policy and procedures.
2. Designate one or more responsible employees to conduct hazmat training and tankcar operations training at the plant or facility.
3. Maintain records of the training in compliance with 49 CFR Subpart H.
4. Maintain availability of current MSDS's; provide additional training as required in emergency response, OSHA and/or EPA requirements, specific instruction for the safe performance of assigned job duties.
5. Provide, maintain, and monitor specific use of personal protective equipment.

(Dietz)

PROCEDURES:

1. All tankcar unloading / loading personnel should read and follow instructions on the Material Safety Data Sheet to be sufficiently informed about the potential hazards of the product being unloaded from, or loaded into a tankcar.
2. Unloading / Loading operations must be performed only by qualified personnel properly instructed in the unloading / loading procedures and made responsible for careful compliance with applicable governmental regulations, and corporate and plant

Deleted: Engineering:¶
¶
<#>Defines the requirements of the work to be performed.¶
<#>Review the process with the appropriate plant or corporate SH&E personnel.¶
<#>Determines specific job functions and assists in the establishment of safe work practices.¶
Deleted: ¶

requirements. Personal protective equipment required by the MSDS for the product being loaded or unloaded must be worn.

3. The unloading / loading area must have adequate illumination during the entire unloading or loading operations.
4. Brakes must be set and wheels blocked on all cars being unloaded / loaded.
5. Caution signs must be placed on the track or cars to give necessary warning to persons approaching the cars from the open end of a siding and must be left up until after the cars are unloaded / loaded and disconnected from the unloading / loading devices. The signs must be of metal or other comparable material at least 30 cm (12 inches) high by 38 cm (15 inches) wide and bear the words, "STOP---Tank Car Connected" or "STOP----Men at Work". The word "STOP" being in letters at least 10 cm (4 inches) high and the other words in letters at least 5 cm (2 inches) high. The letters MUST be white on a blue background.
6. Unless the track is protected by a closed and locked switch that is within two car lengths or more of the last car, a derail device must be placed to prevent entry to the area by any railroad switching operation.
7. A visual inspection of the tankcar must be performed to assess any defective safety appurtenances (e.g. loose or broken ladders, grab irons, platforms) or damage to the car from a derailment or collision. Such damage should be noted on the inspection checklist and brought to the attention of a supervisor.
8. Defect cards must not be removed from the car.
9. Before a manway cover or outlet valve cap or plug is removed from a tankcar, the car must be relieverd of all interior pressure by venting the tank by raising the safety valve or loosening the manway bolts. However if venting to relieve pressure will cause a dangerous amount of vapor to collect outside the car, venting and unloading must be delayed until the pressure is reduced by allowing the car to stand overnight or otherwise cooling the contents.
    a. After the pressure is released, the seal must be broken and the manway cover removed as follows:
        i. Hinged and bolted type. All nuts must be unscrewed one to two complete turns, after which the operations must be stopped, and if there is any sound of escaping vapor, the cover bolts must be removed gradually and evenly. Hinged and bolted manways are equipped with safety lugs to prevent the mayway from blowing open. Precautions however must be taken to make sure this safety design is operative.
    b. Fittings, closures, openings, and accessible gasket surfaces must be free of corrosion or damage. Valve packings, manway gaskets, and hold down bolts must be serviceable, not corroded, and in working order. Defective items must be replaced before loading the car, or prior to release back to the railroad after unloading.
    c. The tank, and safety valve must not be overdue for tests as indicated by the test stencils on the car. If the tankcar test dates are past due, DO NOT RELOAD. Notify your supervisor and contact Koppers' Logistics Department for shop disposition.

Loading Tankcars:

1. On tankcars equipped with a bottom discharge outlet
   a. First make sure the top operated internal valve is full closed.
   b. Remove the outlet cap, outlet plug, or open the auxiliary valve. Be prepared to collect possible leakage. The cap and/or plug is to remain off, or auxiliary valve to remain open during loading to check for leaking of the primary valve.
2. Outage must be sufficient to allow for expansion of the commodity while in transit. The D.O.T. requires a minimum of 1% outage at 105 degrees F. for insulated cars. Products requiring heating for discharge may require additional outage due to the expansion of the material at loading / unloading temperature.
3. Do not exceed the maximum weight or stenciled load limit of the car. Maximum weight on rail is typically 263,000 lbs. for hazardous materials. Lading weight, plus the tare weight of the car must not exceed this allowable gross weight on rail. Non-regulated commodities may be permitted 286,000 lbs. gross weight on rail provided the car is so designed and equipped. Weight of material to be added to car will be determined by the appropriate gauge table for the car not to exceed the car's load limit.
4. After loading is completed, secure all openings and their protective housings. Apply manway bolts tool tight, apply plugs, and/or caps tool tight with a suitably sized tool. If the tankcar out cap was removed, it must be applied with a wrench at least 36 inches long.
5. After loading, check for leaks. Any car showing any evidence of leakage at seams, valves, fittings, connections cannot be offered for transportation until repairs are made. Releasing a leaking or unproperly secured tankcar to transportation will result in a Non-Accidental Release (NAR).
6. Recheck the integrity of the manway bolts making sure all are in place, secured, and tool tight.
7. Tankcars may not be allowed to stand with loading connections attached after loading is completed. Throughout the entire period of loading and while the car is connected to the loading device, the car MUST be attended by the loader.
8. Follow all plant loading procedures for the type of car and product to be loaded including all personal protective equipment requirements and plant safe work procedures.

Unloading Tankcars:

1. Steam connections, and electrical heating connections, are considered unloading devices and while connected, the car is subject to the attendance requirements of 49 CFR 174.67 (i). "Tank cars may not be allowed to stand with unloading connections attached after unloading is completed. Throughout the entire period of unloading, and while the car is connected to an unloading device, the car MUST be attended by the unloader"
2. For top unloading, care must be taken to properly vent or pressurize the tankcar to prevent damage to the car. Specific plant unloading procedures must be followed for heating and unloading.
3. On cars equipped with top-operated bottom outlet valves, the valve rod handle at the top of the car must be checked to ensure the valve is closed prior to the removal of any

bottom fitting, plug, or cap. Be prepared to collect possible leakage in a suitable container before removing a bottom outlet fitting. The inside valve should be checked periodically during heating to ensure the valve is fully closed.

4. Before opening a top or bottom unloading valve, securely attach the unloading connections to the car. Check that the bottom outlet cock retaining nut is secured. (Dietz)
5. Do not allow tankcars to stand unattended or unmonitored with unloading connections attached. If necessary to discontinue unloading for a period of time, valves should be closed, and unloading connections disconnected. All openings should have closures applied and properly tightened.
6. An product spill on the tankcar should be removed. Spills on the ground must be handled in accordance with plant procedures. Certain spills require reporting to the EPA and/or other regulatory agencies. Contact your supervisor immediately to determine the proper action.
7. Prior to releasing the empty car for transportation, all valves must be closed; all caps, plugs, and fittings must be made tool tight and secured by a chain to the car. Manway bolts must be securely tightened with an approved tool and checked prior to the empty return movement.

Attendance and Remote Monitoring:

1. Attendance requirements are met if during the entire period a tankcar is connected for loading or unloading; including heating connections if:
    a. An employee is made responsible for loading or unloading and is familiar with the nature and properties of the material being loaded or unloaded.
    b. The employee responsible for loading or unloading is instructed in the procedures to be followed during the process and in the event of an amergency, has the authority and ability to halt the flow of product immediately and take emergency action.
    c. The qualified loader / unloader is in the area of the tankcar in attendance to the tankcar operation at all times.
    d. In the event of an emergency, the employee or monitoring system must be capable of immediately halting the flow of product OR alerting the employee responsible for the process.
    e. The monitoring device will provide immediate notification of any malfunction to the responsible person, and must be approved by D.O.T. Exemption. A Closed Circuit TV (CCTV) monitoring system is insufficient to provide immediate notification to the loader / unloader and is not approved as a stand alone monitoring device.

RECORD KEEPING/FORMS:

- Training records for employees as prescribed by 49 CFR Part 172 Subpart H Training
- Tankcar Pretrip Inspection Checklists

REFERENCES:

- Plant MSDSs
- 49 CFR Part 174 Subpart C (incorporated by reference)
- 49 CFR Part 177 Subpart B (incorporated by reference)
- Bureau of Explosives Pamphlet 34 Recommended Methods For The Safe Loading and Unloading of Non-Pressure Tankcars (incorporated by reference)
- Letter of Interpretation L. W. Bierlein dated 1/6/03

DISTRIBUTION:
All manual holders
KopNet

Appendix 1

Plant specific Training Requirements:

[redacted]

- Injuries
- PPE
- Eye protection
- Hearing
- Respiratory
- Equipment and safety apparel
- Working overhead
- Railroads
- Cranes
- Oxygen and compressed gasses
- Welding and burning
- Asphyxiation hazards
- Housekeeping
- Fire
- Smoking and open flames
- Drug and alcohol
- Transportation
- Hazmat Transportation Training
- Tankcar Operations
- Compressed air and gas
- Utilities
- Emergency/evacuation procedures

Section VIII
Trainers' Information

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PUBLISHER'S NOTE

This Subpart outlines the requirements for employers to conduct training of any of their hazmat employees that perform any function subject to the requirements of Subchapter C. For example, employees who prepare shipping papers, who determine the appropriate package for the material, who determine if a material is a hazardous material, etc. The training includes certain topics, and testing is also required for the subjects covered in the training program. The employer is also required to maintain records on the training and certify that the employee has been trained and tested.

Subpart H

TRAINING

§172.700 Purpose and scope. (a) Purpose. This subpart prescribes requirements for training hazmat employees.

(b) Scope. Training as used in this subpart means a systematic program that ensures a hazmat employee has familiarity with the general provisions of this subchapter, is able to recognize and identify hazardous materials, has knowledge of specific requirements of this subchapter applicable to functions performed by the employee, and has knowledge of emergency response information, self-protection measures and accident prevention methods and procedures (see §172.704).

(c) Modal-specific training requirements. Additional training requirements for the individual modes of transportation are prescribed in parts 174, 175, 176, and 177 of this subchapter.

§172.701 Federal–State relationship. This subpart and the parts referenced in §172.700(c) prescribe minimum training requirements for the transportation of hazardous materials. For motor vehicle drivers, however, a State may impose more stringent training requirements only if those requirements—

(a) Do not conflict with the training requirements in this subpart and in part 177 of this subchapter; and

(b) Apply only to drivers domiciled in that State.

§172.702 Applicability and responsibility for training and testing.

(a) A hazmat employer shall ensure that each of its hazmat employees is trained in accordance with the requirements prescribed in this subpart.

(b) Except as provided in §172.704(c)(1), a hazmat employee who performs any function subject to the requirements of this subchapter may not perform that function unless instructed in the requirements of this subchapter that apply to that function. It is the duty of each hazmat employer to comply with the applicable requirements of this subchapter and to thoroughly instruct each hazmat employee in relation thereto.

(c) Training may be provided by the hazmat employer or other public or private sources.

(d) A hazmat employer shall ensure that each of its hazmat employees is tested by appropriate means on the training subjects covered in §172.704.

§172.704 Training requirements. (a) Hazmat employee training shall include the following:

(1) General awareness/familiarization training. Each hazmat employee shall be provided general awareness/familiarization training designed to provide familiarity with the requirements of this subchapter, and to enable the employee to recognize and identify hazardous materials consistent with the hazard communication standards of this subchapter.

(2) Function-specific training.

(i) Each hazmat employee shall be provided function-specific training concerning requirements of this subchapter, or exemptions issued under subchapter A of this chapter, which are specifically applicable to the functions the employee performs.

(ii) As an alternative to function-specific training on the requirements of this subchapter, training relating to the requirements of the ICAO Technical Instructions and the IMDG Code may be provided to the extent such training addresses functions authorized by §§171.11 and 171.12 of this subchapter.

(3) Safety training. Each hazmat employee shall receive safety training concerning—

(i) Emergency response information required by subpart G of part 172;

(ii) Measures to protect the employee from the hazards associated with hazardous materials to which they may be exposed in the work place, including specific measures the hazmat employer has implemented to protect employees from exposure; and

(iii) Methods and procedures for avoiding accidents, such as the proper procedures for handling packages containing hazardous materials.

(b) OSHA or EPA Training. Training conducted by employers to comply with the hazard communication programs required by the Occupational Safety and Health Administration (OSHA) of the Department of Labor (29 CFR 1910.120 or 1910.1200) or the Environmental Protection Agency (EPA) (40 CFR 311.1), to the extent that training addresses the training specified in paragraph (a) of this section, may be used to satisfy the training requirements in paragraph (a) of this section, in order to avoid unnecessary duplication of training.

(c) Initial and recurrent training.—(1) Initial training. A new hazmat employee, or a hazmat employee who changes job functions may perform those functions prior to the completion of training provided—

(i) The employee performs those functions under the direct supervision of a properly trained and knowledgeable hazmat employee; and

(ii) The training is completed within 90 days after employment or a change in job function.

(2) Recurrent training. A hazmat employee shall receive the training required by this subpart at least once every three years.

(3) Relevant training. Relevant training received from a previous employer or other source may be used to satisfy the requirements of this subpart provided a current record of training is obtained from hazmat employees' previous employer.

(4) Compliance. Each hazmat employer is responsible for compliance with the requirements of this subchapter regardless of whether the training required by this subpart has been completed.

(d) Recordkeeping. A record of current training, inclusive of the preceding three years, in accordance with this section shall be created and retained by each hazmat employer for as long as that employee is employed by that employer as a hazmat employee and for 90 days thereafter. The record shall include:

(1) The hazmat employee's name;

(2) The most recent training completion date of the hazmat employee's training;

(3) A description, copy, or the location of the training materials used to meet the requirements in paragraph (a) of this section;

(4) The name and address of the person providing the training; and

(5) Certification that the hazmat employee has been trained and tested, as required by this subpart.

(e) Limitation. A hazmat employee who repairs, modifies, reconditions, or tests packagings as qualified for use in the transportation of hazardous materials, and who does not perform any other function subject to the requirements of this subchapter, is not subject to the safety training requirement of paragraph (a)(3) of this section.

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Case Study I – Small Sample Package Transported By Air

Tom has just attended a meeting with one of our customers, Mr. Nice Guy, in California, who purchases **naphthalene** from Koppers Incorporated. A recent production problem at the customer's facility prompted the visit. It is suspected that off-spec. product may be causing the problem. During the meeting Tom requested a sample for analysis be sent to Harmarville.

The customer is anxious to have the sample analyzed and suggests that Tom take a small amount back with him. They package about 3 pounds of solid **naphthalene** in a metal can and place the can in a fibreboard box. The customer tells Tom that this is a limited quantity and they do not require any hazard warning label, product label, or markings on the outside of the package, other than their name and address on a return address label with Koppers' Harmarville address as the destination.

Tom has been told by his boss that hazmat is forbidden in luggage when traveling by air, but has never attended a training session in shipping hazardous materials.

Tom arrives at the airport with the package and attempts to check the box with his luggage. The airline representative notices a slight mothball type odor coming off the package and questions Tom about the contents.

Tom describes what he is doing and the authorities immediately arrest him! If we ever see Tom again:

WHAT ARE THE RULES THAT WERE KNOWINLGY VIOLATED? WHO VIOLATED THOSE RULES? WHAT ARE THE FINES PER VIOLATION?

Suggestions:

Determine if the material is regulated for transportation.
What are the exceptions for "limited quantities" by ground and by air?
What are the compliance procedures if the material is regulated for transportation?

Case Study II – Loading Of A Crude Coke Oven Tar Tank Car

John is a tank car loader at one of our Carbon Materials Plants. He was hired 4 months ago and for the first 3 months he remained on the day shift, performing his duties with and experienced co-worker, under the direct supervision of his shift supervisor. For the last month John has been "on his own" loading and unloading tank cars of Crude Coke Oven Tar and other distillates at the plant. One evening, just before the railroad came into the plant to switch out the cars, John was asked to load a car of Crude Coke Oven Tar for a "rush" shipment to Woodward, AL.

He performed the necessary pre-trip inspection of the car, and noted that all bottom outlet plugs in the auxiliary valve were applied and chained. Test dates were due in 2004 and the car showed no evidence of visible physical damage. The bottom outlet is no longer used by the customer for unloading and with rust evident on the outlet, this fitting had not been used in some time. All of the manway bolts were in good condition so he proceeded to load the car. After loading, he replaced the manway gasket and tightened the manway bolts tool tight.

When John checked the placards on the car, he found 3 class 9 placards, with 3082 in the center. On one side of the car, there was no placard, only the number "3082" on a white panel. The rail crew was waiting for John to finish and remove the blue caution sign from the track. Since all of the numbers matched, John released the car.

The next day a Federal Railroad inspector noted the car in the serving yard, dripping from the bottom outlet plug, and notified Koppers of his findings. The inspector had the railroad tighten the outlet cap and secure the plug, but he placed the car on hold until further notice, and advised Koppers that he would be in for an inspection the following day.

The inspector visited John's plant to conduct a follow-up inspection into this incident. After talking to John about how he loaded the car, the inspector found several violations.

WHAT WERE THE VIOLATIONS?

Suggestions:

Crude Coke Oven Tar is a regulated material.
What are the compliance procedures?
What are the loading procedures?

Case Study III – Unloading a Tank Car of Creosote

Mike has just completed the unloading of a **creosote** car at his plant. He has been trained in DOT compliance as a hazmat employee and is certified. He opens the manway to check that all of the material is discharged, closes the manway lid and tightens the manway bolts with his fingers.

Mike noticed that three sides of the tank car display an orange panel with "3082" in the center, next to a class 9 placard. There is nothing on the 4th side of the car. When he checks his supplies he has class 9 placards and blank orange panels, so he writes "3082" on the orange panel with a marker and affixes the orange panel and a placard to the 4th side of the car.

It's late and all of the empty return instructions are at the office. All of the office staff have left for the day.

Mike calls the railroad to advise them that the car is empty and ready to go. The railroad pulls the car that night, and upon leaving the plant, derails the car on it's side into a creek, where a few gallons of creosote spill from the manway into the creek. The FRA, the local hazmat crew, the fire department and the EPA arrive at the site as the derailment is cleared. Several residents near the derailment site complain of nausea, and are hospitalized. Several fish in the creek are killed, apparently due to the spill of creosote. Residents in the area get their drinking water from private wells.

WHAT ARE THE VIOLATIONS AND WOULD KOPPERS FACE CRIMINAL PENALTIES DUE TO NEGLIGENCE?

Suggestions:

- Creosote is regulated for transportation.
  What are the compliance procedures?
  What are the unloading procedures?

Case Study IV – Sample of Coal Tar Creosote

Mary is a Receptionist at one of our facilities. Late on Friday afternoon she answered a call from a customer desperate for a sample of **Coal Tar Creosote.** Everyone in customer service was gone for the day, but John, the janitor, brought her a sample in a one-quart glass bottle.

Mary has no training, but knows that **Coal Tar Creosote** is a hazardous material, and requires a special shipping document. She also remembers seeing a class 9 label on each package, so she does her best to prepare the shipment, placing the one-quart bottle into the box that she had received office supplies in that morning, and affixing a class 9 label.

Speedy Delivery Service guarantees that they can deliver the sample first thing Monday morning, so Mary gives the package and shipping paper (see next page) to their driver.

On Sunday, Mary's manager gets a call from Chemtrec, because they got a call from Speedy Delivery Service that the package had leaked, and contaminated their truck and some other merchandise on the truck.

WHAT ARE THE VIOLATIONS AND WHO IS AT FAULT?

Suggestions:

Determine if the Coal Tar Creosote is regulated for transportation.
What are the compliance procedures?
What marks and labels are required?
What is wrong with the shipping document?

STRAIGHT BILL OF LADING – SHORT FORM
ORIGINAL – NOT NEGOTIABLE

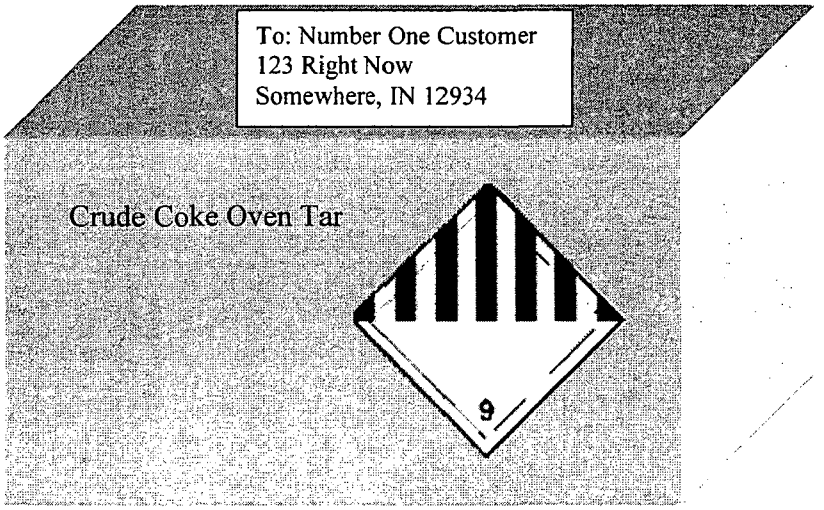
RECEIVED, subject to the classifications and lawfully filed tariffs in effect on the date of issue of this Bill of Lading FROM: **Koppers Incorporated** AT:	**Bill of Lading Number** **KII-0483100402-1**
The property described below, in apparent good order, except as noted (contents and condition of contents of packages unknown), marked, consigned and destined as indicated below, which said company (the word company being understood throughout this contract as meaning any person or corporation in possession of the property under the contract) agrees to carry to its usual place of delivery at said destination, if on its own road or its own water line, otherwise to deliver to another carrier on the route to said destination. It is mutually agreed, as to each carrier of all or any of said property over all or any portion of said route to destination, and as to each party at any time interested in all or any of said property, that every service to be performed hereunder shall be subject to all conditions not prohibited by law, whether printed or written, herein contained, including classification bills of lading conditions, which are hereby agreed to be the shipper and accepted for himself and his assigns.	**Freight Basis**
Ship To: **Number One Customer** **123 Right Now** **Somewhere, IN 12934** Route: Carrier / Vehicle # Sold To:	**Shippers Order #** **N/A** **Customers P.O. Number** **N/A**

Packages No. and Kind	HM	DOT SHIPPING NAME/HAZARD CLASS (IF APPLICABLE)	DESCRIPTION OF ARTICLES, SPECIAL MARKS & EXCEPTIONS	WEIGHT (Subject to Correction)
1 box		**Crude coke oven tar, class 9**		**10 pounds**

EMERGENCY CONTACT: CALL CHEMTREC 1-800-424-9300 OR 1-202-483-7616 FAX 1-800-242-7428

Subject to Section 7 of Conditions of applicable bill of lading, if this shipment is to be delivered to the consignee without recourse on the consignor, the consignor shall sign the following statement: **The carrier shall not make delivery of this shipment without payment of freight and all other lawful charges.** Signature Of Consignor per **See ★ below**	"Note: Where the rate is dependent on value, shipper's are required to state specifically in writing the released or declared value of the property. The agreed or declared value of the property is hereby stated by the shipper to be not exceeding 170 cents per pounds for each distribution package."	**PERMANENT POST-OFFICE ADDRESS OF SHIPPER:** Koppers Industries, Inc. 436 Seventh Avenue Pittsburgh, PA 15219-1800
This is to certify that the above named materials are properly classified, described, packaged, marked and labeled and are in proper condition for transportation according to the applicable regulations of the Department of Transportation. **PER**	♦ Shipper herby certifies that this shipment is correctly described; correct weight is shown and is subject to verification according to agreement with the Weighing and Inspection Bureau having jurisdiction. **PER**	Mary Smith A Per

★ Signature of Shipper's agent next above is also intended as execution of Section 7
Signature above must appear in longhand



Appendix A to Subpart D of Part 107—Guidelines for Civil Penalties

I. This appendix sets forth the guidelines used by the Office of Hazardous Materials Safety (as of January 18, 1995) in making initial baseline determinations for recommending civil penalties. The first part of these guidelines is a list of baseline amounts or ranges for probable violations frequently cited in enforcement reports referred for action. Following the list of violations are general guidelines used by OHMS in making initial penalty determinations in enforcement cases.

II. List of Frequently Cited Violations

Violation description	*Section or cite*	*Baseline assessment*
Part 107—Requirements		
Failure to register as a carrier or shipper of hazardous material	107.608	$1,000 +, $500 each add'l year.
Part 171—Requirements		
Failure to give immediate telephone notice of a reportable hazardous materials incident	171.15	$3,000
Failure to file a DOT 5800.1 Hazardous Materials Incident Report within 30 days following an unintentional release of hazardous materials in transportation	171.16	$500 to $2,500
Part 172—Requirements		
Shipping Papers (§§172.200–172.205):		
Failure to execute a shipping paper for a shipment of hazardous materials	172.201	$3,000 to $6,000
Failure to follow one or more of the three approved formats for listing hazardous materials on a shipping paper	172.201(a)(1)	$1,200
Failure to include a proper shipping name in the shipping description or using an incorrect proper shipping name	172.202	$800 to $1,600
Failure to include a hazard class/division number in the shipping description	172.202	$1,000 to $2,000
Using an incorrect hazard class/identification number	172.202	
—that does not affect compatibility requirements		$800
—that affects compatibility requirements		$3,000 to $6,000
Failure to include an identification number in the shipping description	172.202	$1,000 to $2,000
Using an incorrect identification number	172.202	
—that does not change the response information		$800
—that changes the response information		$3,000 to $6,000
Using a shipping description that includes additional unauthorized information (extra or incorrect words)	172.202	$800
Using a shipping description not in required sequence	172.202	$500
Using a shipping description with two or more required elements missing or incorrect	172.202	
—such that the material is misdescribed		$3,000
—such that the material is misclassified		$6,000
Failure to include the total quantity of hazardous material covered by a shipping description	172.202(c)	$400
The letters "RQ" are not used in the shipping description to identify materials that are hazardous substances	172.203(c)(2)	$500
Using a shipping description for Class 7 (radioactive) material that fails to contain the required additional entries, or contains incorrect information for these additional entries	172.203(d)	$2,000 to $4,000
Failure to include a required technical name in parentheses for a listed generic or "nos" material	172.203(k)	$1,000
Failure to list an exemption number in association with the shipping description	172.203(a)	$800
Failure to include the required shipper's certification on a shipping paper	172.204(a)	$1,000
Failure to execute the required shipper's certification on a shipping paper	172.204	$800
Emergency Response Information Requirements (§§172.600–172.604):		
1. Providing or listing incorrect emergency response information with or on a shipping paper	172.602	
a. No significant difference in response		$800
b. Significant difference in response		$3,000 to $6,000
2. Failure to include an emergency response telephone number on a shipping paper	172.604	$2,600
3. Failure to have the emergency response telephone number monitored while a hazardous material is in transportation or listing multiple telephone numbers (without specifying the times for each) that are not monitored 24 hours a day	172.604	$1,300
4. Listing an unauthorized emergency response telephone number on a shipping paper	172.604	$2,600 to $4,200
5. Listing an incorrect or non-working emergency response telephone number on a shipping paper	172.604	$1,300

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Violation description	Section or cite	Baseline assessment
6. Failure to provide required technical information when the listed emergency response telephone number is contacted	172.604	$1,300
Package Marking Requirements (§§172.300–172.338):		
Failure to mark the proper shipping name on a package or marking an incorrect shipping name on a package	172.301(a)	$800 to $1,600
Failure to mark the identification number on a package	172.301(a)	$1,000 to $2,000
Marking a package with an incorrect identification number	172.301(a)	
—that does not change the response information		$800
—that changes the response information		$3,000 to $6,000
Failure to mark the proper shipping name and identification number on a package	172.301(a)	$3,000 to $6,000
Marking a package with an incorrect shipping name and identification number	172.301(a)	
—that does not change the response information		$1,500 to $3,000
—that changes the response information		$3,000 to $6,000
Failure to include the required technical name(s) in parentheses for a listed generic or "no" entry	172.301(c)	$1,000
Failure to mark a package containing liquid hazardous materials with required orientation marks	172.312	$2,500 to $3,500
Package Labeling Requirements (§§172.400–172.450):		
Failure to label a package	172.400	$5,000
Placing a label that represents a hazard other than the hazard presented by the hazardous material in the package	172.400	$5,000
Placing a label on a package that does not contain a hazardous material	172.401(a)	$800
Placing a label on Class 7 (radioactive) material that understates the proper label category	172.403	$5,000
Placing a label on Class 7 (radioactive) material that fails to contain, or has erroneous, entries for the name of the radionuclide(s), activity, and transport index	172.403(g)	$2,000 to $4,000
Placing a label not conforming to size requirements on a package	172.407(c)	$800
Placing a label on a different surface of the package than, or far away from, the proper shipping name	172.406(a)	$800
Placing a label that does not meet color specification requirements on a package (depending on the variance)	172.407(d)	$600 to $2,500
Failure to place a required subsidiary label on a package	172.402	$500 to $2,500
Failure to provide an appropriate class or division number on a label	172.411	$2,500
Placarding Requirements (§§172.500–172.560):		
Failure to properly placard a freight container or vehicle containing hazardous materials when table 1 is applicable	172.504	$1,000 to $9,000
Failure to properly placard a freight container or vehicle containing hazardous materials when table 2 is applicable	172.504	$800 to $7,500
Training Requirements (§§172.700–172.704):		
Failure to train hazmat employees in the three required areas of training	172.702	
—more than 10 hazmat employees		$2,400 and up
—10 hazmat employees or less		$1,500 and up
Failure to train hazmat employees in any one of the three required areas of training	172.702	
—more than 10 hazmat employees		$800 and up
—10 hazmat employees or less		$500 and up
Failure to maintain training records	172.704	
—more than 10 hazmat employees		$800 and up
—10 hazmat employees or less		$500 and up
Part 173—Requirements		
Overpack Requirements (§173.25)		
Failure to mark an overpack with a statement indicating that the inside packages comply with prescribed specifications when specification packaging is required	173.25(a)(4)	$3,000
Reconditioner Requirements (§173.28):		
1. Representing, marking, or certifying a drum as a reconditioned UN standard packaging, when the drum did not meet a UN standard	173.28(c), (d)	$6,000 to $10,800
2. Marking an incorrect registration number on a reconditioned packaging	173.28(b)(2)(ii)	
a. Incorrect number		$800
b. Use of another reconditioner's number		$7,200

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Violation description	Section or cite	Baseline assessment
3. Failure to properly conduct alternate leakage test	173.28(b)(2)(i)	
a. Improper test		$2,000
b. No test at all		$4,000
4. Representing, marking, or certifying a drum as altered from one standard to another, when the drum had not actually been altered	173.28(d)	$500
Portable and IM Tank Requirements (§§173.32(e), 173.32c, 173.315)		
Offering hazardous materials for transportation in a DOT specification or exemption portable tank which is out of test	173.32(a)(1), 173.315(a), Applicable Exemption	$3,500 to $7,000
Offering an IM portable tank for transportation that has not been hydrostatically tested within the last 2½ years per §173.32b(a)	173.32c(c)	$3,500
Offering an IM portable tank for transportation that has not been visually inspected in last five years per §173.32b(b)	173.32c(c)	$3,500
Offering an IM portable tank for transportation that has not been visually or hydrostatically tested as required, or failing to remove the safety relief valves during testing	173.32c(c)	$7,000
Offering a hazardous material for transportation in an IM portable tank equipped with bottom outlets, when the material contained is prohibited from being offered in this type of packaging	173.32c(g)	
—Packing Group II		$7,000
—Packing Group III		$5,000
Failure to provide the required outage for a shipment of hazardous materials, that results in the release of hazardous materials	173.32c(k)	$6,000 to $12,000
Offering a hazardous material for transportation in a DOT, exemption, or IM portable tank which fails to bear markings that it has been properly retested	173.32(e)(3), 173.32b(d)	$3,000
Cylinder Retesters (§§173.23, 173.34, and 173.302):		
Failure to remark as DOT 3AL an aluminum cylinder manufactured under a former exemption	173.23(c)	$600
Certifying or marking as retested a nonspecification cylinder	173.34	$800
Marking a cylinder in or on the sidewall area when not permitted by the applicable specification	173.34(c)(1)	$6,000 to $10,800
Failure to maintain legible markings on a cylinder	173.34(c)	$800
Failure to perform hydrostatic retesting at the minimum of 5/3 times the service pressure, or at the minimum specified test pressure	173.34(e)	$2,100 to $5,200
Failure to conduct a complete visual external and internal examination	173.34(e)(3)	$2,100 to $5,200
Failure to have a retester's identification number (RIN)	173.34(e)(2)(i)	$4,000
Failure to have current authority due to failure to renew a retester's identification number	173.34(e)(2)(i)	$2,000
Failure to have a retester's identification number and marking another RIN on a cylinder	173.34(e)(2)(i)	$7,200
Marking a RIN before successfully completing a hydrostatic retest	173.34(e)(1)(ii)	$800
Requalifying a DOT cylinder without performing the visual inspection or hydrostatic retest	173.34(e)(1)(ii)	$4,200 to $10,400
Performing hydrostatic retesting without demonstrating the accuracy of the testing equipment	173.34(e)(4)	$2,100 to $5,200
Failure to hold hydrostatic test pressure for 30 seconds or sufficiently longer to allow for complete expansion	173.34(e)(4)	$3,100
Failure to perform a second retest, after equipment failure, at a pressure of 10% more or 100 psi more, whichever is less (includes exceeding 90% of test pressure prior to conducting a retest)	173.34(e)(4)	$3,100
Failure to condemn a cylinder with permanent expansion of 10% or greater (5% for certain exemption cylinders); failure to condemn cylinders with evidence of internal or external corrosion, denting, bulging, or rough usage	173.34(e)(6)	$10,000
Marking an FRP cylinder with steel stamps in the FRP area of the cylinder such that the integrity of the cylinder is compromised	Applicable Exemption	$6,000 to $10,800
Failure to keep complete and accurate records of cylinder reinspection and retest		
—No records kept		$4,000
—Incomplete or inaccurate records	173.34(e)(8)	$1,000 to $3,000

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Violation description	*Section or cite*	*Baseline assessment*
Improper marking of the RIN or retest date on a cylinder	173.34(e)(7)	$800
Marking a DOT 3HT cylinder with a steel stamp other than a low-stress steel stamp	173.34(e)(15)	$6,000 to $10,800
Marking a "+" sign on a cylinder without determining the average or maximum wall stress, by calculation or reference to CGA Pamphlet C-5	173.302(c)(3)	$3,000 to $4,000
Representing, marking, or certifying a cylinder as meeting the requirements of an exemption, when the cylinder was not maintained or retested in accordance with the exemption	171.2(c), Applicable Exemption	$2,000 to $6,000
Rebuilder Requirements (§173.34):		
Representing a DOT-4 series cylinder as meeting the requirements of the Hazardous Materials Regulations without being authorized to do so by the Associate Administrator for Hazardous Materials Safety	173.34(l)	$6,000 to $10,800
Offeror Requirements (General):		
Offering a hazardous material for transportation in an unauthorized non-UN standard or nonspecification packaging (includes the failure to comply with the terms of an exemption authorizing the use of a nonstandard or nonspecification packaging)	Various	
—Packing Group I (includes §172.504 table 1 materials)		$9,000
—Packing Group II		$7,000
—Packing Group III		$5,000
Offering a hazardous material for transportation in a packaging that has successfully been tested to an applicable UN standard, but is not marked with the required UN marking	178.3(a), 178.503(a)	$3,600
Offering a hazardous material for transportation in a packaging that leaks during conditions normally incident to transportation	173.24(b)	
—Packing Group I (includes §172.504 table 2 materials)		$12,000
—Packing Group II		$9,000
—Packing Group III		$6,000
Overfilling a package so that the effectiveness is substantially reduced	173.24(b)	
—Packing Group I (includes §172.504 table 1 materials)		$9,000
—Packing Group II		$6,000
—Packing Group III		$3,000
Offering a hazardous material for transportation after October 1, 1996, in an unauthorized non-UN standard packaging marked as manufactured to a DOT specification	171.14	
—packaging meets DOT specification		$3,000
—packaging does not meet DOT specification		$5,000 to $9,000
Offeror Requirements (Class 1—Explosives):		
Failing to mark the "EX" approval number on a package containing an explosive	172.320	$1,200
Offering an unapproved explosive for transportation	173.54 and 173.56(b)	
—Div 1.3 & 1.4 fireworks meeting the chemistry requirements (both quantity and type) of APA Standard 87-1		$5,000 to $10,000
—all other explosives (including forbidden explosives)		$10,000 to $27,500
Offering a leaking or damaged package of explosives for transportation	173.54(c)	$10,000 to $27,500
Offeror Requirements (Class 7—Radioactive Materials):		
1. Offering a DOT specification 7A packaging without maintaining complete documentation of tests and an engineering evaluation or comparative data	173.415(a), 173.461	
a. Tests and evaluation not performed		$8,400
b. Complete records not maintained		$2,000 to $5,000
2. Offering a Type B packaging without holding a valid NRC approval certificate	173.471(a)	
a. Never having obtained one		$2,500
b. Holding an expired certificate		$1,000
3. Offering a limited quantity of radioactive materials without marking the inner (or single) packaging "Radioactive."	173.421(a)(4)	$5,000 and up
4. Offering low specific activity (LSA) radioactive materials consigned as exclusive use without providing instructions for maintenance of exclusive use shipment controls	173.427(a)(6)	$800
5. Offering a package that exceeds the permitted limits for surface radiation or transport index	173.441	$10,000 and up
6. Offering a package without determining the level of removable external contamination, or that exceeds the limit for removable external contamination	173.443	$5,000 and up

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Violation description	Section or cite	Baseline assessment
7. Storing packages of radioactive material in a group with a total transport index more than 50	173.447(a)	$5,000 and up
8. Offering special form radioactive materials without maintaining a complete safety analysis or Certificate of Competent Authority	173.476(a), (b)	$2,500
Offeror Requirements (Cylinders):		
Offering a compressed gas for transportation in a cylinder that is out of test	173.301(c)	$4,200 to $10,400
Failure to check each day the pressure of a cylinder charged with acetylene that is representative of that day's compression, after the cylinder has cooled to a settled temperature, or failure to keep a record of this test for at least 30 days	173.303(d)	$5,000
Offering a limited quantity of a compressed gas in a metal container for the purpose of propelling a nonpoisonous material and failing to heat the cylinder until the pressure is equivalent to the equilibrium pressure at 130°F, without evidence of leakage, distortion, or other defect	173.306(a)(3), (h)	$1,500 to $6,000
Part 178—Requirements		
Third-Party Packaging Certifiers (General):		
1. Issuing a certification that directs the packaging manufacturer to improperly mark a packaging (e.g., steel drum to be marked UN 4G)	171.2(e), 178.2(b), 178.3(a), 178.503(a)	$500 per item
Manufacturers (General):		
1. Failure to insure a packaging certified as meeting the UN standard is capable of passing the required performance testing	178.601(b)	
a. Packing Group I (includes §172.504 table 1 materials)		$10,800
b. Packing Group II		$8,400
c. Packing Group III		$6,000
2. Certifying a packaging as meeting a UN standard when design qualification testing was not performed	178.601(d)	
a. Packing Group I (includes §172.504 table 1 materials)		$10,800
b. Packing Group II		$8,400
c. Packing Group III		$6,000
3. Failure to conduct periodic retesting on UN standard packaging (depending on length of time and Packing Group)	178.601(e)	$2,000 to $10,800
4. Failure to properly conduct testing for UN standard packaging (e.g., testing with less weight than marked on packaging; drop testing from lesser height than required; failing to condition fiberboard boxes before design test)		
a. Design qualification testing	178.601(d)	$2,000 to $10,800
b. Periodic retesting	178.601(e)	$500 to $10,800
5. Marking, or causing the marking of, a packaging with the symbol of a manufacturer or packaging certifier other than the company that actually manufactured or certified the packaging	178.2(b), 178.3(a), 178.503(a)(8)	$7,200
6. Failure to maintain testing records	178.601(l)	
a. Design qualification testing		$1,000 to $5,000
b. Periodic retesting		$500 to $2,000
7. Improper marking of UN certification	178.503	$500 per item
8. Manufacturing DOT specification packaging after October 1, 1994 that is not marked as meeting a UN performance standard	171.14	
a. If packaging does meet DOT specification		$3,000
b. If packaging does not meet DOT specification		$6,000 to $10,800
Manufacturing Requirements—Drums		
1. Failure to properly conduct production leakproofness test		
a. Improper testing	178.604(b)(1)	$2,000
b. No testing performed	173.28	$2,000 to $10,800
Manufacturing Requirements—Cylinders		
1. Manufacturing, representing, marking, certifying, or selling a DOT high-pressure cylinder that was not inspected and verified by an approved independent inspection agency	Various	$7,500 to $15,000
2. Failure to have a registration number or failure to mark the registration number on the cylinder	Various	$800
3. Marking another company's number on a cylinder	Various	$7,200

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Violation description	*Section or cite*	*Baseline assessment*
4. Failure to mark the date of manufacture or lot number on a DOT—39 cylinder	178.65	$3,000
5. Failure to have a chemical analysis performed in the US for a material manufactured outside the US/failure to obtain a chemical analysis from the foreign manufacturer	Various	$5,000
6. Failure to meet wall thickness requirements	Various	$7,500 to $15,000
7. Failure to heat treat cylinders prior to testing	Various	$5,000 to $15,000
8. Failure to conduct a complete visual internal examination	Various	$2,500 to $6,200
9. Failure to conduct a hydrostatic test, or conducting a hydrostatic test with inaccurate test equipment	Various	$2,500 to $6,200
10. Failure to conduct a flattening test	Various	$7,500 to $15,000
11. Failure to conduct a burst test on a DOT-39 cylinder	178.65(f)(2)	$5,000 to $15,000
12. Failure to have inspections and verifications performed by an inspector	Various	$7,500 to $15,000
13. Failure to maintain a required inspector's reports	Various	
a. No reports at all		$5,000
b. Incomplete or inaccurate reports		$1,000 to $4,000
Other Requirements		
Carrier Requirements:		
Transporting packages of hazardous materials that have not been secured against movement within the vehicle	177.834(a) & (g)	$3,000
Transporting explosives in a motor vehicle containing metal or other articles or materials likely to damage such explosives or any package in which they are contained, without segregating in different parts of the load or securing them in place in or on the motor vehicle and separated by bulkheads or other suitable means to prevent such damage	177.835(i)	$5,200
Transporting railway track torpedoes outside of flagging kits, in violation of E-7991	171.2(b)	$7,000
Transporting Class 7 (radioactive) material having a total transport index more than 50	177.842(a)	$5,000 and up
Transporting Class 7 (radioactive) material without maintaining the required separation distance	177.842(b)	$5,000 and up
Failing to comply with requirements of an exemption authorizing the transportation of Class 7 (radioactive) material having a total transport index more than 50	171.2(b)	
—failure to have the radiation survey record required by ¶¶ 7(f), 8(b)(3)		$5,000
—failure to have other accompanying documents required by ¶ 8(b)		$500 each
—other violations of ¶¶ 7 and 8		$5,000 and up
Exemptions:		
Offering or transporting hazardous materials, or otherwise performing a function, covered by an exemption after expiration of the exemption	171.2(a), (b), (c), Various	$1,000 + $500 each add'l year

III. Consideration of Statutory Criteria

A. These guidelines are used by the Office of Hazardous Materials Safety (OHMS) in setting initial proposed penalties for hazmat violations. They indicate baseline amounts or ranges for probable violations frequently cited in enforcement reports and set forth general OHMS policy for considering statutory criteria.

B. The initial baseline determination partially considers the nature, extent, circumstances, and gravity of the alleged violation. That determination then is adjusted to consider all other evidence concerning the nature, extent, circumstances, and gravity of the alleged violation; degree of culpability; history of prior violations; ability to pay; effect of the penalty on ability to continue to do business; and such other matters as justice may require (a major component of which is corrective action taken by a respondent to prevent a recurrence of similar violations). In making a penalty recommendation, the baseline or range may be increased or decreased on the basis of evidence pertaining to these factors.

C. The following miscellaneous factors are used to implement one or more of the statutory assessment criteria.

IV. Miscellaneous Factors Affecting Penalty Amounts

A. Corrective Action

1. A proposed penalty is mitigated for documented corrective action of alleged violations taken by a respondent. Corrective action may occur: (1) After an inspection and before a Notice of Probable Violation (NOPV) is issued; (2) on receipt of an NOPV; or (3) after receipt of an NOPV (possibly after it is solicited by an RSPA attorney). In general, corrective action may reduce a penalty up to 25%. Mitigation may be taken into account in the referral memo or may be recommended prior to issuance of an Order by RSPA's Chief Counsel.

2. The two primary factors in determining the penalty reduction are extent and timing of the corrective action. In other words, mitigation will be determined on the basis of how much corrective action was taken and when it was taken. Systemic action to prevent future violations is given greater consideration than action simply to remedy violations identified during the inspection.

3. Mitigation is applied to individual violations. Thus, in a case with two violations, if corrective action for the first violation is more extensive than for the second, the penalty for the first will be mitigated more than that for the second.

B. Respondents That Re-Ship

A shipper that reships materials received from another company, in the same packaging and without opening or altering the package, independently is responsible for ensuring that the shipment complies with Federal hazmat law, and independently may be subject to enforcement action if the package does not comply. Nevertheless, the reshipper is considered to have a lesser level of responsibility for compliance in those respects in which it reasonably relies on the compliance of the package as received. In most cases of this type, OHMS will discount the applicable baseline standard by about 25%. The specific knowledge and expertise of all parties must be considered in discounting for reliance on a prior shipper. This discount is applied before any consideration of mitigation based on corrective action.

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C. Penalty Increases for Multiple Counts

Under the Federal hazmat law, 49 U.S.C. 5213(a), each violation of the HMR and each day of a continuing violation (except for violations pertaining to packaging manufacture or qualification) is subject to a civil penalty of up to $25,000 ($27,500 for a violation occurring after January 21, 1997). Absent aggravating factors, OHMS, in its exercise of discretion, ordinarily will apply a single penalty for multiple counts or days of violation. In a number of cases, particularly those involving shippers, an inspector may cite two or more similar packaging violations for different hazardous materials. For example, the inspector may cite the same marking violation for two or more packages. OHMS usually will consider those additional violations as counts of the same violation and will not recommend multiples of the same baseline penalty. Rather, OHMS usually will recommend the baseline penalty for a single violation, increased by 25% for each additional violation.

D. Financial Considerations

1. Mitigation is appropriate when the baseline penalty would (1) exceed an amount that the respondent is able to pay, or (2) have an adverse effect on the respondent's ability to continue in business. These criteria relate to a respondent's entire business, and not just the product line or part of its operations involved in the violation(s). Beyond the overall financial size of the respondent's business, the relevant items of information on a respondent's balance sheet include the current ratio (current assets to current liabilities), the nature of current assets, and net worth (total assets minus total liabilities).

2. These figures are considered on a case-by-case basis. In general, however, a current ratio close to or below 1.0 means that the company may have difficulty in paying a large penalty, and may justify reduction of the penalty or an installment payment plan. A small amount of cash on hand representing limited liquidity, even with substantial other current assets (such as accounts receivable or inventory), may warrant a short-term payment plan. Respondent's income statement also will be reviewed to determine whether a payment plan is appropriate.

3. Many companies are able to continue in business for extended periods of time with a small or negative net worth, and many respondents have paid substantial civil penalties in installments even though net worth was negative. For this reason, negative net worth alone does not always warrant reduction of a proposed penalty or even, in the absence of factors discussed above, a payment plan.

4. In general, an installment payment plan may be justified where reduction of a proposed penalty is not, but the appropriateness of either (or both) will depend on the circumstances of the case. The length of a payment plan should be as short as possible, but the plan may consider seasonal fluctuations in a company's income if the company's business is seasonal (e.g., swimming pool chemical sales, fireworks sales) or if the company has documented specific reasons for current non-liquidity.

5. Evidence of financial condition is used only to decrease a penalty, and not to increase it.

E. Penalty Increases for Prior Violations

1. The baseline penalty presumes an absence of prior violations. If prior violations exist, generally they will serve to increase a proposed penalty. The general standard for increasing a baseline proposed penalty on the basis of prior violations is as follows:

a. One prior case—25% increase over the pre-mitigation recommended penalty

b. Two prior cases—50% increase over the pre-mitigation recommended penalty

c. Three prior cases—75% increase over the pre-mitigation recommended penalty

d. Four or more prior cases—100% increase over the pre-mitigation recommended penalty

2. A case of prior violations closed more than five years previously normally will not be considered in determining a proposed penalty.

F. Penalty Increases for Use of Expired Exemptions

Adjustments to the base line figures for use of expired exemptions can be made depending on how much material has been shipped during the period between the expiration date and the renewal date. If the company previously has been found to have operated under an expired exemption, the penalty is normally doubled. If the company has been previously cited for other violations, the penalty generally will be increased by about 25%.

Subpart E

DESIGNATION OF APPROVAL AND CERTIFICATION AGENCIES

§107.401 Purpose and scope. **(a)** This subpart establishes procedures for the designation of agencies to issue approval certificates and certifications for types of packagings designed, manufactured, tested, or maintained in conformance with the requirements of this subchapter, subchapter C of this chapter, and standards set forth in the United Nations (U.N.) Recommendations (Transport of Dangerous Goods). Except for certifications of compliance with U.N. packaging standards, this subpart does not apply unless made applicable by a rule in subchapter C of this chapter.

(b) The Associate Administrator may issue approval certificates and certifications addressed in paragraph (a) of this section.

§107.402 Application for designation as an approval or certification agency. **(a)** Any organization or person seeking designation as an approval or certification agency shall apply in writing to the Associate Administrator for Hazardous Materials Safety (DHM-32), Department of Transportation, 400 Seventh Street, SW., Washington ★ DC 20590-0001. Alternatively, the application with any attached supporting documentation in an appropriate format may be submitted by facsimile (fax) to: (202) 366-3753 or (202) 366-3308 or by electronic mail (e-mail) to: *Approvals@rspa.dot.gov*.

(b) Each application for designation must be in English and include the following information:

(1) Name and address of the applicant, including place of incorporation if a corporation. In addition, if the applicant is not a resident of the United States, the name and address of a permanent resident of ★ the United States designated in accordance with §105.40 to serve as agent for service of process.

(2) If the applicant's principal place of business is in a country other than the United States, a copy of the designation from the Competent Authority of that country delegating to the applicant an approval or designated agency authority for the type of packaging for which a DOT designation is sought, and a statement that the Competent Authority also delegates similar authority to U.S. Citizens or organizations having designations under this subpart from the RSPA.

(3) A listing, by DOT specification (or exemption) number, or U.N. designation, of the types of packagings for which approval authority is sought.

(4) A personnel qualifications plan listing the qualifications that the applicant will require of each person to be used in the performance of each packaging approval or certification function. As a minimum, these qualifications must include:

(i) The ability to review and evaluate design drawings, design and stress calculations;

(ii) A knowledge of the applicable regulations of subchapter C of this chapter and, when applicable, U.N. standards; and

(iii) The ability to conduct or monitor and evaluate test procedures and results; and

(iv) The ability to review and evaluate the qualifications of materials and fabrication procedures.

(5) A statement that the applicant will perform its functions independent of the manufacturers and owners of the packagings concerned.

(6) A statement that the applicant will allow the Associate Administrator or his representative to inspect its records and facilities in so far as they relate to the approval or certification of specification packagings and shall cooperate in the conduct of such inspections.

(c) The applicant shall furnish any additional information relevant to the applicant's qualifications, if requested by the Associate Administrator.

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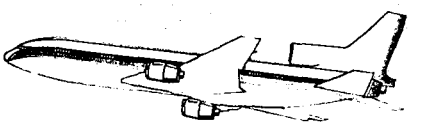
PERFORMANCE PACKAGING

MARKING



SINGLE AND COMPOSITE PACKAGING

Liquids

United Nations Symbol | Packaging Code | Performance Level | Specific Gravity | Hydrostatic Test Pressure | Year of Manufacture

1A1/X1.8/250/02
USA/+BK0000 1.0

Country of Authorization | Manufacturer Identification | Minimum Thickness*

Note:

1. A single or composite non-bulk packaging which is tested and marked for liquid hazardous materials may be filled with a solid hazardous material to a gross mass, in kilograms, not exceeding the rated capacity of the packaging in litres, multiply by the specific gravity marked on the packaging. [Section 173.24a (b)
2. A single or composite non-bulk packaging may be filled with a higher specific gravity liquid hazardous material under the following conditions:
   - i A PG I packaging may be used for PG II material with a specific gravity not exceeding the greater of 1.8 or 1.5 times the specific gravity marking on the packaging.
   - ii A PG I packaging may be used for PG III material with a specific gravity not exceeding the greater of 2.7 or 2.5 times the specific gravity marked on the packaging.
   - iii A PG II packaging may be used for PG III material with a specific gravity of 1.8 or 1.5 times the specific gravity marked on the packaging,

and provided that all other performance criteria are met with the higher specific gravity (e.g. stacking) [Section 173.24a(b)]

Solids

United Nations Symbol | Packaging Code | Performance Level | Gross Mass in Kilograms | Solids | Year of Manufacture

1A2/Y150/S/02
USA/+BK0000 1.0

Country of Authorization | Manufacturer Identification | Minimum Thickness*

*for metal or plastic drums or jerricans intended for re-use or reconditioning (see EXPLANATION)

Reconditioned Packagings

If a packaging is reconditioned, it shall be marked by the reconditioner with the following additional information [Section 178.503(c)]:

i. The name of the country in which the reconditioning was performed.
ii. The name and address or symbol of the reconditioner.
iii. The last two digits of the year of reconditioning
iv. The letter "R" and
v. For every packaging successfully passing a leakproofness test, the additional letter "L"

1A1/X1.8/250/02
USA/+BK0000
USA/M0000/02/RL

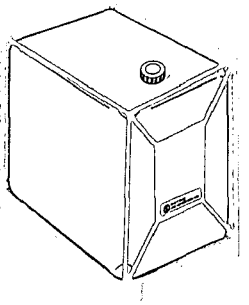
COMBINATION PACKAGING

United Nations Symbol | Packaging Code | Performance Level | Gross Mass in Kilograms | Inner packagings | Year of Manufacture

4GV/X15/S/02
USA/+BK0000

Country of Authorization | Manufacturer Identification

INTERMEDIATE BULK CONTAINERS (IBC)



United Nations Symbol | Packaging Code | Performance Level | Month of Manufacture | Year of Manufacture

31H2/Y/06/02
USA/+BK0000/3600/1200

Country of Authorization | Manufacturer Identification | Stack Test Load | Gross Mass

Intermediate bulk container code letter designations are as follows:

"A" means steel (all types and surface treatments)
"B" means aluminum
"C" means natural wood
"D" means plywood
"F" means reconstituted wood
"G" means fiberboard
"H" means plastic
"L" means textile
"M"means paper, multiwall
"N" means metal (other than steel or aluminum)

e.g. 31H2 means rigid plastic IBC designed for liquids, free standing

Packaging Codes - Intermediate Bulk Containers (IBC)

Type	For solids, discharged		For liquids
	By gravity	Under pressure of more than 10 kPa (1.45 psi)	
Rigid	11	21	31
Flexible	13		

EXPLANATIONS (Section 178.503)

United Nations Symbol	For embossed metal receptacles, the letter UN may be applied in place of the symbol
Packaging Code	Designates the type of packaging and material of construction. A letter "W" appeared after the code designates packagings required approval. A letter "V" designates special "variation" packagings.
Performance Level	Identifies the performance standard of the packaging X - For packagings meeting Packing Group I, II and III tests Y - For packagings meeting Packing Group II and III tests, or Z - For packagings meeting Packing Group III tests
Specific Gravity	Maximum specific gravity of product permitted. When the specific gravity designation is missing, the maximum permitted specific gravity is 1.2 or less.
Gross Mass	Maximum gross mass in kilograms
S	Designates that the packaging is intended to contain solids or inner packagings
Hydrostatic Test Pressure	Internal Hydrostatic Test Pressure in kilopascals
Year of Manufacture	Last two digits of year of manufacture. Plastic drums and jerricans (1H and 3H) must be marked with the month of manufacture, this month marking can be marked in any appropriate manner and be located elsewhere on the package.
Country of Authorization	Country designation code where the packaging is manufactured and marked
Name of Manufacturer	Name and address or authorized symbol of packaging manufacturer or certification agency
Minimum Thickness	For metal or plastic drums, jerricans or the outer packaging of a composite packaging intended for reuse or reconditioning, the minimum thickness in millimeters (mm)
R	Reconditioned packagings
L	For reconditioned packagings that have successfully passed a leakproofness test
Month and Year	For IBCs, the month and year of manufacture
Stacking Load	For IBCs, the stacking test load in kilogram. A number "0" shows that the IBC is not designed for stacking

PACKAGING CODE - NON-BULK PACKAGINGS (Section 178.504 to 178.523)

Outer Packaging

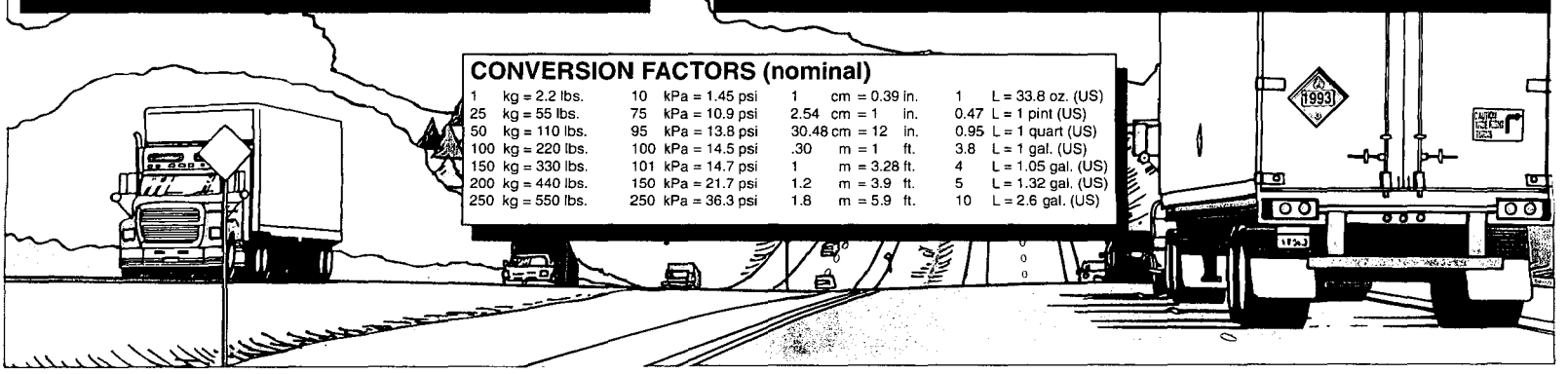
1A1	steel drum, non-removable head
1A2	steel drum, removable head
1B1	aluminum drum, non-removable head
1B2	aluminum drum, removable head
1D	plywood drum
1G	fibre drum
1H1	plastic drum, non-removable head
1H2	plastic drum, removable head
1N1	metal drum, non-removable head
1N2	metal drum, removable head
2C1	wooden barrel, bung type
2C2	wooden barrel, slack type (removable head)
3A1	steel jerrican, non-removable head
3A2	steel jerrican, removable head
3B1	aluminum jerrican, non-removable head
3B2	aluminum jerrican, removable head
3H1	plastic jerrican, non-removable head
3H2	plastic jerrican, removable head
4A	steel box
4B1	aluminum box
4C1	wooden boxes, ordinary
4C2	wooden box, sift-proof
4D	plywood box
4F	reconstituted wood box
4G	fiberboard box
4H1	plastic box, expanded
4H2	plastic box, solid
5H1	woven plastic bag, unlined or uncoated
5H2	woven plastic bag, sift-proof
5H3	woven plastic bag, water-resistant
5H4	plastic film bag
5L1	textile bag, unlined or non-coated
5L2	textile bag, sift-proof
5L3	textile bag, water-resistant
5M1	paper bag, multi-wall
5M2	paper bag, multi-wall water resistant

Composite Packagings

6HA1	plastic receptacle within a protective steel drum
6HA2	plastic receptacle within a protective steel crate or box
6HB1	plastic receptacle within a protective aluminum drum
6HB2	plastic receptacle within a protective crate or box
6HC	plastic receptacle within a protective wooden box
6HD1	plastic receptacle within a protective plywood drum
6HD2	plastic receptacle within a protective plywood box
6HG1	plastic receptacle within a protective fibre drum
6HG2	plastic receptacle with a protective fiberboard box
6HH1	plastic receptacle within a protective plastic drum
6HH2	plastic receptacle within a protective plastic box
6PA1	glass, porcelain or stoneware receptacles within a protective steel drum
6PA2	glass, porcelain or stoneware receptacles within a protective steel crate or box
6PB1	glass, porcelain or stoneware receptacles within a protective aluminum drum
6PB2	glass, porcelain, or stoneware receptacles within a protective aluminum crate or box
6PC	glass, porcelain, or stoneware receptacles within a protective wooden box,
6PD1	glass, porcelain or stoneware receptacles within a protective plywood drum
6PD2	glass, porcelain, or stoneware receptacles within a protective wickwork hamper,
6PG1	glass, porcelain or stoneware receptacles within a protective fiber drum
6PG2	glass, porcelain, or stoneware receptacles within a protective fiberboard box
6PH1	glass, porcelain or stoneware receptacles within a protective expanded plastic packaging
6PH2	glass, porcelain, or stoneware receptacles within a protective solid plastic packaging

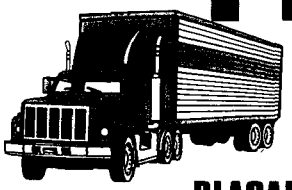
CONVERSION FACTORS (nominal)

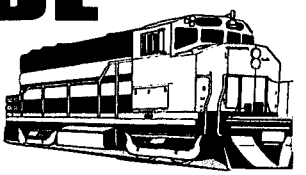
1	kg = 2.2 lbs.	10	kPa = 1.45 psi	1	cm = 0.39	in.	1	L = 33.8 oz. (US)
25	kg = 55 lbs.	75	kPa = 10.9 psi	2.54	cm = 1	in.	0.47	L = 1 pint (US)
50	kg = 110 lbs.	95	kPa = 13.8 psi	30.48	cm = 12	in.	0.95	L = 1 quart (US)
100	kg = 220 lbs.	100	kPa = 14.5 psi	.30	m = 1	ft.	3.8	L = 1 gal. (US)
150	kg = 330 lbs.	101	kPa = 14.7 psi	1	m = 3.28	ft.	4	L = 1.05 gal. (US)
200	kg = 440 lbs.	150	kPa = 21.7 psi	1.2	m = 3.9	ft.	5	L = 1.32 gal. (US)
250	kg = 550 lbs.	250	kPa = 36.3 psi	1.8	m = 5.9	ft.	10	L = 2.6 gal. (US)



Koppers016608

HAZARDOUS MATERIALS PLACARDING GUIDE FOR ROAD AND RAIL





Except for class 7 and the DANGEROUS placard text indicating a hazard is not required on placards [section 172.519(b)(3)]

PLACARDS REQUIRED FOR ANY QUANTITY

TABLE 1 [section 172.504(e)]

Hazard Class	Label	Placard Required	Remarks
1.1, 1.2, 1.3 Explosives			When a placard is required for more than one division of Explosives, only the placard with the lowest division number may be displayed [172.504(f)(1)]. For shipments of Explosives by aircraft or by vessel, the applicable compatibility group letter must be displayed on the placard. ** Division number and, when required, the compatibility group.
2.3 Poison gas			
4.3 Dangerous when wet			Any material with a subsidiary risk of 4.3 must be placarded with a 4.3 subsidiary placard [172.505(c)].
5.2 Organic peroxide, Type B, liquid or solid, temperature controlled UN3111 and UN3112 only			Placards must be displayed for any quantity of UN3111, Organic Peroxide Type B, Liquid, or UN 3112, Organic Peroxide, Type B, Solid.
6.1 Toxic Substances PG I, inhalation hazard Zone A and B only			Any material with a subsidiary hazard of "Poison Inhalation hazard" must display subsidiary "PIH" placard [172.505(a)].
7 Radioactives Yellow III only			When 454 kg (1001 lb.) or more of Uranium hexafluoride is transported, a corrosive subsidiary placard must be used. The Class 7 placard is also required for exclusive use shipments of low specific activity (LSA) material, in accordance with 173.427(a).
Bulk Packagings*			IBC's (Intermediate Bulk Containers)

* Bulk packaging means a package, other than a vessel or barge, into which hazardous materials are loaded with no intermediate packaging, and exceeding the following sizes: Liquids - 450 Litres internal capacity; Solids - 400kg net mass and 450 Litres internal capacity; Gases - water capacity of 454 kg.

Subsidiary Hazard Placards*

Must be used for hazardous materials that are subject to the "Inhalation Hazard" shipping paper requirement, when Division 2.3 or 6.1 is not the primary hazard. [172.505(a)]

Must be used for materials with a Division 4.3 Dangerous When Wet subsidiary hazard. [172.505(c)]

Must be used for when transporting 454 kg (1,001 lb.) or more of fissile or low specific activity Uranium hexafluoride. [172.505(b)]

Each rail car containing Division 1.1 or 1.2 explosives which are also Poisonous by Inhalation must display Explosives 1.1 or 1.2 and Poison Gas or Poison Inhalation Hazard placards.
Note: Hazardous materials that possess subsidiary hazards may display subsidiary placards even when they are not required [172.505(d)].
* Subsidiary placards that do not show the class or division number may continue to be used for domestic transportation until 10/1/05.

Special Placarding Provisions

For Rail: [172.510]

Division 1.1 and 1.2 Explosives and materials in Division 2.3, Hazard Zone A or 6.1, Packing Group I, Hazard Zone A must display the corresponding hazard class placard in a white square background.

Each rail car containing Division 1.1 or 1.2 Explosives which are also Poisonous by Inhalation must display Explosives 1.1 or 1.2 and Poison Gas or Poison Inhalation Hazard placards.

DOT 113 Tank Cars: [172.510(3)]

The Class 2 flammable gas placard with white square background is required for Division 2.1 flammable gases in DOT 113 tank cars.

For Highway: [172.507(a)]

This placard must be displayed for any motor vehicle transporting a highway route controlled quantity of Class 7 Radioactive materials

UN or NA Identification Numbers:

Bulk Packagings:
The four digit identification number must be displayed on IBC's, portable tanks, cargo tanks, tank cars and other bulk packagings [172.302, 172.326, 172.328, 172.330 or 172.331].

Non-Bulk Packagings:
A transport vehicle or freight container loaded at one facility with 4000 kg (8820 lbs.) or more aggregate gross weight of a single hazardous materials in non-bulk packaging, marked with the same proper shipping name and identification number, with no other materials, must display that identification number [172.301(a)(3)].

Poison Inhalation Hazard:
A transport vehicle or freight container loaded at one facility with 1000 kg (2205 lbs). or more aggregate gross weight of a PIH material in Hazard Zone A or B in non-bulk packaging marked with the same proper shipping name and identification number, must display that identification number. For different PIH materials in the same Hazard Zone, the ID number of the greatest aggregate gross weight must be displayed. The ID number for Hazard Zone A materials takes precedence over Hazard Zone B materials [172.313(c)].

Display of Numbers:
The identification number may be displayed on a placard, an orange panel or, on a white square-on-point configuration [172.332].

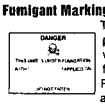
Marine Pollutants

This mark is required for Marine Pollutants when transported under the IMDG Code or by vessel [172.322(b) & (d)].
This mark is not required for road and rail transportation, if the transport vehicle or freight container is already placarded with a Class placard [172.322(d)(3)].

Elevated Temperature Materials

Each bulk packaging containing an elevated temperature material must be marked on two opposing sides with the word "HOT" [172.325(a)]. Bulk packagings containing molten aluminum or molten sulfur must be marked "MOLTEN ALUMINUM" or "MOLTEN SULFUR" [172.325(b)].

Fumigant Marking



The FUMIGANT marking must be prominently displayed if the transport vehicle (including a rail car) has been fumigated.
For domestic transportation, an EPA authorized warning label may be used [173.9].

Permissible Placards

For domestic transportation of Oxygen, the

PLACARDS REQUIRED FOR 1001 POUNDS (454kg) OR MORE

TABLE 2 [section 172.504(e)]

Hazard Class	Label	Placard Required	Remarks
1.4 Explosives			Explosive 1.4 placards are not required for 1.4S materials that are not required to be labeled 1.4S [172.504(f)(6)]. * Compatibility Group, for transport by air or water.
1.5 Explosives			* Compatibility Group, for transport by air or water.
1.6 Explosives			
2.1 Flammable Gas			For mixed loads of Division 2.2, 2.1 or Oxygen, a 2.2 placard is not required if the vehicle is already placarded with 2.1 or OXYGEN placards [172.512(f)(3)].
2.2 Non-flammable Gas			For domestic transportation of Oxygen, the OXYGEN placard may be used in place of the Non-Flammable gas placard [172.504(f)(7)]. For mixed loads of FLammable and Non-Flammable gases or Oxygen, a 2.2 placard is not required if the vehicle is already placarded with the OXYGEN placard [172.512(f)(3)]
3 Flammable Liquids			
Combustible Liquids	No Label Required		A Flammable Liquid placard may be used in place of a Combustible Liquid placard [172.504(f)(2)]. Combustible liquids in non-bulk packages do not require placards [173.150(f)(2)].
4.1 Flammable Solid			
4.2 Spontaneous Combustible			
5.1 Oxidizers			An OXIDIZER placard is not required when Oxidizers are combined in mixed loads with Explosives in Division 1.1, 1.2 or 1.5. [172.504(f)(4) and (5)].
5.2 Organic Peroxide			Placards must be displayed for any quantity of UN3111, Organic Peroxide Type B, Liquid, or UN 3112, Organic Peroxide, Type B, Solid.
6.1 Toxic Substances PG I and II, other than Inhalation Hazard A or B			For domestic transportation, a TOXIC placard is not required when the transport vehicle or container is placarded with a TOXIC GAS or POISON INHALATION HAZARD placard [172.504(f)(11)]. The words POISON and TOXIC on placards are interchangeable [172.554(b)]
6.1 Toxic Substances PG III			For domestic transportation this, placard/label may be used until 01 Oct. 2003 [171.14(d)(3)] see also [172.405(c)]. A TOXIC PLACARD may be modified to display text PG III [172.504(f)(10)].
6.2 Infectious Substances		No Placard Required	
7 Radioactives I & II		No Placard Required	
8 Corrosives			
9 Miscellaneous			For domestic transportation, a Class 9 placard is not required. However, bulk packagings containing Class 9 materials must be marked with the appropriate identification number [172.504(f)(9)].
Limited Quantity	LIMITED QUANTITY	No Placard Required	
ORM-D	ORM-D	No Placard Required	
Mixed Loads		DANGEROUS	This placard is permitted for a mixed load of Table 2 hazardous materials in non-bulk packagings. However, when 1,000 kg (2,205 lb.) aggregate gross weight or more of one category of material is loaded at one loading facility, the placard specified for that category must be displayed [172.504(b)].

Koppers016609

DOT/USCG Security Manual
Time frame
8-18-03

Activity	Responsible Individual	Date
Send Trainer list to OMs for selection of security personnel	John	Aug. 1st
Review each plant checklist for accuracy/completeness - get plant missing data - send revisions to Mike	Jay/John	Aug. 7th
Completion of risk matrices	Mike	Aug. 8th
Finalize background ck procedures	Jay/John/Becky	Aug 8th
Finalize carrier qualification procedures	Jay/John/Barb	Aug 8th
Completion of DOT security plan templates	Mike	Aug. 15th
Conduct facility security assessments-CLA, MON, & FOL	Mike	Aug. 19 – 21st
Present/discuss each plants risk level and proposed DOT security plans to security team- will have risk ranking done before meeting- revise risk level if necessary during meeting	Mike, Jay, John, OMs, E-Managers, Safety, Huschak, & Hyde	Aug. 22nd
Revise templates if necessary after meeting and tailor templates to plants based on their risk level	Mike, John & Jay	Week of Aug. 25th
Conduct facility security assessments-STI	Mike	Week of Aug.25th
Send DOT security plan templates to plants + instructions-core training has to be done by Sep. 25th	Jay	By Sep. 1st
draft FSP template completed	Mike	By Sep. 15th
Meeting with FSOs to review regulations, present draft FSP, critique plan	Mike, John & Jay	By Sep. 30th
Revise FSPs as necessary and send to plants	Mike	By Oct. 10
Plants complete FSPs	FSOs	Oct. 31st
FSPs to appropriate Captain of the Port for approval	Jay	Nov. 15th
DOT training for all plant hazmat employees	DOT Trainers	By Dec. 22nd
Training for FSO in compliance with USCG regulations	To be determined	After FSP approval

FILE - BNV. - SPCC
RBGS

KOPPERS INDUSTRIES

Interoffice Correspondence

To: Facility Managers
SH&E Coordinators
Operations Managers

CC: Environmental Department
File

From: Patrick Stark

Subject: SPCC Implementation Plan

Date: 10/07/02

Background

On July 17th, 2002, the USEPA issued a final rule that changes many requirements of the SPCC program. The new rule relaxes certain requirements, adds new requirements, and provides for a more flexible program. As a result of these regulatory changes, Koppers' facilities are required to modify their current SPCC plans and undertake additional actions.

The new rule took effect on August 16, 2002. The new requirements applicable to buried piping installed or replaced after August 16, 2002 are effective on that date. Amended SPCC plans are required by February 17, 2003. The revised plan must be implemented as soon as possible thereafter, but not later than August 18, 2003. Facilities have 6 months from the date that the SPCC is revised to complete implementation, so facilities should understand that completing the plan prior to February 17th decreases the time for implementation.

For a review of the SPCC changes, please refer to the document "SPCC Regulation Revisions" that was emailed to all Plant Managers and SH&E Coordinators on 9/10/02. It is also available on Kopnet.

Purpose

This document provides detailed guidance and a timetable for facility compliance with the new SPCC rule. All facilities subject to SPCC regulations are expected to comply with this document and the associated regulations. Facilities have several steps and decisions to make before completing and implementing their revised plan. These steps and decisions have been organized into an Implementation Plan with specific tasks and due dates listed in the following section. Several tasks require a submission to CSG - these submissions are listed in **bold**.

NOTE: Facilities may choose to retain a consultant to revise their SPCC plan; however, the facility is still required to report progress as defined below. All facilities must retain a PE to certify their plan, when complete.

Descriptions of Tasks

The Implementation Plan has also been organized in Action Plan format (See Appendix A). Copy and customize it for your facility in accordance with your SH&E system procedures.

Task #1 Add new objective to CIP

Modify your CIP to include the objective "Comply with new SPCC regulation" in the Plant Objectives and Targets column, under the Aspect "Material Storage Usage and Release Potential", and refer to the provided action plan.

Task #2 Determine and document which tanks are subject to SPCC rules

a) Determine which tanks are not subject to SPCC regulation due to applicability or specific exemption. In order to exempt a tank from the rules, Koppers must determine that it "could not reasonably be expected to discharge oil in quantities that may be harmful." (§112.1(b)). (Note: Harmful is described as, among other things, creating sheen on the water.) This evaluation must be made *without consideration of manmade structures* (containment, equipment, etc). Therefore, the facility must rely on the topography of the site and the physical properties of the material (i.e. would the material solidify prior to reaching the waterway) to establish its claim to exemption. Should Koppers elect to use this exemption, the evaluation must be documented and maintained with the SPCC plan.

b) Document in the SPCC plan, which tanks fall within the regulations and which tanks are exempt, and the basis for this decision.

c) Provide a list of all tanks, noting exempted tanks, and justification for exemptions to EM by 10/25/02.

Task #3 Determine need for additional containment

a) The new rule requires secondary containment for all containers subject to SPCC regulations. It also specifies that the containment must hold the entire capacity of the largest single container and sufficient freeboard for precipitation. EPA recommends that a 24-hour 25-year storm event be used to calculate sufficient freeboard. Evaluate each container subject to the regulations including tank car / truck loading and unloading stations, which do not require sufficient freeboard, and determine if the facility must install additional secondary containment. All secondary containment must be in place or a plan to install must be in place when your plan is fully implemented. This requirement may be deviated from if certain conditions are met.

b) To deviate from the secondary containment requirements, the facility must determine that installation of containment under this provision is impracticable, AND

1. Explain in the SPCC plan why such measures are not practicable,
2. Provide an oil spill contingency plan (40 CFR §109),
3. Conduct periodic integrity testing of the containers ***and*** integrity and leak testing of the valves and piping,
4. Provide a written commitment of manpower, equipment, and materials required to expeditiously control and remove any quantity of oil discharged that may be harmful. (§112.7(d)).

c) If you do not have sufficient containment, document a plan to upgrade containment, or document justification for deviation in your SPCC plan.

d) Send a list of SPCC tanks and loading / unloading stations with insufficient containment to EM by 11/15/02 and whether you plan to construct containment or deviate. If all SPCC tanks have adequate containment, report so. If you plan to deviate from the requirements, send your justification, oil spill plan, plan for integrity testing, and written commitment.

Task #4 Ensure you meet the following requirements or document justification for deviation from these provisions.

a) The following are requirements of the new SPCC regulation. The revised rule explicitly allows deviation from these requirements, provided that justification for the deviation is provided and equivalent environmental protection is provided by some alternate measure.

1. Security requirements (§112.7(g)):
   - Fully fence each facility handling, processing, or storing oil, and lock and or guard entrance gates when the facility is not in production or is unattended.
   - Ensure that the master flow and drain valves and any other valves permitting direct outward flow of the container's contents to the surface have adequate security measures so that they remain in the closed position when in non-operating or non-standby status.
   - Lock the starter control on each oil pump in the "off" position and locate it at a site accessible only to authorized personnel when the pump is in a non-operating or non-standby status.
   - Securely cap or blank-flange the loading / unloading connections of oil pipelines or facility piping when not in service or in standby service for an extended time. This security practice also applies to piping that is emptied of liquid content either by draining or by inert gas pressure.
   - Provide facility lighting commensurate with the type and location of the facility that will assist in the discovery of discharges occurring during hours of darkness both by operating personnel, if present, and by non-operating personnel (the general public, local police, etc.) and prevention of discharges occurring through acts of vandalism.

2. Tank car / truck unloading – physical barrier / warning system (§12.7(h)(2)): Provide a warning or barrier system to prevent vehicles from departing before complete disconnection of oil transfer lines.
3. Tank car / truck unloading – inspection prior to releasing car (§112.7(h)(3)): Prior to filling and departure of any tank car or tank truck, inspect all outlets for discharges, and if necessary, ensure outlets are tightened, adjusted, or replaced to prevent discharge while in transit.
4. Brittle fracture rules (§112.7(i)): This new requirement requires evaluation (API Standard 653) for field-constructed above ground containers undergoing repair, alteration, reconstruction, or change in service that might affect the risk of discharge or failure due to fracture or other catastrophe. It also requires such an evaluation if there has actually been such a discharge or failure due to brittle fracture or other catastrophe.

b) Send justification for all deviations to EM by 11/30/02. If you do not plan to deviate, report so.

Task #5 Determine schedule for integrity testing

a) All tanks subject to SPCC regulation must be tested for integrity on a regular basis ***and*** when material repairs are done. A regular basis is defined by industry standards (such as API 653), typically every 10 years or a frequency based on the corrosion rate. The integrity testing is to be done according to industry standards by a certified inspector. Two of the standards referenced in the regulation are API 653 and STI SP001-00. The Koppers Engineering Department has both of these standards if you have a specific question. The following summarizes what must be done to satisfy the integrity testing requirement.

Both standards require internal and external inspection. This will require facilities to remove the tank from service and clean the tank prior to the inspection. A certified inspector must complete the inspection. The inspection includes but is not limited to: tank shell thickness and integrity, tank supports and appurtenances, roof and floor thickness and integrity, and tank foundation integrity. Contact the Koppers Engineering Department for further detail.

b) Additionally, Koppers must continue to visually inspect SPCC tanks. If you do not already have a Process Equipment Inspection that includes regular inspection of tanks, develop one and begin to conduct inspections.

c) Establish a schedule in the SPCC plan for integrity testing. List each applicable tank, its last date of inspection and the next date due.

d) Provide the integrity testing schedule to EM by 12/15/02.

Task #6 Modify your Legal and Other Requirements spreadsheet

Add the following:

1. Dates for the new integrity testing requirements

2. The New PE certification date and time requirements
3. Add a reminder for Brittle Fracture Evaluation
   This requirement is applicable to all "field constructed" tanks because these are tanks that have been assembled on site and have been either fastened together mechanically (bolted or riveted) or welded together. During the welding process, there is a possibility to change the metallurgy of the tank making it brittle and possibly subject to failure if the right conditions occur. Under the new rule, all field constructed SPCC tanks have the requirement to be evaluated for brittle fracture when they undergo a change in service, alteration, repair, or reconstruction. Brittle fracture evaluation must be done according to industry standards. The following standards are specifically referenced by the EPA: API Standard 653 " Tank Inspection, Repair, Alteration, and Reconstruction"; and API Recommended Practice 920, "Prevention of Brittle Fracture of Pressure Vessels". Koppers Engineering and Environmental Departments must be notified prior to any change in service, alteration, repair, or reconstruction. The Engineering Department will assist Koppers' facilities on determining if Brittle Fracture Evaluation is required for the particular circumstance. Train all employees involved with tank operations on the concept of Brittle Fracture.

Task #7 Update facility diagram

a) Review your current SPCC facility diagram to see if it complies with the current requirements in §112.7(a)(3). The major requirements are:

1. The diagram must include all fixed containers which store 55 gallons or more of oil and must include information indicating the contents of those containers.
2. All facility transfer stations and connecting pipes that handle oil must be included in the diagram
3. EPA strongly encourages that you mark on the facility diagram containers that store CWA hazardous substances (Wastewater Tanks) and label the contents of those containers.

b) This is also a good time to ensure that your facility diagram meets the requirements of your CWA Pollution Prevention Plan (if applicable).

c) Send diagram to EM by 12/31/02

Task #8 Complete draft revised SPCC plan and send to CSG

a) After you complete the revised plan, and prior to sending it to your PE for certification, send the plan electronically to your Environmental Manager for review. This review should not take longer than 1 week.

b) Email draft revised plan to EM by 1/15/03.

Task #9 Obtain PE certification on revised plan

Ensure that the PE includes the certification language as specified in the new rule (§112.3(d)).

Task #10 Revised SPCC plan complete

Your revised plan must be complete and certified by February 17, 2003. If you complete and certify your revised plan prior to 2/17/03, you must complete your plan implementation within 6 months of that date. Therefore, there is no incentive to complete your revised plan prior to 2/17/03.

Task #11 Place electronic copy of revised SPCC plan on S drive.

Task #12 Train all effected employees on new SPCC Plan

Complete the required training on the revised plan. Remember that all employees need not be trained, only those described in §112.7(f) (oil handling employees).

Task #13 Distribute revised SPCC Plan to all required persons and agencies

Task #14 Update List of Controlled Documents

Be sure to update your List of Controlled Documents and follow your Controlled Document Procedure for a revised document.

Task #15 Initiate integrity testing

Per the schedule developed in Task #5.

Task #16 Complete installation of all required secondary containment

Per the plan developed in Task #3.

Task #17 Full implementation of revised SPCC Plan

Full implementation must be completed less than 6 months from the date your PE certifies your revised plan. Additionally, it cannot be later than August 18, 2003.

Should you have any questions about any of the tasks above, or need assistance in modifying your SPCC plan, please contact your CSG Environmental Manager.

Patrick Stark

APPENDIX A
SPCC Implementation – Action Plan

Action Plan # (Enter # Here)

Issue / Finding SPCC Revision

Project Leader (Enter Person Here)

Completion Date (Enter Date Here)

Task Number	Task	Responsible Person	Due date	Notes
1	Add New Objective to CIP		10/18/02	
2	Determine and Document which tanks are subject to SPCC rules (submit to EM)		10/25/02	
3	Determine need for Additional Containment (submit to EM)		11/15/02	
4	Determine if any deviations will be needed / used at your facility and document these deviations (submit to EM)		11/30/02	
5	Determine schedule for Integrity Testing (submit to EM)		12/15/02	
6	Modify your Legal and Other Requirements Spreadsheet		12/22/02	
7	Update Facility Diagram (submit to EM)		12/31/02	
8	Complete Draft Revised SPCC Plan (submit to EM)		1/15/03	
9	Obtain PE Certification on Revised Plan		02/17/03	
10	Revised SPCC Plan Complete		02/17/03	
11	Place Electronic Copy of Revised SPCC Plan on S drive		02/18/02	
12	Train all effected employees on new SPCC Plan		03/18/03	
13	Distribute revised SPCC plan to all required persons		02/20/02	
14	Update List of Controlled Documents		02/20/03	
15	Initiate Integrity Testing		Per schedule in plan	
16	Complete installation of all required secondary containment		Per schedule in plan	
17	Full Implementation of Revised SPCC Plan		08/18/03	

Pat Frank Stark
412-487-9720
cell 412-638-4383

Port; W/W; Clairton

KOPPERS INDUSTRIES

Interoffice Correspondence

To: General Managers
Operations Managers
Plant Managers
SH&E Coordinators

Cc: Randy Collins
Environmental Department Staff
File

From: Patrick Stark

Subject: SPCC Regulation Revisions - Fact Sheet and Questionnaire

Date: 9/10/02

Background:

The United States Environmental Protection Agency (USEPA) administers the Spill Prevention, Control, and Countermeasure (SPCC) program under the Clean Water Act (CWA). This program is designed to both prevent and control pollution of waters of the United States from oil (including coal tar chemicals) spills and releases by requiring that applicable facilities prepare and implement SPCC plans. All Koppers Industries, Inc. (Koppers) facilities have implemented SPCC plans that are compliant with the regulations as currently set forth in this rule.

On Wednesday, July 17th, 2002, the USEPA issued a final rule in the Federal Register that changes many requirements of the SPCC program. The new rule relaxes the burden of certain requirements, adds new requirements, and overall provides for a more flexible program. As a result of these regulatory changes, Koppers' facilities are required to modify their current SPCC plans and undertake additional actions as described below.

This document provides guidance and timetables for implementing the changes required by the new rule. Where applicable, the regulatory citation is provided to assist with implementation. At the end of this document you will find a short questionnaire. Please complete this as soon as possible and return it to your environmental managers so that we may estimate the level of effort and costs associated with implementation. This document is organized into the following sections:

- Section 1 - Summary of Major Revisions to the Current SPCC Rules
  - Details the substantive changes required by the new rule. Each change has been summarized for ease of review. Plants are encouraged to read the language of the new regulation and discuss proposed change with CSG prior to making changes to SPCC plans

- Section 2 - Major Unchanged Requirements
  - Section 1 summarizes only the **changes** to the SPCC rules. This section summarizes the requirements that remain unchanged
- Section 3 - Recommendations
  - Describes how to ensure the required changes at your facility are accomplished in accordance with the Safety Health and Environmental Management System (SHEMS). This section is provided as a recommendation only
- Section 4 - Implementation Timeline as required by the new rule
- Section 5 - Information Survey, to be completed and returned to the CSG

If you have questions regarding any portion of this document, or with implementation of the new rule, please contact your Environmental Manager (EM).

Section 1 - Summary of Major Revisions to the Current SPCC Rules:

As discussed above, the following required changes have been summarized for ease of review. You should read the full language of the new rule available in the Federal Register, and consult with your CSG environmental manager prior to making changes to your SPCC plan.

1. Buried Piping (§112.8(d)(1)): All buried piping installed or replaced after August 16, 2002 must have protective wrapping and coating and cathodic protection or otherwise satisfy the corrosion protection provisions for piping in the UST regulations (40 CFR 280).

2. Certification by Professional Engineer:
   - SPCC plans must continue to be certified by a professional engineer; however, the certification language contains more detail and the engineer may have an "agent" visit the facility in his place. (§112.3(d))
   - The professional engineer need only re-certify technical amendments, as defined in (§112.1(b)), to the SPCC plan. Plants may make changes to non-technical information without re-certification. (§112.5(c)).
   - A complete review of the SPCC plan is required every five years instead of every three, as required by the old rule. Documentation of this review is required and special language is provided for this documented review. Within 6 months of the review, the plan must be amended if necessary, and within 6 months of the amendment, the new provisions must be implemented. (§112.5(b)). Plants are still required to review the plan annually and after each incident and make appropriate revisions.

3. SPCC Plan Format (§112.7): The revised rule allows differing formats for the plan. Formats such as state plans, integrated plans, and other formats as accepted by the Regional Administrator are now acceptable. However, if you use one of these formats, a cross-reference listing the SPCC provisions to the appropriate section of your plan must be provided.

4. SPCC plans must contain a description of the physical layout of the plant and a facility diagram. (§112.7(a)(3)).

PA - 10 YRS
55 GALS OF OIL

5. Integrity Tests (§112.8(c)(6)): The revised rule requires that an owner or operator test above ground containers subject to the rule for integrity on a "regular schedule", and when material repairs are done. The testing must combine visual inspection with another type of non-destructive testing. Other methods of testing and frequency of testing are described in (American Petroleum Institute (API) Standard 653, API Recommended Practice 575, and Steel Tank Institute Standard SP001-00). This provision does not include tanks that are used ***solely*** for wastewater treatment. (§112.1(d)(6)).

6. "Brittle Fracture" Evaluation (§112.7(i)): This new requirement requires evaluation (API Standard 653) for field-constructed above ground containers undergoing repair, alteration, reconstruction, or change in service that might affect the risk of discharge or failure due to fracture or other catastrophe. It also requires such an evaluation if there has actually been such a discharge or failure due to brittle fracture or other catastrophe.

7. Secondary Containment (§112.7(c)). Tanks must be provided with secondary containment. Facilities which determine that installation of containment structure is impracticable must (1) clearly explain in their plan why such measures are impracticable, (2) include a written commitment in the plan to provide the manpower, equipment, and materials required to expeditiously control and remove any quantity of oil discharged that may be harmful, (3) conduct periodic integrity testing of the containers and integrity and leak testing of the valves and piping, and (4) provide an oil spill contingency plan per 40 CFR §109. (§112.7(d)).

✓ 8. Training (§112.7(f)): Under the new rule, facilities are only required to provide training to oil handling employees (the previous rule required training for all employees). The required training must cover:
   (1) Operation and maintenance of equipment to prevent the discharge of oil
   (2) Discharge procedure protocols
   (3) Applicable pollution control laws, rules, and regulations
   (4) General facility operations; and
   (5) The contents of the facility SPCC plan.

9. A significant requirement that has not changed is the requirement to have containment for tank car/track loading/unloading (§112.7(h)); however, the new rules allow for deviations from the requirements, which are:
   (1) Containment capacity must be able to hold at least the maximum capacity of any single compartment of a tank car or tank truck loaded or unloaded at the facility
   (2) Provide a warning or barrier system to prevent vehicles from departing before complete disconnection of oil transfer lines
   (3) Prior to filling and departure of any tank car or tank truck, inspect all outlets for discharges, and if necessary, ensure outlets are tightened, adjusted, or replaced to prevent discharge while in transit

NEED → PROC.

If the facility determines that installation of containment under this provision is impracticable, it must:

(1) Explain in the SPCC plan why such measures are not practicable
(2) Provide an oil spill contingency plan (40 CFR §109)
(3) Provide a written commitment of manpower, equipment, and materials required to expeditiously control and remove any quantity of oil discharged that may be harmful. (§112.7(d)).

Note however, that you must still comply with §112.7(h)(2) and (3) – listed above.

9. Reporting Requirements (§112.4(a)): The new rule relaxes the reporting requirements for facilities that have two or more oil discharges in a 12-month period. Under the old rule, the reporting requirements applied to any facility that had two or more reportable discharges during a 12-month period. Now, two discharges of more than 42 gallons or one discharge of over 1,000 gallons triggers the reporting requirements. There are nine elements that must be reported under this rule:
   (1) Name of facility
   (2) Your name
   (3) Location of the facility
   (4) Maximum storage or handling capacity during normal daily throughput
   (5) Corrective action and countermeasures you have taken including a description of the equipment repairs and replacements
   (6) An adequate description of the facility, including maps, flow diagrams, and topographical maps as necessary
   (7) The cause of such discharge including a failure analysis of the system or subsystem in which the failure occurred
   (8) Additional preventive measures you have taken or contemplated to minimize the possibility of reoccurrence
   (9) Such other information as the Regional Administrator may reasonably require pertinent to the plan or discharge

10. You may also note that the regulations provide for deviations from the substantive requirements of the SPCC regulations (§112.7(a)(2)). The revised rule explicitly allows deviations from most of the substantive requirements, provided that there is an explanation for the nonconformance with the requirement, and equivalent environmental protection is provided by some alternate measure. Containment provisions require additional justification (see above). The Department will be discussing this provision with the Executive Council in September.

Section 2 –Major Unchanged Requirements

Section 1 provided only the changes to the SPCC regulations. Many of the provisions of the SPCC regulations remain substantially unchanged (i.e. amendment of the plan by owners (§112.5), general requirements (§112.7), inspections (§112.7(e)), record-keeping (§112.7(e)), security (§112.7(g)), and facility drainage (§112.8(b). For further detail on each of these requirements please look at the full text of the new rule. Your Environmental Manager will help if you have any questions.

Section 3 - Recommendations:

To ease the revision process of your facility SPCC plan, and to assist with addition of the new SPCC requirements into the SHEMS, the following recommendations are provided:

- If your SPCC Plan is not currently in electronic form, take this opportunity to do so.
- Add the revision of your SPCC plan to your Continuous Improvement Plan (CIP) as a facility objective and create targets for implementation (use an Action Plan (AP) if necessary). Include the following in your AP:
  - Revision of the plan
  - Non-Destructive Testing (NDT) of the tanks
  - Certification by a P.E.
- Determine which of your tanks will be regulated by the SPCC rules and modify your Legal and Other (L&O) Requirements spreadsheet with the new tank inspection requirements.
- Modify your L&O spreadsheet for the new P.E. certification timelines.
- Update your training matrix to reflect the new training requirements.
- Ensure that the SPCC plan is a controlled document and listed on your List of Controlled Documents.
- Send the revised SPCC plan to all agencies and entities as required by the regulation. Send "Uncontrolled" versions of the document, as you will not be able to manage those copies sent. Don't forget to send CSG a copy.
- Contact the Koppers Engineering Department with questions regarding non-destructive testing as required by the new rule.
- Modify the spill report form to the required form KII-FORM-E-002 if you have not done so already. Do not include a copy of this form, as it is a Corporate Controlled Document, simply reference the location of this form and discuss its use.

Section 4 - Implementation Timeline (112.3(a)):

The new rule takes effect on August 16, 2002. The new requirements applicable to buried piping installed or replaced after August16, 2002 are effective on that date. Amended SPCC plans are required for facilities with existing SPCC plans by February 17, 2003. The revised plan must be implemented as soon as possible, but not later than August 18, 2003. Facilities have 6 months from the date that the SPCC is revised to complete implementation, so be careful not to revise your plan too soon and shorten your overall time available for implementation. The following chart summarizes this information:

Required Change	**Due date**
Buried Piping	August 16, 2002
Revised SPCC Plan	February 17, 2003
Full Implementation	August 18, 2003

Section 5 - Information Survey:

After reviewing the information above, please complete the following short list of questions about your facility and forward it electronically to your CSG Environmental Manager. This information is needed to evaluate Koppers' status of compliance with the new SPCC rule.

1. Number of tanks containing coal tar, coal tar distillates or petroleum (do not include tanks used solely for waste water treatment).

2. Number of those tanks, which could be determined to not pose a risk to the navigable waters of the US, based on the layout of the plant (i.e. physical location of the tank in relation to the waterway, and the topography between the tank and the waterway) and the physical properties of the material contained in the tank. Manmade structure ***cannot*** be used for purposes of this analysis.

3. Number of the tanks in item 1 that are not in adequate secondary containment (capable of containing oil, constructed so that any discharge from primary containment will not escape the secondary containment system prior to being cleaned-up)

4. Is your tank car / tank truck loading / unloading area contained?

5. What is your cost for tank integrity testing per tank (if known)?

6. What other issues may be of concern for compliance with this regulation at your facility?

The Environmental Executive Council (EEC) is reviewing the implications of this revised rule. As a result of their review, and the answers provided to the questionnaire, further guidance and timetables for implementation will be provided. Please direct any questions you may have to your Corporate Environmental Manager or myself.

Patrick Stark
Environmental Manager
Corporate Services Group
(412)-227-2248
Starkpd@koppers.com

KOPPERS INDUSTRIES

INTEROFFICE CORRESPONDENCE

To:	R. D. Collins	From:	M. H. Juba
Location:	K-1800	Location:	K-1800
Subject:	Safety & Health Dept. Activities – December 2000	Date:	January 9, 2001

GENERAL

2001 SAFETY GOALS

The Executive Safety Council approved corporate Safety Goals for 2001. The overall goal for 2001 continues to be zero accidents. In support of this overriding goal, the following objectives were identified for 2001:

1. Development of a Continuous Improvement Strategy to achieve zero accidents.

2. All reporting units will achieve a Lost Work Case Rate (LWCR) of 2.3 and a Total Case Rate (TCR) of 5.0.

3. All Business Units/Plants will develop action plans to support/achieve Corporate LWCR and TCR objectives.

In 2001, Safety Performance will be tracked internationally. All reporting units irrespective of Business Unit, country or past performance will be measured against the LWCR and TCR objectives of 2.3 and 5.0 respectively.

Safety Performance reporting forms including Monthly Safety Calendars and Inspection Checklists for 2001 have been completed and forwarded to all domestic operations. The International Data gathering format has been simplified and coupled with a better understanding of the reporting criteria should result in a streamlined process and more accurate reporting. 2001 Safety Performance Objectives, as established by the Executive Safety Council, have been incorporated into the 2001-reporting formats for Connection graphs and monthly statistics reports.

OSHA 200 POSTING

All Domestic Operations are reminded to post the OSHA 200 Summary Log for 2000 during the month of February. The log must be signed and dated by the Plant Manager or Plant Safety Supervisor and posted in a common area available to all plant personnel no later than February 1st.
Only the summary portion of the form needs to be posted. The summary portion is that section of the form immediately to the right hand side of the fold line and includes columns one through 13.

BUSINESS INSURANCE PROGRAM MANUAL

Working in concert with Tony Parks of Marsh, the Business Insurance Program Manual was edited, revised, printed and distributed to all appropriate KII offices and personnel. Because of the policy renewal schedule, this has become an annual event and this year because of the high level of cooperation between KII and Marsh, the project was completed before 2000 expired. This is a first since the inception of the circulation of this information to field operations.

2000 BOOT STRAP AWARDS

The following plants will be recognized as Boot Strap Award winners for improved safety performance in 2000 at the upcoming SH&E Management Seminar:

Eastern Region Procurement	Western Region Procurement
Feather River	Clairton
Florence	CM&C Sales & Administration
N. Little Rock	Follansbee
Roanoke	Portland
Somerville	Longford
Koppers-Hickson Australia	Clarence Works
Koppers-Hickson New Zealand	

The following operating locations completed the year without a lost work case:

Alorton	Florence
Distribution Yards	Fulton
Eastern Regional Procurement	Gainesville
Feather River	Galesburg
Grenada	Somerville
Guthrie	South Atlantic Procurement
Logansport	Southeast Procurement
N. Little Rock	Superior
Roanoke	Susquehanna
Western Region Procurement	Portland
Woodward	Continental Carbon
Harmarville Tech Center	Koppers-Hickson Australia
Bunbury	Koppers-Hickson New Zealand
Hume	Koppers-Hickson Malaysia
Longford	Koppers-Hickson South Africa

PLANT SAFETY

December Safety Performance reports are attached for Koppers Industries Reporting Units.

KOPPERS DOMESTIC – During the month, Domestic Operations experienced one lost workday case; three restricted workday cases; six recordable cases and six medical treatment (Worker Compensation) cases. Two of the recordable cases required only medical treatment.

Koppers Domestic December Case Totals for 1999 and 2000 are summarized below:

	1999	2000	Difference
LOST WORK CASES	33	17	-16
RESTRICTED CASES	30	33	+3
TOTAL OSHA RECORDABLE	115	110	-5
WORKER COMPENSATION CASES	131	123	-8
HOURS WORKED	3,313,918	3,324,682	+10,764

Year 2000 performance, while falling short of lost work and total case rate goals did show marked improvement compared to 1999. This was particularly evident given the substantial reduction in lost work cases (48%), days away from work (63%) and days restricted (22%).
The average days lost per case dropped from 40 days in 1999 to 28 days in 2000 and similarly the average days restricted dropped from 36 days in 1999 to 25 days in 2000. These are positive signs suggesting reduced severity of injury and better case management.

The following breakdown by Business Unit is provided:

R&UP – ACCIDENT STATISTICS

1999	2000
70 Total – OSHA Recordable Cases	50 Total – OSHA Recordable Cases (4 cases in Dec.)
11 Lost Work Cases – LWDC	6 Lost Work Cases – LWDC (0 cases in Dec)
469 Days Away From Work (33 days/case)	164 Days Away From Work (27 days/case)
25 Restricted Work Cases – RWDC	12 Restricted Work Cases – RWDC (3 cases in Dec)
599 Restricted Work Days	349 Restricted Work Days

CM&C – ACCIDENT STATISTICS (Excluding Coke)

1999	2000
30 Total – OSHA Recordable Cases	27 Total – OSHA Recordable Cases (1 case in Dec)
17 Lost Work Cases – LWDC	4 Lost Work Cases – LWDC (1 case in Dec)
641 Days Away From Work (38 days/case)	155 Days Away From Work (39 days/case)
5 Restricted Work Cases – RWDC	14 Restricted Work Cases – RWDC (0 cases in Dec)
473 Restricted Work Days	226 Restricted Work Days

COKE – ACCIDENT STATISTICS

1999	2000
15 Total – OSHA Recordable Cases	33 Total – OSHA Recordable Cases (1 case in Dec)
5 Lost Work Cases – LWDC	7 Lost Work Cases – LWDC (0 cases in Dec)
200 Days Away From Work (40 days/case)	160 Days Away From Work (23 days/case)
0 Restricted Work Cases – RWDC	7 Restricted Work Cases (0 cases in Dec)
0 Restricted Work Days	259 Restricted Work Days

A summary analysis of accidents during the month is appended along with a Summary of Accident Investigation Reporting.

The average time to complete accident investigations for December incidents was almost 4 days. This is a significant slide from the previous 3 months.

AVERAGE DAYS TO COMPLETE ACCIDENT REPORTS

	1999	2000 YTD
Accident Investigation[1]	9.5 ± 14	4.4 ± 8
W/C First Report [2]	Not Available	4.9 ± 8
Receipt of Accident Report[1]	Not Available	7.2 ± 10

[1] Based on 126 reports received for 126 accidents
[2] Based on 125 reports received for 125 Medical Treatment Cases.

KOPPERS AUSTRALIA – During the month, Koppers Australia reported zero lost workday cases; zero restricted workday cases, and one recordable case. The singular recordable case occurred at Mayfield as a result of a medical treatment. Current YTD Case Totals show six lost work cases, five restricted cases and thirty-one recordables.

December completed a strong Fourth Quarter Safety Performance by Koppers Australia. KA Operations achieved a 45% reduction in lost work cases compared to 1999.

Accident summaries for Koppers Australia attached. No Regulatory Activity was reported at any KAP locations during the month.

KOPPERS EUROPE – During the month, Koppers Europe reported two lost workday cases, zero restricted workday cases and two recordable/medical treatment cases. The two recordable/medical treatment cases were the result of the lost work injuries both of which occurred at Koppers Transportation. Current YTD Case Totals show twenty-one lost work cases and twenty-two recordables.

Beginning with the January Report, Gary Huckins will be providing Accident Summaries similar to those provided by Koppers Domestic and Australian Operations.
No Regulatory Activity was reported at any KAP locations during the month.

PRODUCT SAFETY

MATERIAL SAFETY DATA SHEET (MSDS) DISTRIBUTION– Sue Simpson responded to requests for 134 Material Safety Data Sheets. Of the 134 requests, 23 were generated through the order entry process, 94 were requests received in the mail and the balance, 17 were requests received over the telephone. In responding to the requests, 117 sheets were sent via mail, 18 were faxed.

CREOSOTE COUNCIL II (CCII) – There was no activity during the holiday-shortened month.

ACC CHEMSTAR PHTHALIC ANHYDRIDE PANEL

- Voluntary Children's Chemical Evaluation Program (VCCEP) – The EPA released the list of materials proposed for testing under this anticipated program and Phthalic Anhydride did not appear on the list.

- Hazardous Air Pollutants (HAPs) - A teleconference is scheduled for January 3 to review options available to solidify the panel's testing proposal that was previously submitted to the EPA.

ACC CHEMSTAR NAPHTHALENE PANEL

- National Toxicology Program (NTP) 2-Year Inhalation Study – Dr. Jack Harkema at Michigan State has been retained by the Panel to review the pathology from the NTP study. He is currently planning to do the review on January 22. A meeting has been scheduled with the Hydrocarbon Solvents Panel on February 2. We expect the report from Dr. Harkema and a robust summary being written by John Butala on a 90-day naphthalene study conducted by Recochem to be completed by the meeting.

- Voluntary Children's Chemical Evaluation Program (VCCEP) – The EPA released the list of materials proposed for testing under this anticipated program and Naphthalene did not appear on the list.

Signs – To gain valuable space, maximize the value of our vendor and to systematize the ordering of custom signage by field locations and contractors, arrangements have been finalized eliminating the inventory of signs maintained by the S&H Group. In the future, plants must place all sign orders directly with the vendor. The vendor (Burton Signs, Inc.) will maintain the KII sign inventory. The S&H Group will continue to review and edit verbiage as required but the handling, packaging and shipping of signs has been passed to the vendor.

EXECUTIVE SAFETY COUNCIL

The Executive Safety Council met December 11th. Action items discussed included:

- Human Resources will re-issue the revised performance appraisal forms, in preparation for the upcoming round of 2000 performance reviews. The revised forms include safety awareness and environmental stewardship as performance criteria for all employee performance reviews.

- Council approved Corporate Safety Performance Metrics for 2001including:
  The Corporate GOAL is zero accidents
  The following OBJECTIVES were identified for 2001 in support of the Corporate GOAL:

  - Develop a Continuous Improvement strategy to achieve zero accidents
  - All reporting units will achieve a LWCR of 2.3 and a TCR of 5.0

- All Business Units/Plants will develop action plans to support/achieve Corporate S&H Goals.

- The New Employee Orientation Program will be introduced at the March SH&E Management Seminar.

The next meeting is January 16th.

SH&E MANAGEMENT SYSTEM

The S&H Group continues to support Management System efforts including review of plant

operating procedures (282 reviewed to date), and participation on the Steering Committee. No procedures were circulated through S&H during the month.

The S&H Section of Continuous Improvement Programs for Follansbee and Monessen were completed during the month. This brings the total number of CIPs completed to eight.

GENERAL SAFETY ISSUES

SH&E PLANT PERFORMANCE EVALUATIONS (PPEs)

Final reports on compliance items identified during PPEs at Follansbee and Monessen were completed/issued during December. We are now reviewing the scope and content of PPEs going forward. In light of the need to conduct Independent Third Party Environmental Audits and an SH&E Management System Audit, the existing PPE Program has been revised to avoid duplication and to investigate scoring refinement options. The first part of the audit will look at elements that are not OSHA required but are essential for developing and enhancing the safety system. The second part of the audit will focus on an action plan that is compatible with the SH&E Management System's Continuous Improvement Plan. The goal is to conduct the audit, complete both parts of the score sheets and generate the action plan to be incorporated directly into SH&E Management System's Continuous Improvement Plan before the audit team leaves the plant. We hope to introduce a revised Scope and Format at the SH&E March Management Seminar.

INDUSTRIAL HYGIENE

The tentative schedule for IH Survey Work during 2001 includes:

Survey Type	Location
Annual Benzene	Woodward Tar
	Clairton
	Follansbee
	Monessen
Quarterly COE	Monessen
Comprehensive Surveys	Guthrie
	Denver
	N. Little Rock
	Stickney
	Somerville
	Clairton

Final reports have been received for the following 2001 surveys:

Monessen	4th Quarter COE
Monessen	Annual Benzene
Monessen	Exhauster Building-Special Study
Gainesville	Noise Study
Gainesville	Comprehensive (Arsenic, Dust)
Susquehanna	Comprehensive
Susquehanna	Noise

We expect receipt of the remaining 2000 survey reports before the end of January. Remaining reports include:

Woodward	Comprehensive
Woodward	Annual Benzene

Heath Huschak has been provided with air monitoring equipment from AM Health and Safety to conduct benzene air monitoring in the boiler house during upset conditions involving the boiler fuel stream produced by the de-benzolizer column. This will be an ongoing project over the next several months.

PROPERTY AND CASUALTY INSPECTIONS

We expect to finalize the schedule for infrared and fire protection surveys for 2001 by the end of January.

Scheduling for those plants requiring an independent safety audit to prove state worker compensation/insurability will be finalized at a January 29th meeting with AIG. Involved plants include Susquehanna, Clairton, Monessen, Harmarville, Gainesville, N. Little Rock, Somerville, Portland and Feather River.

HEALTH EVALUATION PROGRAM

We are coordinating arrangements with Ketchum, Dr. McGraw, WHAD, Highmark and WellSource as well as the Human Resources Department to finalize the subject program.

Progress to date includes:

- WellSource Medical Questionnaire is being customized to meet KII needs.
- Highmark will be contracted to administer the program at all Blue Cross participating locations. Highmark will also handle data entry and report generation for all locations including non-Blue Cross participants.
- Contacts are being made with local health care providers at those KII locations that are not Blue Cross participants.

- Human Resources will establish contact with local union representatives to introduce the program.
- Ketchum has finalized promotional materials.
- Diagnostic testing services need to be determined.

We expect to have all remaining issues resolved by the end of January.

REGULATORY UPDATE

FALL PROTECTION

This office is in the process of developing a Fall Protection Policy for review by the Executive Safety Council at Council's February meeting. An OSHA Compliance Directive requiring employers to investigate fall protection provisions on top of railcar tankers and tank trucks initiated this action. The directive states that the railings on top of these units in most cases do not meet OSHA standard railing requirements (42" top rail and 21" mid rail).

ERGONOMICS STANDARD

There has been no activity to date regarding the November 20th suit filed by the National Coalition on Ergonomics (NCE). Recall that Koppers through ACCCI is participating in the suit as a representative party to the NCE. A host of additional suits were filed in December guaranteeing that the standard will be tied up in litigation for some time. For those interested, the NCE is providing updates on litigation involving the ergonomics standard at www.ncergo.org. Additional details on the ergonomics standard can be obtained by logging onto the OSHA website at www.osha-slc.gov/ergonomics-standard/index.html.

At this point, the only thing employers are required to do initially is to provide basic information to their employees about common Musculoskeletal Disorders (MSDs) and their signs and symptoms. OSHA has developed information sheets that employers can distribute to employees and post in work places to comply with this requirement. The sheets are found in Appendix A and Appendix B to the standard. Employers are not required to take any further action until an "MSD incident" is reported. See the attached information sheet for posting/discussion at your next safety meeting.

We will be providing additional updates as the situation continues to unfold.

M. H. Juba

R. D. Collins
RE: Activities – December 2000
01/09/01
10
attachments
activities-December 2000

KOPPERS
INDUSTRIES **INTEROFFICE CORRESPONDANCE**

To: All Locations
Location: See Below
Subject: Signs

From: B. L. Allison III\
Location: K 1800
Date: December 14, 2000

S. E. Lish – Clairton
T. A. Golubic – Follansbee
R. J. Burkhart – Monessen
Kamerer – Portland
M. J. Mancione – Stickney
N. H. Weinstein – Woodward
M. R. Burrous – Alorton
F. L. Brown – Denver
W. N. Morris – Feather River
D. S. Naugle – Florence
J. J. Healey – Gainesville
T. W. Woerle – Galesburg
J. A. Hatch – Green Spring
T. L. Henderson – Grenada
H. E. McGough – Guthrie
K. B. Coker – Logansport
W. L. Hasley – Montgomery
W. B. Maxey – N. Little Rock
M. A. Franck – Roanoke
D. A. Shaw – Somerville
T. R. Ries – Superior
P. C. Beswick – Susquehanna
T. N. Izaj – K 2026

Earlier this year after many discussions with the various Environmental Managers, the verbiage on the signs for labeling treating plant creosote containing process water was revised. The revision was necessary as the previously reported RQ for process water was revised based upon additional legal review and interpretation. The appropriate signs have been produced and are in our inventory here in the Pittsburgh offices. If your operation requires creosote treating Process Water Signs, please contact us with the number of signs needed to properly label your tanks. Any questions regarding the changes in the RQ and associated language should be directed to the Environmental Manager assigned to your facility.

That leads me to another issue involving signs. Because of shrinkage of available space and the problems of packaging and shipping signs to our various plants and customers, we are changing how signs will be handled in the future. Our current supplier of custom printed aluminum signs, Burton Signs and Specialties will not only produce but will also be responsible for the storage and shipment of KII signs.

Attached you will find the current inventory of signs we have in our office. If you need any of the signs that are in inventory, complete the enclosed Sign Request Form, returning it to Sue Simpson 1800 Koppers Building before January 31, 2001. Your request will be shipped promptly. First come first served.

After January 31, 2001 the remaining inventory shall be forwarded to the Burton facility and all future needs will be handled directly with Burton. The normal purchasing/ordering practices and procedures should be followed. The organization requesting signs will be responsible for the payment of the sign related invoices issued by Burton.

To place orders for signs after February 1, 2000 – contact:

Burton Signs & Specialties
1021 Fifth Ave
Pittsburgh PA 15219
Telephone 412-281-0330
FAX 412-355-0619
E-mail burtonsign@aol.com
Website www.burtonsigns.com

If you have any questions or positive suggestions, please let me know. Remember that the Corporate Services Group will no longer inventorying/shipping signs business on February 1, 2001. Any requests for modifications to existing sign verbiage or for signage for new materials must be made through the undersigned.

B. L. Allison III

cc: + attachments

J. R. Heller – K 2050
C. J. Mitchell – K 2000
J. T. Dietz – K 1600
G. F. Ambrose – K 2050
R. D. Collins – K 1700
L. S. Hyde – K 1800

Sign Request Form

Must Reach Sue Simpson, K1800 Koppers Building before January 31,2000

Send the indicated number of signs to the following at the address below (must be a UPS address):

Name:

Street Address:

City:

State & ZIP:

Signature of Requesting Person:

Current Inventory	Sign Language	Amount to Send
89	Chromated Copper Arsenate Treated Wood	
10	Chromated Copper Arsenate Treated Wood (Prop 65)	
17	Chromated Copper Arsenate Treated Wood With ET Oil	
88	Pentachlorophenol Treated Wood	
67	Creosote Treated Wood	
13	Copper Naphthanate Treated Wood	
18	Dricon Fire Retardant Treated Wood	
43	Process Water - may contain Creosote Solution	
16	Untreated Wood Dust	
16	Unleaded Gasoline	
8	#6 Fuel Oil	
8	Kerosene	
7	P-9 Oil	
6	Diesel 2	
5	Storm Water	
3	Ammonia/Water Flushing Liquid 50%	
5	Creosote Solution (Pressure Application)	
2	Ammonium Sulfate	
2	Coal Tar Pitch	
2	Crude Light Oil	
2	Intermediate Light Oil	
2	Lead Free Gasoline	
1	Aromatic Concentrate	
1	Caustic Soda Liquid 50%	
1	Orthoxylene	
1	Phthalic Anhydride - Molten	

KOPPERS INDUSTRIES

To: Leslie Hyde
Location: K-1800
Subject: February Environmental Activities

From: Traci I. Self
Location: K-1800
Date: March 1, 2000

Clairton

PADEP has made an agreement with KII not to enforce the in-service inspection provisions of the PA Storage Tank and Spill Prevention Program during the negotiation process. KII met with PADEP on January 19, 2000. PADEP agreed that the annual recycle volume of tank residue that can be accepted for recycle by USX necessitates a 10 year COA. PADEP also presented KII with a remediation protocol required for sampling and analysis of the soil in an around the storage tank area. Because the plant is located on an industrial site that is subject to a PADEP COA with USX, KII had requested that the remediation activities be deferred until the Clairton Tar plant ceases to operate. PADEP has expressed disagreement with this approach; KII will propose an alternative protocol. PADEP is expected to provide KII with a revised COA by early March.

The Clairton plant plans to install a fume system at the truck loading, tank car and centrifuge areas of the facility. The fume system requires submittal of a permit application to the Allegheny County Health Department (ACHD). The permit application is in draft form for review.

A revised permit application must be submitted and approved by ACHD before tank 7 can be included in the gas blanketing system. ACHD has informed KII the modifications on tank 7 could be considered an increase in facility storage volume and therefore may require ACHD approval. ACHD has requested a letter explaining the tank 7 modification. KII will provide the requested information as soon as possible.

KII met with the City Of Clairton to discuss plugging the Mendelsohn sewer (outfall-009) as required to meet conditions of the NPDES permit. The City of Clairton agreed to conduct a dye test to determine origin of the water flowing through the outfall. The testing will be conducted in early spring.

The facility had two reportable spills of debenz tar; a spill of 600 gallons to containment on 2/11/00 was reportable as required by the PA storage tank regulations and was not reportable to the NRC. A spill of 25 gallons on 2/19/00 to soil was reported to all agencies.

Follansbee

The wastewater treatment plant (WWTP) again reported an exceedance of fecal coliform in February 2000. The plant is exploring options for increasing sludge recycle in an effort to control excursions of suspended solids. Chester Engineers recommended the plant double the amount of sludge recycle and provide the WWTP operators with additional training. The training will be conducted at the plant in the near future and increased sludge recycle will occur once an acceptable option is identified.

A report was received from WVDEP for the compliance inspection conducted on December 7-8, 1999. The

Koppers016638

report details various deficiencies observed during the inspection and requires KII to respond and take corrective action.

Gary Centrifuge

Industrial Environmental Management, Inc. (IEMC) will finalize the Title V permit application and make modification to the existing permit to allow USS to operate during times the centrifuge is not operating. The permit application is in draft form and will be submitted to the Indiana Department of Environmental Management.

Monessen

A meeting with PADEP was held on February 15, 2000. The meeting was productive and PADEP expressed a desire to work with KII to obtain air quality operating permits for the facility. KII agreed to install a continuos emission monitor (CEM) for NOX, SO2, O2 and opacity. PADEP will modify the facilities plan approvals to include a schedule for installation of the CEM.

The facility NPDES permit expires in September 2000. A permit application is required 180 days prior to permit expiration. The facility requested and was granted an extension of the application submittal until March 29, 2000.

Portland

In accordance with a condition of the Air Contaminant Discharge permit issued in June 1999, the facility submitted an annual emission report to ODEQ. As a result of preparing this report it was discovered that fugitive emissions for equipment associated with the new hot oil system was not included in the permit. KII contacted ODEQ and was advised to submit a permit modification to allow increased VOC emissions. This increase is necessary because emission projections indicate that the permitted VOC emission will be exceeded for the year 2000. KII will work with Air Compliance Consultants (ACCI) to obtain the needed permit modification.

Stickney

The facility is in the process of revising the Title V Clean Air Act permit application. The revised application should be submitted to IEPA by mid March. An outside engineering firm is evaluating emissions.

The facility had a reportable spill on February 1, 2000 of less than one gal of Naphthalene still residue and condensate into the canal. The spill was cleaned and follow-up reports submitted to all required agencies.

Woodward Tar

The facility received a visit from the Jefferson County Health Department (JCHD) as a result of submittal of an amended Title V permit application. JCHD anticipates issuance of a draft permit before the end of the year and wanted to compare the application information with site conditions. The permit writer requested additional information/clarification to several items in the permit application.

Woodward Coke

A final post closure care permit was received from Alabama Department of Environmental Management The permit is for a ten-year period and may require renewal for a period of thirty years. The post closure permit requires BEI and KII to begin groundwater corrective action. BEI has prepared an investigation workplan

Reportable spills

Spills were reported for the Stickney and Clairton Plants.

Discharge Monitoring Reports (DMR)

January 2000 DMR's were submitted to the appropriate agencies for all CM&C plants required submitting monthly monitoring reports. The Follansbee facility reported an excursion of fecal coliform.

Jim Dietz

ML-12814

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

July 29, 99

~~DEC 1 0 1998~~

Koppers Industries Inc.
Att: Kevin Fitzgerald/John Marcinowski
436 Seventh Avenue
Pittsburgh, PA 15219-1800

OFFICE OF
PREVENTION, PESTICIDES AND
TOXIC SUBSTANCES

Contains No CBI

Dear K. Fitzgerald/ J. Marcinowski:

This will acknowledge receipt of your 1998 TSCA Inventory Update Rule (IUR) Form U submission by the Agency on 10 Dec. 98.

Your submission has been assigned the following report number(s)...

REPORT NUMBER(S)	PLANT SITE NAME
1. 63012363	Koppers Plant Site Cicero, IL
2. 63012371	Clairton, PA
3. 63012389	1835 Koppers Drive, Dolomite, AL
4. 63012397	2134 Koppers Drive, Dolomite, AL
5. 63012405	Follansbee, WV
6. 63012413	Monessen, PA
7. 63012421	Portland, OR

Any further correspondence regarding this notice should *reference the report number(s)* cited in this letter.

Additional IUR Forms (paper or diskette), Instruction Manuals, and reporting assistance are available from the TSCA Hotline (202) 554-1404, or on the Internet at: http://www.epa.gov/opptintr/iur98. Also, they can be obtained via FAX ON DEMAND. Call (202) 401-0527; Item: 5119.

Document Control Office

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KOPPERS INDUSTRIES

ENVIRONMENTAL SERVICES
INTEROFFICE CORRESPONDENCE

Send To:	See Distribution	**From:**	T.I. Self
Location:	Various	**Location:**	K-1800
Subject:	**May Activities Report**	**Date:**	June 14, 1999

DISTRIBUTION

Administration
J. E. Boan; K-1700
R. D. Collins; K-1700
D. E. Davis; K-1700
K. J. Fitzgerald; K-1600
T. D. Loadman; K-2050
W. W. Turner; K-1700
M. W. Snyder; K-1726
B. L. Allison; K-1800
R. H. Wombles; HTC
J. E. Marcinowski; K-1800
M. H. Juba; K-1800
M. Urbassik; K-1800
J. L. Shaffer; K-1800
J. T. Dietz; K-1600
W. A. Meisinger; HTC
T.E. DuPlessis; K-1800
John Kunkle; K-1600
Bob Mason; K-1600

Plant Managers/Supervisors
Bob Melville; Clairton
Kevin Probst; Clairton
M. J. Mancione; Stickney
Mark Cilley; Stickney
T. A. Golubic; Follansbee
Steve Lish; Follansbee
Frank Brown; Follansbee
Mike Potts; Follansbee
Nick Valero; Follansbee
Larry Freeman; Follansbee
Charles Walls; Follansbee
Bob Grimm; Follansbee
A. S. Kamerer; Portland
R. J. Morris; Woodward Tar
Ron Rutledge; Woodward Tar
R. Jim Burkhart; Monessen
Greg Shamitko; Monessen

KOPPERS INDUSTRIES

To:	Randy Collins	From:	T.I. Self
Location:	K-1800	Location:	K-1800
Subject:	May Environmental Activities	Date:	June 14, 1999

Clairton

KII contacted the Pennsylvania Department of Environmental Protection (PADEP) to request further clarification as to the status of Tank #7. KII regards the dismantling and refurbishing of the tank as a major modification based on the definition in the Pennsylvania code. PADEP has said the use of the existing floor of the tank for secondary containment is considered installation of a new tank. PADEP has informed KII the decision came from PADEP central office without explanation. Based on the KII request for clarification, PADEP –Southwest region is awaiting a response from PADEP central office in Harrisburg. KII will amend the registration for tank #7 and approx. 31 other tanks to indicate theses tanks are exempt from regulation because the are process tanks or do not contain a regulated substance. Modification of tank #7 will continue.

Mark Urbassik-KU resources assisted KII in drafting a tank program for the facility. The facility must complete in-service inspections for approx. 61 tanks by October 11, 1999. Out of service inspections must be completed by October 11, 2000. The out of service inspections requires the tanks to be cleaned, inspected and repaired before placing them back into service. KII has informed PADEP that it is impossible to complete out of service inspections by the October 2000 date. KII will work with PADEP to negotiate a consent agreement to close approx. 55 tanks that are no longer in use or temporarily out of service. KII will draft a COA and forward it to PADEP for review and comment.

Follansbee

As part of the RFI conducted by Beazer, EPA-III requested submittal of an action plan to minimize the potential for alleged ongoing and future releases. KII agreed to conduct an evaluation of plant operations and provide a report of the findings. A "Release Prevention and Control Action Plan"(RPCAP) was finalized by ERM in mid January and three copies of the report were given to Beazer for inclusion in the joint response to the Agency. A detailed response to comments, DNAPL Recovery Interim Measures Work Plan and the "Release Prevention and Control action Plan" were submitted to the agency on February 10, 1998. Comments were received from U.S. EPA on June 9, 1998. KII submitted a response to these comments in August 1998. On January 27,1999 I spoke with Andrew Fan of EPA region III. EPA has concerns about the content of the plan. A conference call was held on February 17, 1999 with US EPA. EPA expressed concern that there was a high incidence of spill and equipment failure. EPA asked KII to look at railcar loading and spill history to implement a preventive maintenance program. EPA also requested KII to install alarms to prevent overfill of railcars and provide some assurance that the storage tanks are not leaking from the bottom. KII expressed concern that EPA was asking KII to clean the tanks and retrofit. KII stated that the cost would be prohibitive. EPA stated that facilities have shut down to retrofit tanks. KII asked for information on these facilities. EPA said they would review the information on other facilities and provide specific details on what they expect from KII. EPA asked that KII not

act on the EPA request or conference call until a response to the RPCAP was received by KII.

The facility received an information request from WVDEP concerning facility tanks and containment. The letter requested KII to submit a schedule for providing containment for the facility tanks. KII responded to this request by stating that a plan (RPCAP) for paving and containment has been submitted to US EPA for review and approval. KII will provide an implementation schedule upon approval by US EPA. PERMIT?

A permit to install application was submitted to WVDEP on September 25, 1998 for the debenzolizer unit. WVDEP returned the application for improper procedure in identifying confidential business information. KII re-submitted the application without a claim of confidential information. WVDEP granted permission to place the debenzolizer column on its foundation. The unit is in place but not operating awaiting the operating permit. The draft permit was issued for public comment on April 15, 1999. KII has reviewed the draft permit and will provide comments to WVDEP by May 14, 1999. KII has requested a conference call with WVDEP to attempt to resolve issues impeding permit issuance.

Gary Centrifuge

KII has received a proposal from Industrial Environmental Management, Inc. (IEMC) to provide a written NESHAP compliance plan, residual waste management plan, emergency, contingency and spill response plan and prepare a Title V permit application. The compliance plans are required for facility start-up.
KII will work with IEMC to ensure the plans are completed.

Monessen

On May 18, 1999 representatives of KII met again with PADEP- Air Quality to discuss the permitting and compliance status of the facility. Plan approvals were issued in 1996 for construction of the coke oven battery operations, coke by-product recovery plant and two boilers. A reasonably available control technology permit (RACT) was issued in March 1998. Due to recent personnel changes in both KII and PADEP, the air quality permitting and compliance status of the facility is questionable. KII received plan approval extensions coke oven battery and coke by-product recovery plant. The extensions expire July 14, 1999. KII will submit extension request before July 14, 1999.

PADEP questioned use of different methods of air emission calculations for payment of annual fees and stack testing. The agency asked KII to apply a consistent approach to calculations. KII will work with PADEP to develop a method of stack testing and calculation, to ensure accurate emission reporting.

Portland

The air quality permit was issued June 1, 1999.

KII and Northwest Natural Gas (NWNG) met with ODEQ concerning the proposed method for pile and tank installation. ODEQ has requested installation of monitoring wells downgradient of the tank location. The results of the groundwater-monitoring program will evaluate whether additional tanks can be installed in the future. The consultant for NWNG and KII is working with ODEQ to choose appropriate locations for installation of the monitoring wells.

On May 25, 1999, the facility was inspected by ODEQ-Department of Environmental Quality. Possible violations include waste and drum management. A Notice of Noncompliance was issued.

Stickney

Permit applications for construction and operation of the exhauster project for the PAA plant must be completed and submitted and approved by Illinois Environmental Protection Agency (IEPA) prior to construction.

On May 3, 1999, the facility received a "Non Compliance Advisory" from IEPA for "failure to control odor emission into environment causing Air Pollution and citizen complaints."

IEPA recommends the facility " Monitor the Fume System #1 and #2 by changing the scrubbant oil weekly and ensure that naphthalene concentration in the scrubbant oil is below 5%." KII had submitted a letter to IEPA on April 20, 1990 outlining a course of action. The action proposed by KII was consistent with that recommended by IEPA with the exception that the scrubbing oil will be changed on an as needed basis instead of weekly. KII responded to IEPA by letter on May 13, 1999.

Woodward Tar

A proposal from Air Compliance Consultants (ACCI) to perform emission testing on the tar still is in review by KII. The data obtained will be used to determine if it is feasible to apply for a synthetic minor permit. ACCI will conduct test on the fume and incinerator in order to obtain accurate measurements for benzene and naphthalene emissions. The Jefferson County Health department expressed concerns about the testing and warned KII that the information would be used to determine compliance with existing air quality permits.

Beazer East Inc. (BEI), USS and KII have been asked by Alabama Department of Environmental Management (ADEM) to conduct an aquatic study of Opossum Creek. A US EPA investigation indicated contamination to Opossum Creek sediments.

cc: See Distribution List

FIFRA
FILE - CREOSOTE REGISTRATION

KOPPERS

Koppers Inc.
436 Seventh Avenue
Pittsburgh, PA 15219-1800
Tel 412 227 2001
www.koppers.com

January 20, 2006

Ms. Kyla Townsend-McIntyre
Pesticides Programs (3WC32)
U.S. EPA - Region 3
1650 Arch Street
Philadelphia, PA 19103-2029

Subject: Pesticide Reports for Pesticide-Producing Establishments

Dear Ms. Townsend-McIntyre:

Enclosed are the 2005 Pesticide Reports for Pesticide-Producing Establishments (EPA Form 3540-16) for Koppers Inc plants located in:

Clairton, PA
Dolomite, AL
Follansbee, WV
Nyborg, Denmark
Portland, OR
Stickney, IL
Port Clarence, United Kingdom

The above forms are in compliance with Section 7 of the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA), as amended (92 Stat. 829, 7 U.S.C. 136e).

Please be advised that the Company's name has been changed from Koppers Industries, Inc., to Koppers Inc. The addresses for the corporate headquarters as well as all reporting establishments remain the same. Let me know if you require anything additional to make this change to your records.

Please contact me at (412-227-2882) if you have any questions regarding the content of these forms.

Sincerely,

Michael H. Juba, MS CIH
Director of Global Product Safety & Health

Enclosures
Pesticide Establishment Reports

Bc: J. Dietz – K-16
W. Plovic – K-16
K. Fitzgerald – K-16
G. Traczek – Stickney
T. Shannon – Clairton
N. Weinstein – Follansbee
R. Rutledge – Woodward
T. J. Turner – Portland
B. Boddy – Pt. Clarence
K. Tonnesen - Nyborg

KOPPERS

FILE - CREOSOTE
2004

Koppers Inc.
436 Seventh Avenue
Pittsburgh, PA 15219-1800
Tel 412 227 2001
www.koppers.com

February 17, 2004

Ms. Kyla Townsend-McIntyre
Pesticides Programs (3WC32)
U.S. EPA - Region 3
1650 Arch Street
Philadelphia,, PA 19103-2029

Subject: Pesticide Reports for Pesticide-Producing Establishments

Dear Ms. Townsend-McIntyre:

You will find enclosed the 2003 Pesticide Report for Pesticide-Producing Establishments (EPA Form 3540-16) for the Koppers Inc plants located in:

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Dolomite, AL
Follansbee, WV
Nyborg, Denmark
Portland, OR
Stickney, IL
Port Clarence, United Kingdom

The above forms are in compliance with Section 7 of the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA), as amended (92 Stat. 829, 7 U.S.C. 136e).

Please contact me at (412-227-2882) if you have any questions regarding the contents of these forms.

Sincerely,

Michael H. Juba, CIH
Manager of Product Safety and
Director of Global Health

Enclosures
EPA Region 3

bc: J. Dietz - K-16
G. Traczek - Stickney
W. Baumann - Stickney
S. Lish - Clairton
N. Weinstein - Follansbee
R. Rutledge - Woodward
A. Kamerer - Portland
W. Plovic - K-16
D. Bachman - K-16
C. Kraynik - K-16
K. Fitzgerald - K-16
R. John - Pt.Clarence
G. Huckins - Pt.Clarence
P. Bech - Nyborg
K. Tonnesen - Nyborg
M. Williams - Scunthorpe

EPA

United States Environmental Protection Agency

FORM APPROVED OMB NO. 2070-0078

Pesticide Report for Pesticide-Producing and Device-Producing Establishments

Section 7, Federal Insecticide, Fungicide, and Rodenticide Act, (7 U.S.C. 136e)

Note: Read all instructions before completing. Production and distribution/sales volumes information reported on this form is treated as business confidential.

1. **Company Name & HQ mailing address:**
Koppers Inc.
436 Seventh Avenue - Suite 1600

2. City: Pittsburgh

3. State or Country: PA

4. Zip Code: 15219

5. Name of Establishment Officer: K. J. Fitzgerald

6. Title: V.P. & Gen. Manager Carbon Matls & Chemicals Division

7. Date *(Mo., Day, Year)*: 2/24/04

8. EPA Est. No.: 061468-PA-001

ANNUAL

KOPPERS IND INC_- CLAIRTON
300 N STATE ST
CLAIRTON
PA 15025

12. State or Country

13. Zip Code

14. Telephone Number: 412-227-2708

15. Signature of Establishment Officer or US Agent: Kenneth J. Fitzgerald

16.

PESTICIDE PRODUCTION INFORMATION

17. Product Code (If "4" and chemical, attach formulation per instructions. If "4" and Device, go to Item 19)	1	18. EPA Product Registration Number	61468-1	
19. Product Name	Coal Tar Creosote (Pressure Applications)	20. Product Classification	2	1
21. Product Type	2	22. Market Sold To	1	
23. Use Classification	1	24. Unit of measure: P=Pound G=Gallons K= Kilograms L=Liters T=Tons U=Units	G	
25. Amount Produced, Repackaged or Relabeled Last Year	[2003]	-0-		
26. Amount Sold or Distributed **(Not Custom Applied)** Last Year - US	[2003]	-0-		
27. Amount Sold or Distributed Last Year - Foreign	[2003]	-0-		
28. Amount To Be Produced, Repackaged, Relabeled This Year	[2004]	-0-		

17. Product Code (If "4" and chemical, attach formulation per instructions. If "4" and Device, go to Item 19)	1	18. EPA Product Registration Number	61468-3	
19. Product Name	Creosote Solution (Pressure Applications)	20. Product Classification	2	1
21. Product Type	2	22. Market Sold To	1	
23. Use Classification	1	24. Unit of measure: P=Pound G=Gallons K= Kilograms L=Liters T=Tons U=Units	G	
25. Amount Produced, Repackaged or Relabeled Last Year	[2003]	10,530,116		
26. Amount Sold or Distributed **(Not Custom Applied)** Last Year - US	[2003]	10,550,095		
27. Amount Sold or Distributed Last Year - Foreign	[2003]	-0-		
28. Amount To Be Produced, Repackaged, Relabeled This Year	[2004]	10,500,000		

17. Product Code (If "4" and chemical, attach formulation per instructions. If "4" and Device, go to Item 19)	1	18. EPA Product Registration Number		
19. Product Name	Coal Tar Creosote (General Applications)	20. Product Classification	2	1
21. Product Type	2	22. Market Sold To	1	
23. Use Classification	1	24. Unit of measure: P=Pound G=Gallons K= Kilograms L=Liters T=Tons U=Units	G	
25. Amount Produced, Repackaged, or Relabeled Last Year	[2003]	-0-		
26. Amount Sold or Distributed **(Not Custom Applied)** Last Year - US	[2003]	-0-		
27. Amount Sold or Distributed Last Year - Foreign	[2003]	-0-		
28. Amount To Be Produced, Repackaged, Relabeled This Year	[2004]	-0-		

CONTINUED ON ATTACHED SHEET ( ) THIS IS PAGE 1 OF 1

EPA Reviewer	EPA Office	Postmark Date	Date Reviewed	29. Reporting Year **2003**

EPA Form 3540-16 (Rev. 08-01) Previous editions are obsolete.

EPA

United States Environmental Protection Agency

FORM APPROVED OMB NO. 2070-0078

Pesticide Report for Pesticide-Producing and Device-Producing Establishments

Section 7, Federal Insecticide, Fungicide, and Rodenticide Act, (7 U.S.C. 136e)

Note: Read all instructions before completing. Production and distribution/sales volumes information reported on this form is treated as business confidential.

1. Company Name & HQ mailing address: Koppers Inc. 436 Seventh Avenue - Stuie 1600	8. EPA Est. No. 000061-AL-001 ANNUAL KOPPERS INDUSTRIES, INC-DOLOMITE 1835 KOPPERS DR DOLOMITE AL 35061
2. City Pittsburgh	
3. State or Country PA / 4. Zip Code 15219	
5. Name of Establishment Officer K. J. Fitzgerald	
6. Title V.P. & General Mgr Carbon Matls & Chemicals Division / 7. Date (Mo., Day, Year) 2/24/04	
14. Telephone Number 412-227-2708	16.
15. Signature of Establishment Officer or US Agent Kevin J. Fitzgerald	

PESTICIDE PRODUCTION INFORMATION

17. Product Code (If "4" and chemical, attach formulation per instructions. If "4" and Device, go to Item 19) [1]	18. EPA Product Registration Number 61468-1			
19. Product Name Coal Tar Creosote (Pressure Applications)			20. Product Classification [2] [1]	
21. Product Type [2]	22. Market Sold To [1]	23. Use Classification [1]	24. Unit of measure: P=Pound G=Gallons K= Kilograms L=Liters T=Tons U=Units [G]	
25. Amount Produced, Repackaged or Relabeled Last Year	[2003]	748,470		
26. Amount Sold or Distributed **(Not Custom Applied)** Last Year - US	[2003]	872,204		
27. Amount Sold or Distributed Last Year - Foreign	[2003]	-0-		
28. Amount To Be Produced, Repackaged, Relabeled This Year	[2004]	-0-		

17. Product Code (If "4" and chemical, attach formulation per instructions. If "4" and Device, go to Item 19) [1]	18. EPA Product Registration Number 61468-3			
19. Product Name Creosote Solution (Pressure Applications)			20. Product Classification [2] [1]	
21. Product Type [2]	22. Market Sold To [1]	23. Use Classification [1]	24. Unit of measure: P=Pound G=Gallons K= Kilograms L=Liters T=Tons U=Units [G]	
25. Amount Produced, Repackaged or Relabeled Last Year	[2003]	6,200,304		
26. Amount Sold or Distributed **(Not Custom Applied)** Last Year - US	[2003]	6,426,772		
27. Amount Sold or Distributed Last Year - Foreign	[2003]	-0-		
28. Amount To Be Produced, Repackaged, Relabeled This Year	[2004]	600,000		

17. Product Code (If "4" and chemical, attach formulation per instructions. If "4" and Device, go to Item 19) [1]	18. EPA Product Registration Number 61468-5			
19. Product Name Coal Tar Creosote (General Applications)			20. Product Classification [2] [1]	
21. Product Type [2]	22. Market Sold To [1]	23. Use Classification [1]	24. Unit of measure: P=Pound G=Gallons K= Kilograms L=Liters T=Tons U=Units [G]	
25. Amount Produced, Repackaged, or Relabeled Last Year	[2003]	-0-		
26. Amount Sold or Distributed **(Not Custom Applied)** Last Year - US	[2003]	-0-		
27. Amount Sold or Distributed Last Year - Foreign	[2003]	-0-		
28. Amount To Be Produced, Repackaged, Relabeled This Year	[2004]	-0-		

CONTINUED ON ATTACHED SHEET ( )

EPA Reviewer	EPA Office	Postmark Date	Date Reviewed	29. Reporting Year **2003**

EPA

United States Environmental Protection Agency

FORM APPROVED OMB NO. 2070-0078

Pesticide Report for Pesticide-Producing and Device-Producing Establishments

Section 7, Federal Insecticide, Fungicide, and Rodenticide Act, (7 U.S.C. 136e)

Note: Read all instructions before completing. Production and distribution/sales volumes information reported on this form is treated as business confidential.

1. **Company Name & HQ mailing address:**
Koppers Inc.
436 Seventh Avenue - Suite 1600

2. City: Pittsburgh

3. State or Country: PA

4. Zip Code: 15219

5. Name of Establishment Officer: K. J. Fitzgerald

6. Title: V.P. & General Mgr Carbon Materials & Chemicals Div.

7. Date *(Mo., Day, Year)*: 2/24/04

8. EPA Est. No.
000061-WV-001 ANNUAL
KOPPERS INDUSTRIES, INC.- FOLLANSBEE
100 KOPPERS RD
FOLLANSBEE
WV 26037

14. Telephone Number: 412-227-2708

15. Signature of Establishment Officer or US Agent: Kenneth J. Fitzgerald

16.

PESTICIDE PRODUCTION INFORMATION

17. Product Code (If "4" and chemical, attach formulation per instructions. If "4" and Device, go to Item 19): 1	18. EPA Product Registration Number: 61468-1			
19. Product Name: Coal Tar Creosote (Pressure Applications)			20. Product Classification: 2 1	
21. Product Type: 2	22. Market Sold To: 1	23. Use Classification: 1	24. Unit of measure: P=Pound G=Gallons K= Kilograms L=Liters T=Tons U=Units: G	
25. Amount Produced, Repackaged or Relabeled Last Year	[2003]	100,842		
26. Amount Sold or Distributed **(Not Custom Applied)** Last Year - US	[2003]	100,842		
27. Amount Sold or Distributed Last Year - Foreign	[2003]	-0-		
28. Amount To Be Produced, Repackaged, Relabeled This Year	[2004]	150,000		

17. Product Code (If "4" and chemical, attach formulation per instructions. If "4" and Device, go to Item 19): 1	18. EPA Product Registration Number: 61468-3			
19. Product Name: Creosote Solution (Pressure Applications)			20. Product Classification: 2 1	
21. Product Type: 2	22. Market Sold To: 1	23. Use Classification: 1	24. Unit of measure: P=Pound G=Gallons K= Kilograms L=Liters T=Tons U=Units: G	
25. Amount Produced, Repackaged or Relabeled Last Year	[2003]	1,949,089		
26. Amount Sold or Distributed **(Not Custom Applied)** Last Year - US	[2003]	1,949,089		
27. Amount Sold or Distributed Last Year - Foreign	[2003]	-0-		
28. Amount To Be Produced, Repackaged, Relabeled This Year	[2004]	2,000,000		

17. Product Code (If "4" and chemical, attach formulation per instructions. If "4" and Device, go to Item 19): 1	18. EPA Product Registration Number: 61468-5			
19. Product Name: Coal Tar Creosote (General Applications)			20. Product Classification: 2 1	
21. Product Type: 2	22. Market Sold To: 1	23. Use Classification: 1	24. Unit of measure: P=Pound G=Gallons K= Kilograms L=Liters T=Tons U=Units: G	
25. Amount Produced, Repackaged, or Relabeled Last Year	[2003]	413		
26. Amount Sold or Distributed **(Not Custom Applied)** Last Year - US	[2003]	413		
27. Amount Sold or Distributed Last Year - Foreign	[2003]	-0-		
28. Amount To Be Produced, Repackaged, Relabeled This Year	[2004]	500		

CONTINUED ON ATTACHED SHEET ( ) THIS IS PAGE 1 OF 1

EPA Reviewer	EPA Office	Postmark Date	Date Reviewed	29. Reporting Year **2003**

EPA Form 3540-16 (Rev. 08-01) Previous editions are obsolete.

EPA

United States Environmental Protection Agency

FORM APPROVED OMB NO. 2070-0078

Pesticide Report for Pesticide-Producing and Device-Producing Establishments

Section 7, Federal Insecticide, Fungicide, and Rodenticide Act, (7 U.S.C. 136e)

Note: Read all instructions before completing. Production and distribution/sales volumes information reported on this form is treated as business confidential.

1. Company Name & HQ mailing address: Koppers Inc. 436 Seventh Avenue - Suite 1600	8. EPA Est. No. 061468-DNK-001 ANNUAL KOPPERS DENMARK A/S AVERNAKKE 5800 NYBORG DENMARK 12. State or Country
2. City Pittsburgh	
3. State or Country PA / 4. Zip Code 15219	
5. Name of Establishment Officer K. J. Fitzgerald	
6. Title V.P. & Gen. Manager Carbon Matls & Chemicals Division / 7. Date (Mo., Day, Year) 2/24/04	
14. Telephone Number 412-227-2708	16.
15. Signature of Establishment Officer or US Agent	

PESTICIDE PRODUCTION INFORMATION

17. Product Code (If "4" and chemical, attach formulation per instructions. If "4" and Device, go to Item 19) [1]	18. EPA Product Registration Number 61468-1			
19. Product Name Coal Tar Creosote (Pressure Application)			20. Product Classification [2] [1]	
21. Product Type [2]	22. Market Sold To [2]	23. Use Classification [1]	24. Unit of measure: P=Pound G=Gallons K= Kilograms L=Liters T=Tons U=Units [G]	
25. Amount Produced, Repackaged or Relabeled Last Year	[2003]	4,745,286		
26. Amount Sold or Distributed **(Not Custom Applied)** Last Year - US	[2003]	1,241,504		
27. Amount Sold or Distributed Last Year - Foreign	[2003]	3,503,783		
28. Amount To Be Produced, Repackaged, Relabeled This Year	[2004]	3,578,720		

17. Product Code (If "4" and chemical, attach formulation per instructions. If "4" and Device, go to Item 19) [ ]	18. EPA Product Registration Number			
19. Product Name			20. Product Classification [ ] [ ]	
21. Product Type [ ]	22. Market Sold To [ ]	23. Use Classification [ ]	24. Unit of measure: P=Pound G=Gallons K= Kilograms L=Liters T=Tons U=Units [ ]	
25. Amount Produced, Repackaged or Relabeled Last Year	[2003]			
26. Amount Sold or Distributed **(Not Custom Applied)** Last Year - US	[2003]			
27. Amount Sold or Distributed Last Year - Foreign	[2003]			
28. Amount To Be Produced, Repackaged, Relabeled This Year	[2004]			

17. Product Code (If "4" and chemical, attach formulation per instructions. If "4" and Device, go to Item 19) [ ]	18. EPA Product Registration Number			
19. Product Name			20. Product Classification [ ] [ ]	
21. Product Type [ ]	22. Market Sold To [ ]	23. Use Classification [ ]	24. Unit of measure: P=Pound G=Gallons K= Kilograms L=Liters T=Tons U=Units [ ]	
25. Amount Produced, Repackaged, or Relabeled Last Year	[2003]			
26. Amount Sold or Distributed **(Not Custom Applied)** Last Year - US	[2003]			
27. Amount Sold or Distributed Last Year - Foreign	[2003]			
28. Amount To Be Produced, Repackaged, Relabeled This Year	[2004]			

CONTINUED ON ATTACHED SHEET ( ) THIS IS PAGE 1 OF 1

EPA Reviewer	EPA Office	Postmark Date	Date Reviewed	29. Reporting Year **2003**

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EPA

United States Environmental Protection Agency

FORM APPROVED OMB NO. 2070-0078

Pesticide Report for Pesticide-Producing and Device-Producing Establishments

Section 7, Federal Insecticide, Fungicide, and Rodenticide Act, (7 U.S.C. 136e)

Note: Read all instructions before completing. Production and distribution/sales volumes information reported on this form is treated as business confidential.

1. **Company Name & HQ mailing address:**
Koppers Inc.
436 Seventh Avenue - Suite 1600

2. **City** Pittsburgh

3. **State or Country** PA

4. **Zip Code** 15219

5. **Name of Establishment Officer** K. J. Fitzgerald

6. **Title** V.P. & General Mgr Carbon Materials & Chemicals Division

7. **Date** *(Mo., Day, Year)* 2/24/04

8. **EPA Est. No.**
000061-OR-001 ANNUAL
KOPPERS INDUSTRIES, INC.- PORTLAND
7540 NW ST HELENS RD
PORTLAND
OR 97210

14. **Telephone Number** 412-227-2708

16.

15. **Signature of Establishment Officer or US Agent** Kenneth Fitzgerald

PESTICIDE PRODUCTION INFORMATION

17. Product Code (If "4" and chemical, attach formulation per instructions. If "4" and Device, go to Item 19) ☐

18. EPA Product Registration Number NO PRODUCTION

19. Product Name

20. Product Classification ☐ ☐

21. Product Type ☐

22. Market Sold To ☐

23. Use Classification ☐

24. Unit of measure: P=Pound G=Gallons K= Kilograms L=Liters T=Tons U=Units ☐

25. Amount Produced, Repackaged or Relabeled Last Year [2003]

26. Amount Sold or Distributed **(Not Custom Applied)** Last Year - US [2003]

27. Amount Sold or Distributed Last Year - Foreign [2003]

28. Amount To Be Produced, Repackaged, Relabeled This Year [2004]

17. Product Code (If "4" and chemical, attach formulation per instructions. If "4" and Device, go to Item 19) ☐

18. EPA Product Registration Number

19. Product Name

20. Product Classification ☐ ☐

21. Product Type ☐

22. Market Sold To ☐

23. Use Classification ☐

24. Unit of measure: P=Pound G=Gallons K= Kilograms L=Liters T=Tons U=Units ☐

25. Amount Produced, Repackaged or Relabeled Last Year [2003]

26. Amount Sold or Distributed **(Not Custom Applied)** Last Year - US [2003]

27. Amount Sold or Distributed Last Year - Foreign [2003]

28. Amount To Be Produced, Repackaged, Relabeled This Year [2004]

17. Product Code (If "4" and chemical, attach formulation per instructions. If "4" and Device, go to Item 19) ☐

18. EPA Product Registration Number

19. Product Name

20. Product Classification ☐ ☐

21. Product Type ☐

22. Market Sold To ☐

23. Use Classification ☐

24. Unit of measure: P=Pound G=Gallons K= Kilograms L=Liters T=Tons U=Units ☐

25. Amount Produced, Repackaged, or Relabeled Last Year [2003]

26. Amount Sold or Distributed **(Not Custom Applied)** Last Year - US [2003]

27. Amount Sold or Distributed Last Year - Foreign [2003]

28. Amount To Be Produced, Repackaged, Relabeled This Year [2004]

CONTINUED ON ATTACHED SHEET ( ) THIS IS PAGE 1 OF 1

EPA Reviewer	EPA Office	Postmark Date	Date Reviewed	29. Reporting Year **2003**

EPA Form 3540-16 (Rev. 08-01) Previous editions are obsolete.

EPA

United States Environmental Protection Agency

FORM APPROVED OMB NO. 2070-0078

Pesticide Report for Pesticide-Producing and Device-Producing Establishments

Section 7, Federal Insecticide, Fungicide, and Rodenticide Act, (7 U.S.C. 136e)

Note: Read all instructions before completing. Production and distribution/sales volumes information reported on this form is treated as business confidential.

1. **Company Name & HQ mailing address:**
Koppers Inc.
436 Seventh Avenue - Suite 1600

2. City: Pittsburgh

3. State or Country: PA

4. Zip Code: 15219

5. Name of Establishment Officer: K. J. Fitzgerald

6. Title: V.P. & Gen. Mgr. Carbon Matls & Chemicals Division

7. Date *(Mo., Day, Year)*: 2/24/04

8. EPA Est. No.

000061-IL-001 ANNUAL

KOPPERS INDUSTRIES, INC.
3900 S LARAMIE AVE
STICKNEY
IL 60402

14. Telephone Number: 412-227-2708

15. **Signature of Establishment Officer or US Agent**: Kevin J. Fitzgerald

16.

PESTICIDE PRODUCTION INFORMATION

17. Product Code (If "4" and chemical, attach formulation per instructions. If "4" and Device, go to Item 19)	1	18. EPA Product Registration Number	61468-1
19. Product Name	Coal Tar Creosote (Pressure Applications)	20. Product Classification	2 1
21. Product Type	2	22. Market Sold To	1
23. Use Classification	1	24. Unit of measure: P=Pound G=Gallons K= Kilograms L=Liters T=Tons U=Units	G
25. Amount Produced, Repackaged or Relabeled Last Year	[2003]	-0-	
26. Amount Sold or Distributed **(Not Custom Applied)** Last Year - US	[2003]	-0-	
27. Amount Sold or Distributed Last Year - Foreign	[2003]	-0-	
28. Amount To Be Produced, Repackaged, Relabeled This Year	[2004]	-0-	

17. Product Code (If "4" and chemical, attach formulation per instructions. If "4" and Device, go to Item 19)	1	18. EPA Product Registration Number	61468-3
19. Product Name	Creosote Solution (Pressure Applications)	20. Product Classification	2 1
21. Product Type	2	22. Market Sold To	1
23. Use Classification	1	24. Unit of measure: P=Pound G=Gallons K= Kilograms L=Liters T=Tons U=Units	G
25. Amount Produced, Repackaged or Relabeled Last Year	[2003]	11,118,000	
26. Amount Sold or Distributed **(Not Custom Applied)** Last Year - US	[2003]	11,473,000	
27. Amount Sold or Distributed Last Year - Foreign	[2003]	-0-	
28. Amount To Be Produced, Repackaged, Relabeled This Year	[2004]	14,000,000	

17. Product Code (If "4" and chemical, attach formulation per instructions. If "4" and Device, go to Item 19)	1	18. EPA Product Registration Number	61468-5
19. Product Name	Coal Tar Creosote (General Applications)	20. Product Classification	2 1
21. Product Type	2	22. Market Sold To	1
23. Use Classification	1	24. Unit of measure: P=Pound G=Gallons K= Kilograms L=Liters T=Tons U=Units	G
25. Amount Produced, Repackaged, or Relabeled Last Year	[2003]	-0-	
26. Amount Sold or Distributed **(Not Custom Applied)** Last Year - US	[2003]	-0-	
27. Amount Sold or Distributed Last Year - Foreign	[2003]	-0-	
28. Amount To Be Produced, Repackaged, Relabeled This Year	[2004]	-0-	

CONTINUED ON ATTACHED SHEET ( ) THIS IS PAGE 1 OF 1

EPA Reviewer	EPA Office	Postmark Date	Date Reviewed	29. Reporting Year **2003**

EPA Form 3540-16 (Rev. 08-01) Previous editions are obsolete.

EPA

United States Environmental Protection Agency

FORM APPROVED OMB NO. 2070-0078

Pesticide Report for Pesticide-Producing and Device-Producing Establishments

Section 7, Federal Insecticide, Fungicide, and Rodenticide Act, (7 U.S.C. 136e)

Note: Read all instructions before completing. Production and distribution/sales volumes information reported on this form is treated as business confidential.

1. **Company Name & HQ mailing address:**
Koppers Inc.
436 Seventh Avenue - Suite 1600

2. City Pittsburgh

3. State or Country PA

4. Zip Code 15219

5. Name of Establishment Officer K. J. Fitzgerald

6. Title V.P. & Gen. Manager Carbon Matls & Chemicals Division

7. Date *(Mo., Day, Year)* 2/24/04

8. EPA Est. No.
061468-GBR-001 ANNUAL

PORT CLARENCE WORKS
HUNTSMAN DRIVE, PORT CLARENCE
MIDDLESBROUGH

UNITED KINGDOM

12. State or Country

13. Zip Code

14. Telephone Number 412-227-2708

15. Signature of Establishment Officer or US Agent

16.

PESTICIDE PRODUCTION INFORMATION

17. Product Code (If "4" and chemical, attach formulation per instructions. If "4" and Device, go to Item 19)	1
18. EPA Product Registration Number	61468-1
19. Product Name	Coal Tar Creosote (Pressure Applications)
20. Product Classification	2 1
21. Product Type	2
22. Market Sold To	2
23. Use Classification	1
24. Unit of measure: P=Pound G=Gallons K= Kilograms L=Liters T=Tons U=Units	G
25. Amount Produced, Repackaged or Relabeled Last Year	[2003] 4,339,236
26. Amount Sold or Distributed **(Not Custom Applied)** Last Year - US	[2003] 243,266
27. Amount Sold or Distributed Last Year - Foreign	[2003] 3,919,845
28. Amount To Be Produced, Repackaged, Relabeled This Year	[2004] 3,979,450

17. Product Code (If "4" and chemical, attach formulation per instructions. If "4" and Device, go to Item 19)	
18. EPA Product Registration Number	
19. Product Name	
20. Product Classification	
21. Product Type	
22. Market Sold To	
23. Use Classification	
24. Unit of measure: P=Pound G=Gallons K= Kilograms L=Liters T=Tons U=Units	
25. Amount Produced, Repackaged or Relabeled Last Year	[2003]
26. Amount Sold or Distributed **(Not Custom Applied)** Last Year - US	[2003]
27. Amount Sold or Distributed Last Year - Foreign	[2003]
28. Amount To Be Produced, Repackaged, Relabeled This Year	[2004]

17. Product Code (If "4" and chemical, attach formulation per instructions. If "4" and Device, go to Item 19)	
18. EPA Product Registration Number	
19. Product Name	
20. Product Classification	
21. Product Type	
22. Market Sold To	
23. Use Classification	
24. Unit of measure: P=Pound G=Gallons K= Kilograms L=Liters T=Tons U=Units	
25. Amount Produced, Repackaged, or Relabeled Last Year	[2003]
26. Amount Sold or Distributed **(Not Custom Applied)** Last Year - US	[2003]
27. Amount Sold or Distributed Last Year - Foreign	[2003]
28. Amount To Be Produced, Repackaged, Relabeled This Year	[2004]

CONTINUED ON ATTACHED SHEET ( ) THIS IS PAGE 1 OF 1

EPA Reviewer	EPA Office	Postmark Date	Date Reviewed	29. Reporting Year **2003**

EPA Form 3540-16 (Rev. 08-01) Previous editions are obsolete.

FILE- CREOSOTE - FIFRA

2002 EPA Establishment Report Distribution

M. H. Juba – K 1800 – no attachments
J. T. Dietz – K 1650 – no attachments
G. P. Traczek – Stickney + attachments
S. E. Lish – Clairton + attachments
S. E. Lish – Follansbee + attachments
N. H. Weinstein – Woodward + attachments
Amos Kamerer – Portland + attachments
P. Beck - Nyborg + attachments
W. J. Cameron + attachments

Author's Direct Telephone 412-227-2424, Fax 412-227-2423, e-mail allisonbl@koppers.com

KOPPERS INDUSTRIES

Koppers Industries, Inc.
436 Seventh Avenue
Pittsburgh, PA 15219-1800

Telephone: (412) 227-2001
Fax: (412) 227-2423

February 20, 2003

U.S. Environmental Protection Agency
Region 3
Attention: Ms. Kyla Townsend - McIntyre
Pesticides Programs (3WC32)
1650 Arch Street
Philadelphia, PA 19103-2029

UPS Tracking Number S 218 6973 082

RE: Pesticide Reports for Pesticide-Producing Establishments:
000061-IL-001
000061-AL-001
000061-OR-001
061468-PA-001
000061-WV-001
061468-DNK-001

Dear Ms. Townsend - McIntyre

It was a pleasure speaking with you this past week. You will find enclosed the 2002 Pesticide Report for Pesticide-Producing Establishments [EPA Form 3540-16 (Revised 08/01)] for Koppers Industries plants located in:

Stickney, Illinois
Dolomite, Alabama
Portland, Oregon
Clairton, Pennsylvania
Follansbee, West Virginia
Nyborg, Denmark

The above forms are in compliance with Section 7 of the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA), as amended (92 Stat. 829, 7 U.S.C. 136e). You indicated that you would graciously forward the above reports to the approiate offices as necessary.

Please contact me at the number below if you have any questions regarding the contents of these forms.

Sincerely,

B. L. Allison III
Product Safety Specialist

Enclosure

Author's Direct Telephone 412-227-2424, Fax 412-227-2423, e-mail allisonbl@koppers.com

FILE - BNJ. - EPA - PESTICIDE REG.

KOPPERS INDUSTRIES

To: S. E. Lish – Clairton/Follansbee
G. P. Traczek – Stickney
N. H. Weinstein – Woodward
W. J. Cameron – K 1600
A. Kamerer - Portland

From: B. L. Allison III
Location: K 1800
Date: January 24, 2003

Subject: 2002 EPA Establishment Report Forms

Attached are copies of the 2002 EPA Establishment Report Forms that each of you needs to complete and return to me for filing with the agency. Do not send your completed forms to the EPA. If you will complete the information requested in blocks 18, 25, 26, 27, and 28 – we will complete the balance of the required data and return a copy of the completed form that is filed with the agency for your files.

Bill, your form is for the amount of material we imported from Nyborg.

We currently hold the following pesticidal registrations.

Coal Tar Creosote (Pressure Applications)	EPA Peg. No. 61468-1
Creosote Solution (Pressure Applications)	EPA Peg. No. 61468-3
Coal Tar Creosote (General Applications)	EPA Reg. No. 61468-5
Creosote-Manufacturing Use	EPA Reg. No. 61468-6

Please complete the information needed and return the forms to me before February 14, 2003.

Let me know if you have any questions. And yes Amos – I would guess your numbers are all "0" but I didn't want to leave you out..

B. L. Allison III

cc: No attachments
J. T. Dietz – K 1650

FILE: ENVIRON. - CREOSOTE

KOPPERS INDUSTRIES

To: S. E. Lish – Clairton/Follansbee
M. J. Mancione – Stickney
N. H. Weinstein – Woodward
A. S. Kamerer – Portland

From: B. L. Allison III
Location: K 1800
Date: December 21, 2001

Subject: 2001 EPA Establishment Report Forms

Attached are copies of the 2001 EPA Establishment Report Forms that each of you needs to complete and return to me for filing with the agency. Do not send your completed forms to the EPA. If you will complete the information requested in blocks 18, 25, 26, 27, and 28 – we will complete the balance of the required data and return a copy of the completed form that is filed with the agency for your files.

We currently hold the following pesticidal registrations.

Coal Tar Creosote (Pressure Applications)	EPA Peg. No. 61468-1
Creosote Solution (Pressure Applications)	EPA Peg. No. 61468-3
Coal Tar Creosote (General Applications)	EPA Reg. No. 61468-5
Creosote-Manufacturing Use	EPA Reg. No. 61468-6

Please complete the information needed and return the forms to me before the end of the seminar activities on January 22, 2002. Let me know if you have any questions. And yes Amos – I would guess your numbers are all "0" but I wanted you to be included.

B. L. Allison III

Cc: No attachments
J. T. Dietz – K 1650

INTEROFFICE COMMUNICATION

To: J. T. Dietz
Location: K-1650
Subject: November Highlights

From: A. S. Kamerer
Location: Portland
Date: 12/07/99

PLANT OPERATIONS

SAFETY/ENVIRONMENTAL

	MONTH	YTD
HOURS WORKED	2,125	22,827
LOST TIME ACCIDENTS	0	0

There were no lost time accidents or OSHA reportable incidents during the month. Our S H & E team met during the month, completing their 2nd procedure, materials handling and started working on their 3rd procedure, fume system. Still no word from ODEQ regarding our response to the NON that was issued in June. **The most important news is the completion during the month of our 5th year without a lost time accident. This is an accomplishment that all of us here at the terminal are very proud to be a part of.**

SHIPMENTS/PRODUCTION

COMMODITY	UNIT	MONTH	YTD	PRIOR YTD	Inc/Dec. YTD
CREOSOTE	GALS	0	10,333	292,255	-281,922
PENCIL PITCH	TONS	59.6	737.9	1,687.6	-949.7
LIQUID PITCH	TONS	2,332.8	36,308.5	29,286.1	7,022.4
INTALCO TRANSSHIPMENT	TONS	2,059.0	22,682.6	21,114.1	1,568.5
TOTAL LIQUID SHIPPED	TONS	4,391.8	58,991.1	50,400.2	8,590.9
MELTER PRODUCTION	TONS	4,347.3	58,047.9	50,823.6	7,224.3

We shipped 3 truck loads of target pencil pitch, plus 79 truck loads and 19 tank cars loads of liquid pitch. Liquid pitch shipments and production were down this month, reflecting the loss of the ALCOA, Wenatchee business to Stickney. We had our annual internal steam boiler inspection during the month.

MANUFACTURING COSTS (000)

MONTH			YEAR TO DATE		
ACTUAL	ESTIMATE	PROGRAM	ACTUAL	PROGRAM	+/- $
$ 198	$180	$174	$1832	$1913	-$81

Actual expenses for the month were up as a result of some start up expenses hitting us earlier than expected.

KOPPERS INDUSTRIES

Koppers Industries, Inc.
436 Seventh Avenue
Pittsburgh, PA 15219-1800

Telephone: (412) 227-2001
Fax: (412) 227-2423

November 30, 1999

Mr. Amos Kamerer
Koppers Industries, Inc.
7540 NW Saint Helens Road
Portland, OR 97210-3663

RE: Portland Terminal – Safety Excellence Achievement

Dear Amos,

CONGRATULATIONS! It is with great personal and professional pleasure that I am able to recognize the entire Portland Team for completing five years without a lost time accident.

This represents a remarkable accomplishment on the part of each and every Portland employee. An accomplishment of this magnitude is only possible when every individual accepts personal responsibility for their safety and that of their co-workers every hour of every day. Each Portland employee should be individually and collectively proud of this achievement.

Don't stop now. Let's look toward another year without any incidents. I have every confidence that YOU and YOUR TEAM can make it happen.

Thanks to you and the entire Portland Team.

Sincerely,

Michael H. Juba, CIH
Manager, Safety & Occupational Health

/ss
c: R. Collins – K-1700
W. Turner – K-1700
B. Duke – K-1700
K. Fitzgerald – K-1600
J. Dietz – K-1650

State of Oregon

Department of Environmental Quality

INVOICE

AIR CONTAMINANT DISCHARGE PERMIT ANNUAL FEE

FOR THE PERIOD: 1/1/2004 THROUGH 12/31/2004

Invoice Number: **AQCDP04-0454**
Invoice Date: 10/9/2003
Invoice Due Date: **12/1/2003**

Permit Number: 262930

To: Koppers Industries Inc
436 7th Ave
Pittsburgh, PA 15219

Location:

Koppers Industries, Inc.
7540 NW ST. HELENS ROAD
PORTLAND, OR 97210

Itemized fee as per Table 2 as revised 3/14/2002

Ref #		Category #	Amount Due	Date Due
6	SIMPLE PERMIT ANNUAL FEE	105	$3,200	
	Total		**$3,200**	12/1/2003
	Total due with 7-day Late Fee		**$3,360**	12/8/2003
	Total due with 30-day Late Fee		**$3,520**	12/31/2003
	Total due with 60-day Late Fee		**$3,840**	1/30/2004

For Questions, please contact Armalinda Fernandez at (503) 229-5584
1-800-452-4011 (Oregon Only)
(TTY) 503-229-6993

Cut here and return bottom portion with payment

DEQ COPY

Remit and make checks payable to:

Dept. of Environmental Quality
Attn: Business Office
811 SW Sixth Avenue
Portland, OR 97204-1390

Facility Name: Koppers Industries, Inc.
Permit Number: 262930
Region: NWR

05-10040-11110-8101 $3,200

Invoice Number: AQCDP04-0454
Amount Due **$3,200**
Amount Enclosed:

AQCDP04-0454

Date: 11/29/99 2:50 PM
Sender: Jill Merrill <jmerrill@air-comp.com>
To: Traci Self; Amos Kamerer; 4wcowell <wcowell@air-comp.com>
cc: 2kcoy <kcoy@air-comp.com>; CARL MUELLER
Priority: Normal
Subject: Vapor Pressure Error

Traci asked me to check what effect an error in the Benzo a flouranthene
vapor pressure data would have on the Permit submittal.

It appears as though the VOC emissions reported in the Application may
be 25% higher than the corrected version.

Note, also, that the calculation assumed that the scrubbing solution at
the time of permit submission was heavy distillate oil. I understand
that the plant is now using creosote. This would probably generate
higher emissions and a different HAP Mix.

It might be a good idea to at least run the numbers to see where the
creosote would put us in terms of HAPS and VOC compared to the H.O.

Best Regards,

Jill

RFC822.TXT

Date: 11/29/99 2:45 PM
Sender: CARL MUELLER
To: TJ Turner; Amos Kamerer; Traci Self; Mark Cilley
Priority: Normal
Subject: Portland VOC's Rev. 1

Mark Cilley left me a message on Wednesday regarding the fact that the attached spreadsheet was stating organic flowrates in lb/hour for the fume recovery system. In fact the flowrates should be in lbs/month (720 hours).

I forgot to change the units once I exported the data out of Chemcad. Also the pressure indication is 14.7 psia or atmospheric pressure. That is the system operating pressure.

CARL

Fume Scrubber VOC Totals.xls

Portland Pitch Fume Recovery System

Stream Name	Total VOC's	Total VOC's	Total VOC's	Total VOC's
Temp F	**180**	**200**	**250**	**270**
Pres **psia**	14.7	14.7	14.7	14.7
Enth MMBtu/month	0.52507	0.81265	2.358	3.5157
Total lbmol/month	11.7469	16.7454	37.9921	51.8441
Total lb/month	1777.9392	2617.7559	6396.4932	8963.4717
Total std V scf-month	4457.68	6354.52	14417.19	19673.71

Flowrates in lb/month of organic compounds

Indan	19.5288	19.5288	19.5288	19.5288
Indene	58.5859	58.586	58.586	58.586
Naphthalene	294.5995	298.2032	298.5391	298.5674
Benzothiophene	57.5154	58.526	58.586	58.586
Quinoline	19.3103	22.4753	23.4344	23.4345
Isoquinoline	3.1282	3.6921	3.9056	3.9057
2-MthNaphthalene	163.0388	191.106	200.8089	200.8751
1-MthNaphthalene	50.6701	60.0313	64.0906	64.1635
1,6-Dimethnapth	17.8532	27.6681	42.5136	42.9477
2,3-Dimethnapth	14.8443	24.0987	41.916	42.899
Acenaphthylene	15.4273	27.2039	61.8606	68.3995
Acenaphthene	358.4521	572.201	1009.8369	1048.4708
Dibenzofuran	283.1031	382.5362	497.049	499.8163
Fluorene	95.2753	175.1978	481.9659	562.4271
4-Methdibenzfur	4.7558	9.9742	42.1862	59.3996
3-Methdibenzfur	3.6738	7.8534	36.1388	53.8089
2-Methdibenzfur	3.4426	7.3925	34.6854	52.3348
4,6-Dimethdibzf	2.078	4.639	25.0756	41.4309
3-Methylfluoren	3.0954	6.5895	31.1525	48.1576
2-Methylfluoren	2.7977	5.9939	29.0939	45.8021
1-Methylfluoren	2.7859	5.9702	29.01	45.7043
Diphenylene Sulf	10.4303	21.2988	92.3139	139.9437
Phenanthrene	134.4934	280.1973	1291.3151	2030.1818
Anthracene	63.5072	130.0014	583.1645	913.6663
Benzo(c)quinoli	1.2753	3.0282	20.6309	40.2298
Dibenzopyrrole	14.1104	31.9444	191.9344	352.2038
Cyclopentaphnan	7.6584	17.8874	117.0889	224.5023
2-Methphenanthr	2.5283	5.9012	38.6033	74.0636
1-Methphenanthr	2.1393	5.0301	33.6259	65.3497
Fluoranthene	48.1148	105.5562	598.1177	1092.8715
Pyrene	17.759	42.1164	288.672	574.1313
11H-Benzo(a)flu	0.2543	0.6893	6.5205	14.8198
11H-Benzo(b)flu	0.3952	1.0608	9.8192	22.1399
Benzo(c)fluoren	0.3446	0.9326	8.7965	19.9799
Benzo(a)fluoren	0.2986	0.8095	7.6578	17.4046

2-Methylpyrene	0	0	0	0
1-Methylpyrene	0	0	0	0
Benzonaphthothio	0.0054	0.0156	0.1712	0.4144
Benzo(c)phenanth	0.1197	0.2999	2.3982	5.153
Chrysene	0.254	0.6995	6.9027	16.0145
Benz(a)anthrac	0.1621	0.4658	5.0468	12.0996
Triphenylene	0.0706	0.1833	1.5948	3.5448
Benzo(e)pyrene	0.0032	0.0098	0.1183	0.2971
Bz(j)fluoranthe	0.0067	0.0228	0.356	0.9747
Bz(k)fluoranthe	0.0067	0.0228	0.356	0.9747
Bz(b)fluoranthe	0.0168	0.0451	0.4361	1.0168
Benzo(a)pyrene	0.0093	0.0282	0.3423	0.8572
Benzo(b)chrysene	0.0042	0.0131	0.1717	0.4427
Dibenz(a,h)anthr	0.0082	0.0247	0.2997	0.7524
Benzoperylene	0.0001	0.0003	0.0066	0.0198
Dibenzo(a,h)pyrn	0.0007	0.0023	0.0338	0.0901
Dibenzo(a,i)pyrn	0.0007	0.0023	0.0338	0.0901
Very Heavy Tar	0	0	0	0.0001

Stream Name	Total VOC's	Total VOC's	Total VOC's	Total VOC's
Temp F	**180**	**200**	250	270
Pres **psia**	14.7	14.7	14.7	14.7
Enth MMBtu/month	0.91359	1.5295	4.0071	5.3574
Total lbmol/month	13.9125	20.7533	47.18	62.1082
Total lb/month	2331.1787	3634.7422	8701.3271	11524.7588
Total std V scf - month	5279.5	7875.44	17903.8	23568.74

Flowrates in lb/month

Indan	19.5288	19.5288	19.5288	19.5288
Indene	58.586	58.586	58.586	58.586
Naphthalene	294.3968	298.1903	298.5395	298.5685
Benzothiophene	57.4626	58.5227	58.586	58.586
Quinoline	19.2231	22.451	23.4344	23.4344
Isoquinoline	3.1129	3.6872	3.9056	3.9057
2-MthNaphthalene	162.2719	190.8754	200.811	200.877
1-MthNaphthalene	50.4154	59.9443	64.0928	64.1655
1,6-Dimethnapth	17.6901	27.5441	42.5347	42.9497
2,3-Dimethnapth	14.7004	23.9769	41.956	42.906
Acenaphthylene	15.2501	27.0263	62.0357	68.5366
Acenaphthene	354.9071	569.2061	1011.1895	1049.0439
Dibenzofuran	280.908	381.1988	497.2014	499.8323
Fluorene	94.2232	174.0504	483.8885	563.9311
4-Methdibenzfur	4.7003	9.9016	42.468	59.8178
3-Methdibenzfur	3.6306	7.7953	36.4049	54.2719
2-Methdibenzfur	3.4021	7.3376	34.9465	52.8048
4,6-Dimethdibzf	2.0533	4.6038	25.2882	41.9038
3-Methylfluoren	3.0589	6.5402	31.3983	48.6383
2-Methylfluoren	2.7646	5.9489	29.3294	46.2834
1-Methylfluoren	2.753	5.9254	29.2451	46.1852
Diphenylene Sulf	10.3075	21.1404	93.0403	141.3616
Phenanthrene	132.8951	278.0808	1302.047	2052.9783
Anthracene	62.7525	129.02	588.0233	924.0056
Benzo(c)quinoli	1.26	3.0046	20.836	40.8649
Dibenzopyrrole	13.9409	31.6971	193.7847	357.449
Cyclopentaphnan	7.5658	17.7476	118.249	228.0172
2-Methphenanthr	2.4979	5.8554	38.9852	75.2236
1-Methphenanthr	2.1135	4.991	33.9612	66.391
Fluoranthene	47.5164	104.7094	604.1179	1110.22
Pyrene	17.5375	41.7765	291.67	583.8818
11H-Benzo(a)flu	0.2512	0.6839	6.5888	15.0806
11H-Benzo(b)flu	0.3902	1.0522	9.9238	22.5342
Benzo(c)fluoren	0.3403	0.9251	8.8897	20.335
Benzo(a)fluoren	0.295	0.8032	7.738	17.7109
2-Methylpyrene	0	0	0	0
1-Methylpyrene	0	0	0	0

Benzonaphthothio	0.0053	0.0154	0.1733	0.4225
Benzo(c)phenanth	0.1178	0.2968	2.4268	5.2524
Chrysene	0.2507	0.6936	6.9781	16.3068
Benz(a)anthrac	0.1599	0.4619	5.1018	12.3201
Triphenylene	0.0694	0.1814	1.6139	3.6138
Benzo(e)pyrene	0.0032	0.0097	0.1197	0.3029
Bz(b)fluoranthe	**565.8334**	**1028.6398**	**2270.0698**	**2481.447**
Bz(j)fluoranthe	0.0066	0.0226	0.36	0.9928
Bz(k)fluoranthe	0.0066	0.0226	0.36	0.9928
Benzo(a)pyrene	0.0092	0.0279	0.3461	0.873
Benzo(b)chrysene	0.0041	0.013	0.1738	0.4514
Dibenz(a,h)anthr	0.0081	0.0244	0.3033	0.7672
Benzoperylene	0.0001	0.0003	0.0066	0.0202
Dibenzo(a,h)pyrn	0.0007	0.0023	0.0342	0.0919
Dibenzo(a,i)pyrn	0.0007	0.0023	0.0342	0.0919
Very Heavy Tar	0	0	0	0.0001

Date: 11/23/99 10:50 AM
Sender: CARL MUELLER
To: Amos Kamerer; Mark Cilley; Traci Self
Priority: Normal
Subject: Portland VOC's

Attached is a spreadsheet containing total VOC emmissions for the Portland fume recovery system. Four temperature cases have been done assuming 720 hours on operation (1 month) without changing out the heavy oil. In reviewing the totals numbers I discovered an error in the creation of Benzo(b)fluoranthene. When I created the component a while ago in the Chemcad database, I entered the boiling point in degrees F instead of degrees C. Thus the total VOC numbers submitted in the previous permit is incorrect, but much higher than they should have been. There are two worksheets in the spreadsheet. The one called erroreous contains the wrong data generated previously. The one entitled "Corrected" is self explanatory. At least the error is in a beneficial direction. I'll be out tomorrow but back on Monday if you have questions.

Carl

Fume Scrubber VOC Totals.xls

corrected

Portland Pitch Fume Recovery System

Stream Name	Total VOC's	Total VOC's	Total VOC's	Total VOC's
Temp F	**180**	**200**	**250**	**270**
Pres psia	14.7	14.7	14.7	14.7
Enth MMBtu/h	0.52507	0.81265	2.358	3.5157
Total lbmol/h	11.7469	16.7454	37.9921	51.8441
Total lb/month.	1777.9392	2617.7559	6396.4932	8963.4717
Total std V scfh	4457.68	6354.52	14417.19	19673.71

Atmosphere press

Flowrates in lb/h of organic compounds

Indan	19.5288	19.5288	19.5288	19.5288
Indene	58.5859	58.586	58.586	58.586
Naphthalene	294.5995	298.2032	298.5391	298.5674
Benzothiophene	57.5154	58.526	58.586	58.586
Quinoline	19.3103	22.4753	23.4344	23.4345
Isoquinoline	3.1282	3.6921	3.9056	3.9057
2-MthNaphthalene	163.0388	191.106	200.8089	200.8751
1-MthNaphthalene	50.6701	60.0313	64.0906	64.1635
1,6-Dimethnapth	17.8532	27.6681	42.5136	42.9477
2,3-Dimethnapth	14.8443	24.0987	41.916	42.899
Acenaphthylene	15.4273	27.2039	61.8606	68.3995
Acenaphthene	358.4521	572.201	1009.8369	1048.4708
Dibenzofuran	283.1031	382.5362	497.049	499.8163
Fluorene	95.2753	175.1978	481.9659	562.4271
4-Methdibenzfur	4.7558	9.9742	42.1862	59.3996
3-Methdibenzfur	3.6738	7.8534	36.1388	53.8089
2-Methdibenzfur	3.4426	7.3925	34.6854	52.3348
4,6-Dimethdibzf	2.078	4.639	25.0756	41.4309
3-Methylfluoren	3.0954	6.5895	31.1525	48.1576
2-Methylfluoren	2.7977	5.9939	29.0939	45.8021
1-Methylfluoren	2.7859	5.9702	29.01	45.7043
Diphenylene Sulf	10.4303	21.2988	92.3139	139.9437
Phenanthrene	134.4934	280.1973	1291.3151	2030.1818
Anthracene	63.5072	130.0014	583.1645	913.6663
Benzo(c)quinoli	1.2753	3.0282	20.6309	40.2298
Dibenzopyrrole	14.1104	31.9444	191.9344	352.2038
Cyclopentaphnan	7.6584	17.8874	117.0889	224.5023
2-Methphenanthr	2.5283	5.9012	38.6033	74.0636
1-Methphenanthr	2.1393	5.0301	33.6259	65.3497
Fluoranthene	48.1148	105.5562	598.1177	1092.8715
Pyrene	17.759	42.1164	288.672	574.1313
11H-Benzo(a)flu	0.2543	0.6893	6.5205	14.8198
11H-Benzo(b)flu	0.3952	1.0608	9.8192	22.1399
Benzo(c)fluoren	0.3446	0.9326	8.7965	19.9799
Benzo(a)fluoren	0.2986	0.8095	7.6578	17.4046
2-Methylpyrene	0	0	0	0
1-Methylpyrene	0	0	0	0
Benzonaphthothio	0.0054	0.0156	0.1712	0.4144
Benzo(c)phenanth	0.1197	0.2999	2.3982	5.153
Chrysene	0.254	0.6995	6.9027	16.0145
Benz(a)anthrac	0.1621	0.4658	5.0468	12.0996
Triphenylene	0.0706	0.1833	1.5948	3.5448
Benzo(e)pyrene	0.0032	0.0098	0.1183	0.2971
Bz(j)fluoranthe	0.0067	0.0228	0.356	0.9747
Bz(k)fluoranthe	0.0067	0.0228	0.356	0.9747
Bz(b)fluoranthe	0.0168	0.0451	0.4361	1.0168
Benzo(a)pyrene	0.0093	0.0282	0.3423	0.8572
Benzo(b)chrysene	0.0042	0.0131	0.1717	0.4427
Dibenz(a,h)anthr	0.0082	0.0247	0.2997	0.7524
Benzoperylene	0.0001	0.0003	0.0066	0.0198
Dibenzo(a,h)pyrn	0.0007	0.0023	0.0338	0.0901
Dibenzo(a,i)pyrn	0.0007	0.0023	0.0338	0.0901
Very Heavy Tar	0	0	0	0.0001

Stream Name	Total VOC's	Total VOC's	Total VOC's	Total VOC's
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Pres psia	14.7	14.7	14.7	14.7
Enth MMBtu/h	0.91359	1.5295	4.0071	5.3574
Total lbmol/h	13.9125	20.7533	47.18	62.1082
Total lb/h	2331.1787	3634.7422	8701.3271	11524.7588
Total std V scfh	5279.5	7875.44	17903.8	23568.74

Flowrates in lb/h

Indan	19.5288	19.5288	19.5288	19.5288
Indene	58.586	58.586	58.586	58.586
Naphthalene	294.3968	298.1903	298.5395	298.5685
Benzothiophene	57.4626	58.5227	58.586	58.586
Quinoline	19.2231	22.451	23.4344	23.4344
Isoquinoline	3.1129	3.6872	3.9056	3.9057
2-MthNaphthalene	162.2719	190.8754	200.811	200.877
1-MthNaphthalene	50.4154	59.9443	64.0928	64.1655
1,6-Dimethnapth	17.6901	27.5441	42.5347	42.9497
2,3-Dimethnapth	14.7004	23.9769	41.956	42.906
Acenaphthylene	15.2501	27.0263	62.0357	68.5366
Acenaphthene	354.9071	569.2061	1011.1895	1049.0439
Dibenzofuran	280.908	381.1988	497.2014	499.8323
Fluorene	94.2232	174.0504	483.8885	563.9311
4-Methdibenzfur	4.7003	9.9016	42.468	59.8178
3-Methdibenzfur	3.6306	7.7953	36.4049	54.2719
2-Methdibenzfur	3.4021	7.3376	34.9465	52.8048
4,6-Dimethdibzf	2.0533	4.6038	25.2882	41.9038
3-Methylfluoren	3.0589	6.5402	31.3983	48.6383
2-Methylfluoren	2.7646	5.9489	29.3294	46.2834
1-Methylfluoren	2.753	5.9254	29.2451	46.1852
Diphenylene Sulf	10.3075	21.1404	93.0403	141.3616
Phenanthrene	132.8951	278.0808	1302.047	2052.9783
Anthracene	62.7525	129.02	588.0233	924.0056
Benzo(c)quinoli	1.26	3.0046	20.836	40.8649
Dibenzopyrrole	13.9409	31.6971	193.7847	357.449
Cyclopentaphnan	7.5658	17.7476	118.249	228.0172
2-Methphenanthr	2.4979	5.8554	38.9852	75.2236
1-Methphenanthr	2.1135	4.991	33.9612	66.391
Fluoranthene	47.5164	104.7094	604.1179	1110.22
Pyrene	17.5375	41.7765	291.67	583.8818
11H-Benzo(a)flu	0.2512	0.6839	6.5888	15.0806
11H-Benzo(b)flu	0.3902	1.0522	9.9238	22.5342
Benzo(c)fluoren	0.3403	0.9251	8.8897	20.335
Benzo(a)fluoren	0.295	0.8032	7.738	17.7109
2-Methylpyrene	0	0	0	0
1-Methylpyrene	0	0	0	0
Benzonaphthothio	0.0053	0.0154	0.1733	0.4225
Benzo(c)phenanth	0.1178	0.2968	2.4268	5.2524

Chrysene	0.2507	0.6936	6.9781	16.3068
Benz(a)anthrac	0.1599	0.4619	5.1018	12.3201
Triphenylene	0.0694	0.1814	1.6139	3.6138
Benzo(e)pyrene	0.0032	0.0097	0.1197	0.3029
Bz(b)fluoranthe	565.8334	1028.6398	2270.0698	2481.447
Bz(j)fluoranthe	0.0066	0.0226	0.36	0.9928
Bz(k)fluoranthe	0.0066	0.0226	0.36	0.9928
Benzo(a)pyrene	0.0092	0.0279	0.3461	0.873
Benzo(b)chrysene	0.0041	0.013	0.1738	0.4514
Dibenz(a,h)anthr	0.0081	0.0244	0.3033	0.7672
Benzoperylene	0.0001	0.0003	0.0066	0.0202
Dibenzo(a,h)pyrn	0.0007	0.0023	0.0342	0.0919
Dibenzo(a,i)pyrn	0.0007	0.0023	0.0342	0.0919
Very Heavy Tar	0	0	0	0.0001

Date: 11/29/99 2:50 PM
Sender: Jill Merrill <jmerrill@air-comp.com>
To: Traci Self; Amos Kamerer; 4wcowell <wcowell@air-comp.com>
cc: 2kcoy <kcoy@air-comp.com>; CARL MUELLER
Priority: Normal
Subject: Vapor Pressure Error

Traci asked me to check what effect an error in the Benzo a flouranthene
vapor pressure data would have on the Permit submittal.

It appears as though the VOC emissions reported in the Application may
be 25% higher than the corrected version.

Note, also, that the calculation assumed that the scrubbing solution at
the time of permit submission was heavy distillate oil. I understand
that the plant is now using creosote. This would probably generate
higher emissions and a different HAP Mix.

It might be a good idea to at least run the numbers to see where the
creosote would put us in terms of HAPS and VOC compared to the H.O.

Best Regards,

Jill

RFC822.TXT

KOPPERS INDUSTRIES

FAX TRANSMITTAL

7540 N.W. Saint Helens Rd.
Portland, Oregon 97210-3663
Phone: (503) 286-3681
Fax: (503) 285-2831
Web Page: www.koppers.com

TO: Traci Self DATE: 5/13/99

FROM: Amos TOTAL # OF PAGES: 7

The attached per our tele. conversation —

IF THIS TRANSMITTAL IS IN ERROR, PLEASE CALL 503-286-3681 FAX # 503-285-2831

Post-it® Fax Note 7671	Date 5/7	# of pages 2
To SANDRA HART	From MIKE ROSEN	
Co./Dept.	Co.	
Phone #	Phone #	
Fax #	Fax #	

DRAFT

229-670

Ms. Sandra Hart
Senior Engineer
Northwest Natural Gas Company
220 N.W. Second Avenue
Portland, OR 97209

Re: Monitoring Requirements following Tank Installation

Wics 280 0153

Dear Sandi:

As you are aware, representatives from the Oregon Department of Environmental Quality (DEQ) met to discuss the proposed tank installation with representatives of Koppers Industries on May 5, 1999. Also in attendance was Rob Ede of Hahn and Associates. The meeting focused on methods for installing piles that will support the tank and post tank installation monitoring. Based on the information presented at this meeting, DEQ believes that the proposed method for pile installation (driven steel piles) minimizes the potential for providing a conduit for contaminant migration to the alluvial or basalt aquifers and should be considered the method of choice. However, given the number of piles proposed (216) DEQ believes that post installation groundwater monitoring is critical.

Due to the time constraints associated with the tank installation, DEQ is unable to provide specific details regarding post installation groundwater monitoring. However, before DEQ can provide approval of the tank installation, we need your assurances that a post installation groundwater monitoring program will be developed and implemented that, at a minimum, includes the following elements:

- The installation of two monitoring wells downgradient of the tank location. One monitoring well must be screened to monitor the alluvial groundwater zone while the second monitoring well must be screened to monitor the basalt groundwater zone.
- Monitoring wells must be installed in a timely manner in order to assure that baseline groundwater data (i.e., prior to tank installation) is obtained.
- The development of a groundwater monitoring program that is adequate for assessing potential impacts resulting from the tank installation.

Because of the uncertainty regarding the potential for contaminant migration, the results of the groundwater monitoring program will be used to evaluate whether additional tanks may be installed in the future. Should exacerbation of existing soil and/or groundwater contamination occur, it is unlikely that DEQ will grant approval for the installation of additional tanks. In addition, DEQ will also require evaluation of cleanup options to address the exacerbation of existing contamination.

DEQ understands that the installation of the tank and accompanying pipeline is critical to the operations at the Koppers facility. Moreover, DEQ is aware of the environmental benefits to be gained by handling pencil pitch in liquid rather than solid form. However, because of the historic soil and groundwater contamination at the former GASCO facility, it is critical that the tank installation proceed in the most environmentally sound manner practicable.

Please contact Mike Rosen at 229-6712 if you have any questions or wish to discuss this matter further.

Sincerely,

Eric L. Blischke
Project Manager
Waste Management and Cleanup Division

cc: Mary Wahl, WMCD
Mike Rosen, NWR/DEQ
Michele Shupe, WR/DEQ
Karla Urbanowicz, NWR/DEQ
→ Neil Mullane, NWR/DEQ

NW Natural
220 NW 2ND AVENUE
PORTLAND, OR 97209
TEL 503.226.4211
www.nwnatural.com

May 11, 1999

Mr. Eric L. Blischke
Project Manager
Waste Management and Cleanup Division
Oregon Department of Environmental Quality
811 SW Sixth Avenue
Portland, OR 97204-1390

Re: Monitoring Requirements Following Tank Installation

Dear Eric,

Thank you so much for your prompt review and quick response to Kopper's tank installation at the former Gasco facility. I know how busy you are.

N W Natural will assure the Oregon Department of Environmental Quality (DEQ) that the following monitoring guidelines will be followed.

- Two monitoring wells will be installed downgradient of the tank location. One will be screened to monitor the alluvial groundwater zone while the second monitoring well be screened to monitor the basalt groundwater zone. The location of the wells will be approved by the DEQ.

- The monitoring wells will be installed as soon as arrangements can be made.

- Hahn and Associates will work with the DEQ to develop a groundwater-monitoring program for assessing potential impacts of the tank installation.

N W Natural understands future tank installation will depend on the results of the groundwater monitoring program and that if the contamination is exacerbated clean-up options will be addressed.

We appreciate your consideration of this matter. The site is a working facility. The improvements will not only benefit Koppers business, but will provide surface environmental benefits at the site.

Sincerely,

Sandra K. Hart, Manager
Risk, Environment and Land

cc: Mark Dodson, N W Natural
Mary Wahl, WMCD
Mike Rosen, NWR/DEQ
Dick Bach, Stoel Rives
Amos Kamerer, Koppers Industries, Inc
Rob Ede, Hahn and Associates

DR : T

May 11, 1999

Mr. Amos Kamerer
Koppers Industries, Inc.
7540 NW Saint Helens Road
Portland, OR 97210-3663

Re: N W Natural/Koppers Industries, Inc Lease Agreement – October 1,1998
Leasehold Improvements

Dear Amos,

This is in regard to my letter dated 4-16-99 stating that N W Natural did not have an objection to your installation of a liquid or solid coal tar processing plant on the property as long as the Oregon Department of Enviromental Quality (DEQ) approved the installation.

On May 7, 1999, N W Natural received a letter from the DEQ which approved of the installation with several conditions.

- Two monitoring wells will be installed to monitor potential impacts from the installation. One well will be installed in the alluvial zone and one to into bedrock. N W Natural will install the bedrock well as part of the remedial investigation on the site. However, the company was not planning on the installation of an additional alluvial well. It is my understanding from our telephone conversation, May 7, 1999, that Koppers Industries, Inc. will be responsible for the installation of the alluvial well.

- Hahn and Associates is preparing for the installation of the wells. They are sending the well location plan to the DEQ for approval, and will install the wells hopefully by next week. Regular monitoring activities on the site are being conducted today and will baseline the condition in the existing Monitoring Well No. 14.

- N W Natural will work with the DEQ to develop a monitoring program for the wells.

- Approval for future tank installation will depend on the results of the groundwater-monitoring program.

- If the tank installation exacerbates the contamination Koppers Industries Inc. and N W Natural will address clean-up options.

N W Natural agreed to the above in a letter to the DEQ dated May 10, 1999. (Copied to Koppers Industries, Inc.).

These agreements allow Koppers Industries Inc. to proceed with the tank installation. Hopefully everything will go will for you. Please let me know if you need anything further.

Sincerely,

S. K. H.

Sandra K. Hart, Manager
Risk Envirdment and Land

KOPPERS
INDUSTRIES

Koppers Industries, Inc.
7540 N.W. St. Helens Road
Portland, OR 97210-3663

Amos S. Kamerer
Plant Manager

Telephone: 503-286-3681
Fax: 503-285-2831

RECEIVED
APR 5 1999

March 31,1999

Mr. Steve Fortuna, Remedial Action Specialist
Sit Assessment Program
Oregon Department of Environmental Quality
2020 NW Fourth Avenue, Suite 400
Portland, Oregon 97201-400

Reference: Site Assessment Review Notice

Dear Mr. Fortuna,

As a follow up to our conversation on March 16th, below please find my narrative of the information that was requested, per your March 5, 1999 Site Assessment Information Request.

Facility Name: Koppers Industries, Inc.
7540 NW Saint Helens Road
Portland, Oregon 97210-3663

Facility owners and Operators: Koppers Industries, Inc.
Same address as above
Telephone (503) 286-3681
Amos S. Kamerer, Plant Manager

Property Owner: NW Natural
220 NW Second Ave.
Portland, Oregon 97209
(503) 721-2478

Koppers Company, Inc. (KCO) came on this site in 1965. It was a terminal facility for creosote and for refined tar products. In the early years, coal tar distillates were barged in from the KCO plant in Fontana, Calif. for blending into Creosote, which was sold as a wood preservative. Refined tar products, such as pavement sealer base for black topping, where railed in from Fontana. These refined tars where stored in the tank cars that they shipped in while at the terminal. They were then heated in these same tank cars, and then loaded into tank trucks for bulk deliveries, or into 55-gallon drums for small lot deliveries, to our customers in the Northwest.

Then in mid 1970's, a small batch distillation column was built on the site to produce coal tar binder pitch, which was supplied to a local aluminum production facility. Crude coal tar, which is the raw material used in this distillation process, was again barged in from Fontana. This operation only lasted for approximately 18 months, when the market for this material was lost to competitor; and this operation was never restarted, after then. Thus, this 18-month period was the only time that any actual production occurred on this site.

In 1984, and in addition to our normal terminal operations, KCO started to import coal tar binder pitch from Asia in solid form, better know as pencil pitch. The majority of this material, about 80% of the total, was shipped directly off of the bulk vessels to our customers, via hopper railroad cars. However, to insure our customers of a back up supply, a storage building was built on the site, to store the other 20% of the pencil pitch that was being imported.

In 1987 KCO installed a fume recovery system, to service the rail car creosote unloading operation. This is where the creosote was heated in the tank cars and then off loaded into our storage tanks.

In June of 1988, a British based firm bought out KCO by the name of Beazer PLC. On December 29,1988 Koppers Industries, Inc. (KII) was formed, as a LBO company, by our upper management. Thus, at that time, Beazer assumed all of the past liabilities of KCO. KII then assumed any new liabilities, from that time forward.

In 1989/1990, KII built a melter operation on the site. This entailed the conversion of two of our existing storage tanks, one into a melter tank and one into a storage tank for truck shipments. These tanks were fitted with hot oil piping inside of them, to provide the heat transfer necessary to melt the solid pitch and then to keep it hot in the shipping tank. These tanks, as well as new tank car and tank truck loading stations, were then also added to the fume recovery system.

In 1992 a second storage building was built, for additional storage of pencil pitch.

Today, KII no longer terminals either creosote or refined tars through this facility, all that we do today is to terminal the imported binder pitch for the aluminum industry. Also, we are currently under construction to build a new pipe line and a new storage tank, from the existing NW Natural river dock, that is used by their other tenant, Pacific Northern Oil Fuels, as a marine fuels operation. This will permit us to bring in liquid pitch directly from Asia, which is a much more environmentally friendly method of handling this product, rather than in the pencil form. Our schedule is to have this project completed in the forth quarter of this year; we then expect to be only receiving liquid pitch by the end of the year 2002.

Our site is approximately 6.4 acres and the tax lot numbers are as follows:

Personal Property Tax # P-07-08910-01
Manufacturing Real Property Tax # R-96112-1111

KII's normal operating schedule is from 4:00PM on Sunday's through 4:00 PM on Friday's. During the weekend period that KII is normally not operating, NW Natural has Pinkerton Security on their site as their night watchmen. Pinkerton is under contract to NW Natural, however, they have to come through the KII portion of the total site, to check on one of the NW Natural operations. Thus, Pinkerton comes through the KII site once every hour while we are gone, and they will notify us whenever there is any kind of a problem on our site.

The area immediately surrounding this site is considered industrial.

Attached please find a map and tank list for the site. All of the tanks listed are above ground and most are in contained areas.

There are no known chemical or waste storage areas on our site.

We have no waste treatment systems on-site.

There are 4 monitoring wells on site, that KCO drilled for back ground information, when they came on site in 1995. These wells have been capped over the years.

Attached please find a copy of the most recent, 1997-1998 Hazardous Substance Information Survey for the Oregon State Fire Marshal, this covers all chemical products used or stored at the site.

The only waste product that is generated is used motor oil and it is recycled into our process. There are no chemical or waste treatment systems on the site.

Attached please find a list of the hazardous and non-hazardous wastes removed from the site, since KII's assumed the operation of the site.

The following is a list of all of our regulatory permits:

Name of Permit	Permit Number	Issue Date and Agency	Expiration Date
NPDES-Waste Discharge Permit	# 101642	2/03/99 by ODEQ	1/31/2004
Air Containment Discharge Permit	# 26-2930	Renewal in progress by ODEQ	Not Applicable
Industrial Wastewater Discharge Permit	# 314.001	12/31/94 by City of Portland Environmental Services	10/01/99

During the KII operation of this site, we have had only one reportable spill, on 1/28/98. A copy of the Spill/Release Report, OERS No. 98-0227 is attached.

If you have any questions, please feel free to call me at #286-3681

Sincerely,

Amos S, Kamerer

CC: Traci Self, Koppers Industries, Inc.
Sandra K. Hart, NW Natural

FORM COMPANY

Due Date: NOVEMBER 30, 1998 1997-1998 (5) Facility ID Number 006202

OREGON STATE FIRE MARSHAL
HAZARDOUS SUBSTANCE INFORMATION SURVEY

PLEASE TYPE OR PRINT ONLY CHANGES OR ADDITIONS IN THE [BRACKETED] AREAS TO THE RIGHT OR BELOW THE PREPRINTED DATA

SECTION A HAZARDOUS SUBSTANCE PRESENCE Check the correct box to the left.

[X] YES [ ] NO Are there hazardous substances present at this site in reportable quantities?
If yes, complete sections A, B, C, and D. If no, complete sections A, B and C.
A hazardous substance is any substance for which a Material Safety Data Sheet (MSDS) is required. If a previously reported substance is no longer present, see instructions for Section A.

[ ] YES [X] NO Are there Extremely Hazardous Substances (EHS) at this site that meet the threshold planning quantities?

[ ] YES [X] NO Is this facility subject to the reporting requirements of Section 112(r) of the Clean Air Act?

SECTION B DEMOGRAPHIC DATA Complete, correct or add information in the [bracketed] areas.

1. SIC CODE 1: 2865 DEFINITION: CYCLIC CRUDES AND INTERMEDIATES
2. SIC CODE 2: DEFINITION:
3. BUSINESS ACTIVITY: CREOSOTE & COAL TAR PITCH TERMINAL
4. DUN & BRADSTREET #: 02-773-4359
5. MANAGER'S NAME: AMOS S KAMERER
6. SEND TO ATTENTION OF: AMOS S KAMERER
7. E-MAIL ADDRESS: amos_kamerer@koppers.com
8. BUSINESS NAME: KOPPERS INDUSTRIES INC
9. DEPT OR DIV:
10. SITE ADDRESS: 7540 NW ST HELENS RD
CITY: PORTLAND
COUNTY: MULTNOMAH
STATE: OR ZIP CODE: 97210-3663
11. MAILING ADDRESS: 7540 NW ST HELENS RD
CITY: PORTLAND
COUNTY: MULTNOMAH
STATE: OR ZIP CODE: 97210-3663
12. BUSINESS PHONE: 503-286-3681
13. NUMBER OF EMPLOYEES AT THIS SITE: 11
14. EMERGENCY ASSISTANCE CONTACT PERSON FOR THIS SITE: AMOS S KAMERER
15. EMERGENCY CONTACT PHONES: DAY 503-286-3681 NIGHT 503-246-804[illegible]
16. RESPONSIBLE FIRE DEPARTMENT: PORTLAND FIRE BUREAU

NOV 13 1998 OFFICE OF STATE FIRE MARSHAL

SPECIAL FIRE DEPARTMENT INFORMATION This section is for information the fire service needs to know in case of an emergency.

17. [X] YES [ ] NO WRITTEN EMERGENCY PLAN. IF YES, LOCATION: Office, melter control room
18. [ ] YES [X] NO AUTOMATIC FIRE SUPPRESSION SYSTEM PRESENT; e.g., sprinklered, halon system, etc.
19. [X] YES [ ] NO ARE STORAGE BUILDINGS/TANKS/AREAS PLACARDED ACCORDING TO NFPA 704?
20. [ ] YES [X] NO ARE OTHER TYPES OF PLACARDS USED?

SECTION C PERSON COMPLETING FORM
This person will be contacted to answer any questions needing clarification.

1. PRINT NAME: Amos S. Kamerer
2. SIGNATURE (REQUIRED):
3. DATE SURVEY COMPLETED: 11/18/98

AMOS S KAMERER
KOPPERS INDUSTRIES INC
7540 NW ST HELENS RD
PORTLAND OR 97210-3663

cc: T. Self
J. Maciniowski

RETAIN A COPY OF THIS SURVEY FOR 3 YEARS
PLEASE TYPE OR PRINT ALL ANSWERS. THANK-YOU

OSFMR12C

FORM
CHEMICAL

SECTION D

1997-1998 OREGON STATE FIRE MA[illegible]HAL
HAZ[illegible]DOUS SUBSTANCE INFORMATI[illegible] SURVEY
SUBSTANCE INFORMATION - TYPE OR PRINT ONLY CHANGES IN THE [BRACKETED] AREAS

(6)

Facility ID Numbe
006202

COMMON NAME/TRADE NAME: ACETONE
HAZARDOUS INGREDIENT
IN HIGHEST CONCENTRATION: ACETONE

EHS [ ] 112(r) [ ]

PHYSICAL STATE	UNIT OF MEASURE	AVG. AMT. CODE	MAX. AMT. CODE	AMT. IN CODE	AMT. OUT CODE	NUMBER OF DAYS ON SITE	STORAGE CODE	HAZARD CLASSES	CAS NO. (IF KNOWN)
USE TABLE I	USE TABLE II	USE TABLE III	USE TABLE III	USE TABLE III	USE TABLE III	3 DIGIT NO.	USE TABLES IV & V	USE TABLE VI	
1 - PURE 2 - MIXTURE [ ]							F 1 4		
2	2	01	01	01	00	365		3.2 6.3	0000067-64-1
1 - NEW 2 - NO LONGER REPORTABLE [ ]									UN/NA NO. (IF KNOWN
									1090

STORAGE LOCATIONS AT SITE: IN LAB AT W END OF BLDG

COMMON NAME/TRADE NAME: ACETYLENE
HAZARDOUS INGREDIENT
IN HIGHEST CONCENTRATION: ACETYLENE

EHS [ ] 112(r) [ ]

PHYSICAL STATE	UNIT OF MEASURE	AVG. AMT. CODE	MAX. AMT. CODE	AMT. IN CODE	AMT. OUT CODE	NUMBER OF DAYS ON SITE	STORAGE CODE	HAZARD CLASSES	CAS NO. (IF KNOWN)
USE TABLE I	USE TABLE II	USE TABLE III	USE TABLE III	USE TABLE III	USE TABLE III	3 DIGIT NO.	USE TABLES IV & V	USE TABLE VI	
1 - PURE 2 - MIXTURE [ ]							L 2 4		
3	3	11	11	11	00	365		2.1 6.3	0000074-86-2
1 - NEW 2 - NO LONGER REPORTABLE [ ]									UN/NA NO. (IF KNOWN
									1001

STORAGE LOCATIONS AT SITE: IN MAINTENANCE SHOP IN REAR OF BLDG. 2 CYLINDERS ON 2 PORTABLE CARTS IN FR ONT OF SHOP INSIDE

COMMON NAME/TRADE NAME: COAL TAR PITCH
HAZARDOUS INGREDIENT
IN HIGHEST CONCENTRATION: PYRENE

EHS [ ] 112(r) [ ]

PHYSICAL STATE	UNIT OF MEASURE	AVG. AMT. CODE	MAX. AMT. CODE	AMT. IN CODE	AMT. OUT CODE	NUMBER OF DAYS ON SITE	STORAGE CODE	HAZARD CLASSES	CAS NO. (IF KNOWN)
USE TABLE I	USE TABLE II	USE TABLE III	USE TABLE III	USE TABLE III	USE TABLE III	3 DIGIT NO.	USE TABLES IV & V	USE TABLE VI	
1 - PURE 2 - MIXTURE [ ]							R 1 4		
1	1	53	60	60	60	365		4.5 6.4	0065996-93-2
1 - NEW 2 - NO LONGER REPORTABLE [ ]									UN/NA NO. (IF KNOWN
									3077

STORAGE LOCATIONS AT SITE: PITCH STORAGE BUILDINGS

COMMON NAME/TRADE NAME: COAL TAR PITCH
HAZARDOUS INGREDIENT
IN HIGHEST CONCENTRATION: PYRENE

EHS [ ] 112(r) [ ]

PHYSICAL STATE	UNIT OF MEASURE	AVG. AMT. CODE	MAX. AMT. CODE	AMT. IN CODE	AMT. OUT CODE	NUMBER OF DAYS ON SITE	STORAGE CODE	HAZARD CLASSES	CAS NO. (IF KNOWN)
USE TABLE I	USE TABLE II	USE TABLE III	USE TABLE III	USE TABLE III	USE TABLE III	3 DIGIT NO.	USE TABLES IV & V	USE TABLE VI	
2 - PURE 2 - MIXTURE [1]							A 1 5		
2	2	41	42	52	52	365		4.5 6.4	0065996-93-2
1 - NEW 2 - NO LONGER REPORTABLE [ ]									UN/NA NO. (IF KNOWN
									3077

STORAGE LOCATIONS AT SITE: IN TANK FARM, TANK'S #65 AND #68

Koppers016685

FORM
CHEMICAL

1997-1998 OREGON STATE FIRE MARSHAL (7)

HAZARDOUS SUBSTANCE INFORMATION SURVEY

Facility ID Numbe 006202

SECTION D

SUBSTANCE INFORMATION - TYPE OR PRINT ONLY CHANGES IN THE [BRACKETED] AREAS

COMMON NAME/TRADE NAME: CREOSOTE
HAZARDOUS INGREDIENT
IN HIGHEST CONCENTRATION: COAL-TAR PITCH VOLATILES

EHS [ ] 112(r) [ ]

[2] 1 - PURE 2 - MIXTURE [ ]

[ ] 1 - NEW 2 - NO LONGER REPORTABLE

PHYSICAL STATE (USE TABLE I)	UNIT OF MEASURE (USE TABLE II)	AVG. AMT. CODE (USE TABLE III)	MAX. AMT. CODE (USE TABLE III)	AMT. IN CODE (USE TABLE III)	AMT. OUT CODE (USE TABLE III)	NUMBER OF DAYS ON SITE (3 DIGIT NO.)	STORAGE CODE (USE TABLES IV & V)	HAZARD CLASSES (USE TABLE VI)	CAS NO. (IF KNOWN)
2	2	10	10	00	00	365	D 1 4 / F 1 4	4.5 6.3	0008001-58-9

STORAGE LOCATIONS AT SITE: LAB IN REAR SAMPLE ROOM, AND ON ASPHALT IN REAR OF MAINTENANCE SHOP

UN/NA NO. (IF KNOWN): 3082

COMMON NAME/TRADE NAME: CREOSOTE
HAZARDOUS INGREDIENT
IN HIGHEST CONCENTRATION: COAL TAR PITCH VOLATILES

EHS [ ] 112(r) [ ]

[2] 1 - PURE 2 - MIXTURE [ ]

[ ] 1 - NEW 2 - NO LONGER REPORTABLE

PHYSICAL STATE (USE TABLE I)	UNIT OF MEASURE (USE TABLE II)	AVG. AMT. CODE (USE TABLE III)	MAX. AMT. CODE (USE TABLE III)	AMT. IN CODE (USE TABLE III)	AMT. OUT CODE (USE TABLE III)	NUMBER OF DAYS ON SITE (3 DIGIT NO.)	STORAGE CODE (USE TABLES IV & V)	HAZARD CLASSES (USE TABLE VI)	CAS NO. (IF KNOWN)
2	2	31	40	41	41	365	A 1 5 / Q 1 5	4.5 6.3	0008001-58-9

STORAGE LOCATIONS AT SITE: IN TANK FARM, TANKS #20, #39 AND #67, OR POSSIBLY IN A RAIL CAR ON TRACK # 3

UN/NA NO. (IF KNOWN): 3082

COMMON NAME/TRADE NAME: DIESEL #2
HAZARDOUS INGREDIENT
IN HIGHEST CONCENTRATION: PETROLEUM DISTILLATES

EHS [ ] 112(r) [ ]

[1] 1 - PURE 2 - MIXTURE [ ]

[ ] 1 - NEW 2 - NO LONGER REPORTABLE

PHYSICAL STATE (USE TABLE I)	UNIT OF MEASURE (USE TABLE II)	AVG. AMT. CODE (USE TABLE III)	MAX. AMT. CODE (USE TABLE III)	AMT. IN CODE (USE TABLE III)	AMT. OUT CODE (USE TABLE III)	NUMBER OF DAYS ON SITE (3 DIGIT NO.)	STORAGE CODE (USE TABLES IV & V)	HAZARD CLASSES (USE TABLE VI)	CAS NO. (IF KNOWN)
2	2	04	04	20	00	365	E 1 4	3.3 6.4	0068476-34-6

STORAGE LOCATIONS AT SITE: IN PLASTIC DRUMS JUST IN FRONT OF MAINTENANCE SHOP OUTSIDE

UN/NA NO. (IF KNOWN): 1993

COMMON NAME/TRADE NAME: GASOLINE
HAZARDOUS INGREDIENT
IN HIGHEST CONCENTRATION: PETROLEUM DISTILLATES

EHS [ ] 112(r) [ ]

[2] 1 - PURE 2 - MIXTURE [ ]

[ ] 1 - NEW 2 - NO LONGER REPORTABLE

PHYSICAL STATE (USE TABLE I)	UNIT OF MEASURE (USE TABLE II)	AVG. AMT. CODE (USE TABLE III)	MAX. AMT. CODE (USE TABLE III)	AMT. IN CODE (USE TABLE III)	AMT. OUT CODE (USE TABLE III)	NUMBER OF DAYS ON SITE (3 DIGIT NO.)	STORAGE CODE (USE TABLES IV & V)	HAZARD CLASSES (USE TABLE VI)	CAS NO. (IF KNOWN)
2	2	02	02	10	00	365	N 1 4 / F 1 4	3.1 6.3	0008006-61-9

STORAGE LOCATIONS AT SITE: IN OIL STORAGE ROOM IN MAINTENANCE SHOP, IN LOCKERS WITH CLOSED DOORS SE END OF BUILDING

UN/NA NO. (IF KNOWN): 1203

Koppers016686

FORM
CHEMICAL

SECTION D

1997-1998 OREGON STATE FIRE M/ SHAL
HAZ .RDOUS SUBSTANCE INFORMATION SURVEY

Facility ID Numbe
006202

SUBSTANCE INFORMATION - TYPE OR PRINT ONLY CHANGES IN THE [BRACKETED] AREAS

COMMON NAME/TRADE NAME: HEAVY CREOSOTE DISTILLATE
HAZARDOUS INGREDIENT
IN HIGHEST CONCENTRATION: CREOSOTE

EHS [ ] 112(r) [ ]

1 - PURE
2 - MIXTURE [1]

1 - NEW
2 - NO LONGER REPORTABLE [ ]

PHYSICAL STATE (USE TABLE I)	UNIT OF MEASURE (USE TABLE II)	AVG. AMT. CODE (USE TABLE III)	MAX. AMT. CODE (USE TABLE III)	AMT. IN CODE (USE TABLE III)	AMT. OUT CODE (USE TABLE III)	NUMBER OF DAYS ON SITE (3 DIGIT NO.)	STORAGE CODE (USE TABLES IV & V)	HAZARD CLASSES (USE TABLE VI)	CAS NO. (IF KNOWN)
2	2	30	30	30	00	365	A 1 5 Q 1 5	4.5 6.5	0065996-92-

UN/NA NO. (IF KNOWN): 3082

STORAGE LOCATIONS AT SITE: IN TANK FARM, TANKS #17 AND #33 OR POSSIBLY IN A RAIL CAR ON TRACK #3

COMMON NAME/TRADE NAME: LIGHT CREOSOTE DISTILLATE
HAZARDOUS INGREDIENT
IN HIGHEST CONCENTRATION: CREOSOTE

EHS [ ] 112(r) [ ]

1 - PURE
2 - MIXTURE [1]

1 - NEW
2 - NO LONGER REPORTABLE [ ]

PHYSICAL STATE (USE TABLE I)	UNIT OF MEASURE (USE TABLE II)	AVG. AMT. CODE (USE TABLE III)	MAX. AMT. CODE (USE TABLE III)	AMT. IN CODE (USE TABLE III)	AMT. OUT CODE (USE TABLE III)	NUMBER OF DAYS ON SITE (3 DIGIT NO.)	STORAGE CODE (USE TABLES IV & V)	HAZARD CLASSES (USE TABLE VI)	CAS NO. (IF KNOWN)
2	2	30	30	30	00	365	A 1 5 Q 1 5	4.5 6.5	0065996-92-1

UN/NA NO. (IF KNOWN): 3082

STORAGE LOCATIONS AT SITE: IN TANK FARM, TANKS #4 AND #23, OR POSSIBLY IN A RAIL CAR ON TRACK #3

COMMON NAME/TRADE NAME: METHYL SOLVENT CREOSOTE DISTILLATE
HAZARDOUS INGREDIENT
IN HIGHEST CONCENTRATION: CREOSOTE

EHS [ ] 112(r) [ ]

1 - PURE
2 - MIXTURE [2]

1 - NEW
2 - NO LONGER REPORTABLE [ ]

PHYSICAL STATE (USE TABLE I)	UNIT OF MEASURE (USE TABLE II)	AVG. AMT. CODE (USE TABLE III)	MAX. AMT. CODE (USE TABLE III)	AMT. IN CODE (USE TABLE III)	AMT. OUT CODE (USE TABLE III)	NUMBER OF DAYS ON SITE (3 DIGIT NO.)	STORAGE CODE (USE TABLES IV & V)	HAZARD CLASSES (USE TABLE VI)	CAS NO. (IF KNOWN)
2	2	30	30	30	00	365	A 1 5 Q 1 5	4.5 6.5	0065996-92-1

UN/NA NO. (IF KNOWN): 3082

STORAGE LOCATIONS AT SITE: IN TANK FARM, TANK #3 OR POSSIBLY IN A RAIL CAR ON TRACK #3

COMMON NAME/TRADE NAME: MOTOR OIL
HAZARDOUS INGREDIENT
IN HIGHEST CONCENTRATION: HIGHLY REFINED BASE OILS

EHS [ ] 112(r) [ ]

[2] 1 - PURE
2 - MIXTURE [ ]

1 - NEW
2 - NO LONGER REPORTABLE [ ]

PHYSICAL STATE (USE TABLE I)	UNIT OF MEASURE (USE TABLE II)	AVG. AMT. CODE (USE TABLE III)	MAX. AMT. CODE (USE TABLE III)	AMT. IN CODE (USE TABLE III)	AMT. OUT CODE (USE TABLE III)	NUMBER OF DAYS ON SITE (3 DIGIT NO.)	STORAGE CODE (USE TABLES IV & V)	HAZARD CLASSES (USE TABLE VI)	CAS NO. (IF KNOWN)
2	2	04	04	04	00	365	D 1 4	4.5	0064742-54-

UN/NA NO. (IF KNOWN): 1270

STORAGE LOCATIONS AT SITE: IN OIL STORAGE ROOM IN MAINTENANCE SHOP, SOUTHEND OF BUILDING

FORM
CHEMICAL

SECTION D

1997-1998 OREGON STATE FIRE MARSHAL
HAZARDOUS SUBSTANCE INFORMATION SURVEY

Facility ID Number: 006202

SUBSTANCE INFORMATION - TYPE OR PRINT ONLY CHANGES IN THE [BRACKETED] AREAS

COMMON NAME/TRADE NAME: NAPHTHALENE STILL RESIDUE
HAZARDOUS INGREDIENT
IN HIGHEST CONCENTRATION: NAPHTHALENE

EHS	112(r)	PHYSICAL STATE (USE TABLE I)	UNIT OF MEASURE (USE TABLE II)	AVG. AMT. CODE (USE TABLE III)	MAX. AMT. CODE (USE TABLE III)	AMT. IN CODE (USE TABLE III)	AMT. OUT CODE (USE TABLE III)	NUMBER OF DAYS ON SITE (3 DIGIT NO.)	STORAGE CODE (USE TABLES IV & V)	HAZARD CLASSES (USE TABLE VI)	CAS NO. (IF KNOWN)
		2	2	30	30	30	00	365	Q 1 5	4.5 6.3	0073665-18-6

1 - PURE 2 - MIXTURE
1 - NEW 2 - NO LONGER REPORTABLE

UN/NA NO. (IF KNOWN): 3082

STORAGE LOCATIONS AT SITE: IN TANK FARM, TANKS #34 AND #99, AND POSSIBLY IN A RAIL CAR ON TRACT #3/IN TANK FARM/TANKS #34 AND #102 AND POSSIBLE IN A RAILCAR ON TRACK #3

COMMON NAME/TRADE NAME: OXYGEN
HAZARDOUS INGREDIENT
IN HIGHEST CONCENTRATION: OXYGEN

EHS	112(r)	PHYSICAL STATE (USE TABLE I)	UNIT OF MEASURE (USE TABLE II)	AVG. AMT. CODE (USE TABLE III)	MAX. AMT. CODE (USE TABLE III)	AMT. IN CODE (USE TABLE III)	AMT. OUT CODE (USE TABLE III)	NUMBER OF DAYS ON SITE (3 DIGIT NO.)	STORAGE CODE (USE TABLES IV & V)	HAZARD CLASSES (USE TABLE VI)	CAS NO. (IF KNOWN)
		3	3	11	11	11	00	365	L 2 4	2.2 5.1	0007782-44-7

1 - PURE 2 - MIXTURE
1 - NEW 2 - NO LONGER REPORTABLE

UN/NA NO. (IF KNOWN): 1072

STORAGE LOCATIONS AT SITE: 6 CYLINDERS ON 3 CARTS IN REAR OF MAINTENANCE SHOP.

COMMON NAME/TRADE NAME: PERCHLOROETHYLENE
HAZARDOUS INGREDIENT
IN HIGHEST CONCENTRATION: PERCHLOROETHYLENE

EHS	112(r)	PHYSICAL STATE (USE TABLE I)	UNIT OF MEASURE (USE TABLE II)	AVG. AMT. CODE (USE TABLE III)	MAX. AMT. CODE (USE TABLE III)	AMT. IN CODE (USE TABLE III)	AMT. OUT CODE (USE TABLE III)	NUMBER OF DAYS ON SITE (3 DIGIT NO.)	STORAGE CODE (USE TABLES IV & V)	HAZARD CLASSES (USE TABLE VI)	CAS NO. (IF KNOWN)
		2	2	03	03	00	00	365	D 1 4	6.3 6.4	0000127-18-4

1 - PURE 2 - MIXTURE
1 - NEW 2 - NO LONGER REPORTABLE

UN/NA NO. (IF KNOWN): 1897

STORAGE LOCATIONS AT SITE: IN METAL DRUM OUTSIDE W END OF LAB

COMMON NAME/TRADE NAME: PETROLEUM PROCESS OIL, CALORIA HT
HAZARDOUS INGREDIENT
IN HIGHEST CONCENTRATION: PETROLEUM DISTILLATES

EHS	112(r)	PHYSICAL STATE (USE TABLE I)	UNIT OF MEASURE (USE TABLE II)	AVG. AMT. CODE (USE TABLE III)	MAX. AMT. CODE (USE TABLE III)	AMT. IN CODE (USE TABLE III)	AMT. OUT CODE (USE TABLE III)	NUMBER OF DAYS ON SITE (3 DIGIT NO.)	STORAGE CODE (USE TABLES IV & V)	HAZARD CLASSES (USE TABLE VI)	CAS NO. (IF KNOWN)
		2	2	20	20	10	00	365	A 1 5	4.5	

1 - PURE 2 - MIXTURE
1 - NEW 2 - NO LONGER REPORTABLE

UN/NA NO. (IF KNOWN):

STORAGE LOCATIONS AT SITE: IN ABOVE GROUND EXPANSION TANK NEXT TO TANK #65

Koppers016688

FORM
CHEMICAL

SECTION D

'997-1998 OREGON STATE FIRE MA HAL
HAZ_DOUS SUBSTANCE INFORMATION SURVEY (10)

Facility ID Numbe
006202

SUBSTANCE INFORMATION - TYPE OR PRINT ONLY CHANGES IN THE [BRACKETED] AREAS

COMMON NAME/TRADE NAME: PRIMING AND REFACTORY OIL
HAZARDOUS INGREDIENT
IN HIGHEST CONCENTRATION: CREOSOTE

EHS	112(r)	PHYSICAL STATE (USE TABLE I)	UNIT OF MEASURE (USE TABLE II)	AVG. AMT. CODE (USE TABLE III)	MAX. AMT. CODE (USE TABLE III)	AMT. IN CODE (USE TABLE III)	AMT. OUT CODE (USE TABLE III)	NUMBER OF DAYS ON SITE (3 DIGIT NO.)	STORAGE CODE (USE TABLES IV & V)	HAZARD CLASSES (USE TABLE VI)	CAS NO. (IF KNOWN)
	2 - PURE	2	2	20	20	20	00	365	A 1 4	4.5 6.5	0065996-92-1

1 - NEW
2 - NO LONGER REPORTABLE

UN/NA NO. (IF KNOWN): 3082

STORAGE LOCATIONS AT SITE: IN TANK FARM, TANK #19 AND I N DRUMS BEHIND MAINTENANCE SHOP

COMMON NAME/TRADE NAME: PROPANE
HAZARDOUS INGREDIENT
IN HIGHEST CONCENTRATION: PROPANE

EHS	112(r)	PHYSICAL STATE (USE TABLE I)	UNIT OF MEASURE (USE TABLE II)	AVG. AMT. CODE (USE TABLE III)	MAX. AMT. CODE (USE TABLE III)	AMT. IN CODE (USE TABLE III)	AMT. OUT CODE (USE TABLE III)	NUMBER OF DAYS ON SITE (3 DIGIT NO.)	STORAGE CODE (USE TABLES IV & V)	HAZARD CLASSES (USE TABLE VI)	CAS NO. (IF KNOWN)
	2 - PURE	3	2	04	04	20	00	365	L 2 6	2.1 6.3	0000074-98-6

1 - NEW
2 - NO LONGER REPORTABLE

UN/NA NO. (IF KNOWN): 1075

STORAGE LOCATIONS AT SITE: OUTSIDE IN THE REAR OF THE M AINTENANCE BUILDING, IN FORK LIFTS IN SAME ARE A, AND IN CANNISTERS AT TRACK #5 LOADING STATION.

COMMON NAME/TRADE NAME: QUINOLINE REFINED
HAZARDOUS INGREDIENT
IN HIGHEST CONCENTRATION: QUINOLINE

EHS	112(r)	PHYSICAL STATE (USE TABLE I)	UNIT OF MEASURE (USE TABLE II)	AVG. AMT. CODE (USE TABLE III)	MAX. AMT. CODE (USE TABLE III)	AMT. IN CODE (USE TABLE III)	AMT. OUT CODE (USE TABLE III)	NUMBER OF DAYS ON SITE (3 DIGIT NO.)	STORAGE CODE (USE TABLES IV & V)	HAZARD CLASSES (USE TABLE VI)	CAS NO. (IF KNOWN)
	2 - PURE	2	2	02	02	02	00	365	F 1 4	8.0	0000091-22-5

1 - NEW
2 - NO LONGER REPORTABLE

UN/NA NO. (IF KNOWN): 1760

STORAGE LOCATIONS AT SITE: IN REAR OF LAB IN SAMPLE ROO M

COMMON NAME/TRADE NAME: REFINED TAR
HAZARDOUS INGREDIENT
IN HIGHEST CONCENTRATION: HYDROCARBONS

EHS	112(r)	PHYSICAL STATE (USE TABLE I)	UNIT OF MEASURE (USE TABLE II)	AVG. AMT. CODE (USE TABLE III)	MAX. AMT. CODE (USE TABLE III)	AMT. IN CODE (USE TABLE III)	AMT. OUT CODE (USE TABLE III)	NUMBER OF DAYS ON SITE (3 DIGIT NO.)	STORAGE CODE (USE TABLES IV & V)	HAZARD CLASSES (USE TABLE VI)	CAS NO. (IF KNOWN)
	2 - PURE	2	2	30	30	30	00	365	Q 1 5 A 1 5	4.2	0065996-93-2

1 - NEW
2 - NO LONGER REPORTABLE

UN/NA NO. (IF KNOWN): 3257

STORAGE LOCATIONS AT SITE: IN TANK CARS ON TRACK #3 OR #5

Koppers016689

FORM
CHEMICAL

SECTION D

1997-1998 OREGON STATE FIRE MARSHAL
HAZARDOUS SUBSTANCE INFORMATION SURVEY (11)

Facility ID Numbe: 006202

SUBSTANCE INFORMATION - TYPE OR PRINT ONLY CHANGES IN THE [BRACKETED] AREAS

COMMON NAME/TRADE NAME: SODIUM HYDROXIDE
HAZARDOUS INGREDIENT
IN HIGHEST CONCENTRATION: SODIUM HYDROXIDE

EHS	112(r)	PHYSICAL STATE (USE TABLE I)	UNIT OF MEASURE (USE TABLE II)	AVG. AMT. CODE (USE TABLE III)	MAX. AMT. CODE (USE TABLE III)	AMT. IN CODE (USE TABLE III)	AMT. OUT CODE (USE TABLE III)	NUMBER OF DAYS ON SITE (3 DIGIT NO.)	STORAGE CODE (USE TABLES IV & V)	HAZARD CLASSES (USE TABLE VI)	CAS NO. (IF KNOWN)
[1] 1 - PURE 2 - MIXTURE		1	1	10	10	10	00	365	I 1 4	8.0 6.3	0001310-73-2
[ ] 1 - NEW 2 - NO LONGER REPORTABLE											

STORAGE LOCATIONS AT SITE: IN BOILER ROOM E END

UN/NA NO. (IF KNOWN): 1823

COMMON NAME/TRADE NAME: SODIUM SULFITE
HAZARDOUS INGREDIENT
IN HIGHEST CONCENTRATION: SODIUM SULFITE

EHS	112(r)	PHYSICAL STATE (USE TABLE I)	UNIT OF MEASURE (USE TABLE II)	AVG. AMT. CODE (USE TABLE III)	MAX. AMT. CODE (USE TABLE III)	AMT. IN CODE (USE TABLE III)	AMT. OUT CODE (USE TABLE III)	NUMBER OF DAYS ON SITE (3 DIGIT NO.)	STORAGE CODE (USE TABLES IV & V)	HAZARD CLASSES (USE TABLE VI)	CAS NO. (IF KNOWN)
[2] 1 - PURE 2 - MIXTURE [1]		1	1	10	10	10	00	365	I 1 4	9.0	0007757-83-7
[ ] 1 - NEW 2 - NO LONGER REPORTABLE											

STORAGE LOCATIONS AT SITE: IN BOILER ROOM E END

UN/NA NO. (IF KNOWN): 0000

COMMON NAME/TRADE NAME: TAR REFINED
HAZARDOUS INGREDIENT
IN HIGHEST CONCENTRATION: PETROLEUM HYDROCARBONS

EHS	112(r)	PHYSICAL STATE (USE TABLE I)	UNIT OF MEASURE (USE TABLE II)	AVG. AMT. CODE (USE TABLE III)	MAX. AMT. CODE (USE TABLE III)	AMT. IN CODE (USE TABLE III)	AMT. OUT CODE (USE TABLE III)	NUMBER OF DAYS ON SITE (3 DIGIT NO.)	STORAGE CODE (USE TABLES IV & V)	HAZARD CLASSES (USE TABLE VI)	CAS NO. (IF KNOWN)
[2] 1 - PURE 2 - MIXTURE [ ]		2	2	20	20	20	00	365	D 1 5	4.5 0	0065996-93-2
[ ] 1 - NEW 2 - NO LONGER REPORTABLE											

STORAGE LOCATIONS AT SITE: ON ASPHALT AT REAR OF MAINTE NANCE SHOP AND NORTH OF TRACT #5 LOADING STATI ON.

UN/NA NO. (IF KNOWN): 3082

COMMON NAME/TRADE NAME: XYLENE
HAZARDOUS INGREDIENT
IN HIGHEST CONCENTRATION: XYLENE

EHS	112(r)	PHYSICAL STATE (USE TABLE I)	UNIT OF MEASURE (USE TABLE II)	AVG. AMT. CODE (USE TABLE III)	MAX. AMT. CODE (USE TABLE III)	AMT. IN CODE (USE TABLE III)	AMT. OUT CODE (USE TABLE III)	NUMBER OF DAYS ON SITE (3 DIGIT NO.)	STORAGE CODE (USE TABLES IV & V)	HAZARD CLASSES (USE TABLE VI)	CAS NO. (IF KNOWN)
[2] 1 - PURE 2 - MIXTURE [1]		2	2	03	03	01	00	365	D 1 4 N 1 4	3.2 6.4	0001330-20-7
[ ] 1 - NEW 2 - NO LONGER REPORTABLE											

STORAGE LOCATIONS AT SITE: IN METAL DRUM OUTSIDE W END OF LAB ALSO IN PLASTIC BOTTLE IN LAB

UN/NA NO. (IF KNOWN): 1307

Koppers016690

FORM
CHEMICAL

SECTION D

1997-1998 OREGON STATE FIRE MARSHAL
HAZARDOUS SUBSTANCE INFORMATION SURVEY (12.)

Facility ID Numbe: 006202

SUBSTANCE INFORMATION - TYPE OR PRINT ONLY CHANGES IN THE [BRACKETED] AREAS

COMMON NAME/TRADE NAME: [Orange Solvent]
HAZARDOUS INGREDIENT IN HIGHEST CONCENTRATION:

EHS ☐ 112(r) ☐

1 - PURE
2 - MIXTURE [2]

1 - NEW
2 - NO LONGER REPORTABLE

PHYSICAL STATE (USE TABLE I)	UNIT OF MEASURE (USE TABLE II)	AVG. AMT. CODE (USE TABLE III)	MAX. AMT. CODE (USE TABLE III)	AMT. IN CODE (USE TABLE III)	AMT. OUT CODE (USE TABLE III)	NUMBER OF DAYS ON SITE (3 DIGIT NO.)	STORAGE CODE (USE TABLES IV & V)	HAZARD CLASSES (USE TABLE VI)	CAS NO. (IF KNOWN)
[2]	[2]	[4]	[4]	[04]	[00]	[365]	[D] [1] [L]	[4.5] [6.4]	[5989.27.5]
							[ ] [ ] [ ]		UN/NA NO. (IF KNOWN)

STORAGE LOCATIONS AT SITE: [Oil house in maintenance building.]

COMMON NAME/TRADE NAME:
HAZARDOUS INGREDIENT IN HIGHEST CONCENTRATION:

EHS ☐ 112(r) ☐

1 - PURE
2 - MIXTURE

1 - NEW
2 - NO LONGER REPORTABLE

PHYSICAL STATE (USE TABLE I)	UNIT OF MEASURE (USE TABLE II)	AVG. AMT. CODE (USE TABLE III)	MAX. AMT. CODE (USE TABLE III)	AMT. IN CODE (USE TABLE III)	AMT. OUT CODE (USE TABLE III)	NUMBER OF DAYS ON SITE (3 DIGIT NO.)	STORAGE CODE (USE TABLES IV & V)	HAZARD CLASSES (USE TABLE VI)	CAS NO. (IF KNOWN)
									UN/NA NO. (IF KNOWN)

STORAGE LOCATIONS AT SITE:

COMMON NAME/TRADE NAME:
HAZARDOUS INGREDIENT IN HIGHEST CONCENTRATION:

EHS ☐ 112(r) ☐

1 - PURE
2 - MIXTURE

1 - NEW
2 - NO LONGER REPORTABLE

PHYSICAL STATE (USE TABLE I)	UNIT OF MEASURE (USE TABLE II)	AVG. AMT. CODE (USE TABLE III)	MAX. AMT. CODE (USE TABLE III)	AMT. IN CODE (USE TABLE III)	AMT. OUT CODE (USE TABLE III)	NUMBER OF DAYS ON SITE (3 DIGIT NO.)	STORAGE CODE (USE TABLES IV & V)	HAZARD CLASSES (USE TABLE VI)	CAS NO. (IF KNOWN)
									UN/NA NO. (IF KNOWN)

STORAGE LOCATIONS AT SITE:

COMMON NAME/TRADE NAME:
HAZARDOUS INGREDIENT IN HIGHEST CONCENTRATION:

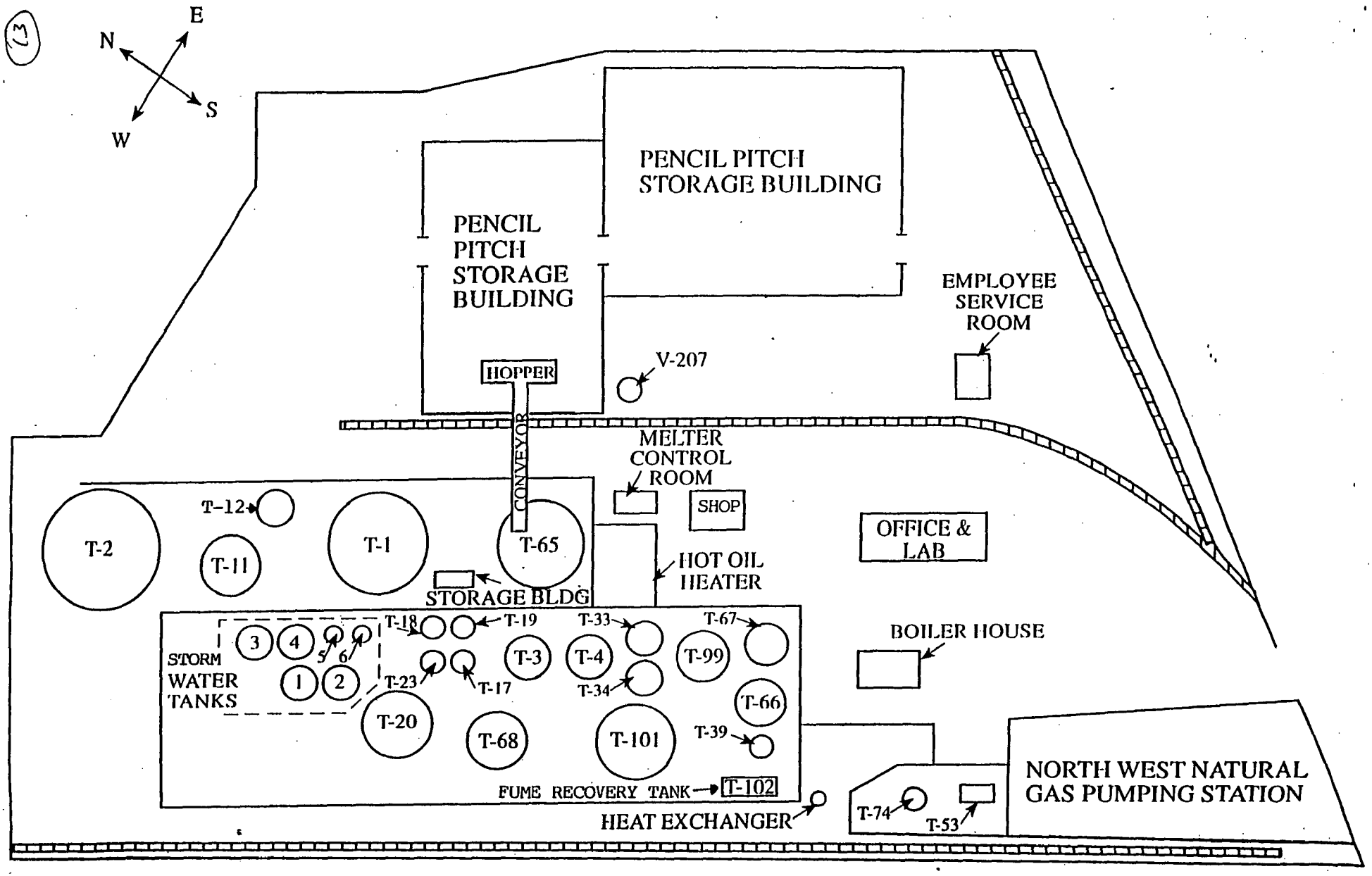
EHS ☐ 112(r) ☐

1 - PURE
2 - MIXTURE

1 - NEW
2 - NO LONGER REPORTABLE

PHYSICAL STATE (USE TABLE I)	UNIT OF MEASURE (USE TABLE II)	AVG. AMT. CODE (USE TABLE III)	MAX. AMT. CODE (USE TABLE III)	AMT. IN CODE (USE TABLE III)	AMT. OUT CODE (USE TABLE III)	NUMBER OF DAYS ON SITE (3 DIGIT NO.)	STORAGE CODE (USE TABLES IV & V)	HAZARD CLASSES (USE TABLE VI)	CAS NO. (IF KNOWN)
									UN/NA NO. (IF KNOWN)

STORAGE LOCATIONS AT SITE:



PROPERTY SITE PLAN

Koppers016692

(14)

KOPPERS INDUSTRIES, INC.
PORTLAND TERMINAL
TANK LIST

Tank ID#	Installation Date	Nominal Capacity (gals)	Contents(future contents)
T-01	1952	650,000	Storm Water
T-02	1942	1,000,000	Storm Water
T-03	1942	100,000	Storm Water
T-04	1942	100,000	Storm Water
T-11	1942	225,000	Storm Water
T-12	1942	56,000	Storm Water
T-17	1942	20,000	Storm Water
T-18	1942	20,000	Storm Water
T-19	1942	20,000	Storm Water
T-20	1942	300,000	Storm Water
T-23	1942	20,000	Storm Water
T-33	1942	45,000	Heavy Oil
T-34	1942	45,000	Storm Water
T-39	1942	20,000	Storm Water
T-53	1947	16,000	Storm Water
T-65	1947	750,000	Liquid Pitch
T-66	1947	100,000	Storm Water
T-67	1947	90,000	Heavy Oil
T-68	1947	245,000	Liquid Pitch
T-74	1947	10,000	Storm Water
T-99	1951	200,000	Storm Water
T-101	1979	759,000	Storm Water
T-102	1975	9,282	Heavy Oil
T-V207	1947	15,000	Storm Water
T-SW-1	1947	45,000	Storm Water
T-SW-2	1947	45,000	Storm Water
T-SW-3	1947	45,000	Storm Water
T-SW-4	1947	45,000	Storm Water
T-SW-5	1947	20,000	Storm Water
T-SW-6	1947	20,000	Storm Water

(51)

HAZARDOUS AND NON-HAZARDOUS DISPOSAL LOG
KOPPERS INDUSTRIES, INC.
PORTLAND, OREGON TERMINAL

Date of Shipment	Destination	Handled By	Material Shipped	Quantity Shipped
4/24/90	Arlington, Oregon	Chem-Security Systems	creosote spill, rags & absorbents	20 drums
5/18/93	Lohern, Calif.	Laidlaw Environmental Services	creosote spill, rags & absorbents	3 drums
9/28/95	San Jose, Calif.	USPCI-Solvent Services	creosote spill, rags & absorbents	3 drums
7/02/97	Houston, Texas	Eltes Environmental Services	no-longer used laboratory chemicals	4 lab packs
3/05/98	Delta, BC, Canada	Laidlaw Environmental Services	creosote spill, rags & absorbents	2 drums
3/05/98	Knolls, Ut.	Laidlaw Environmental Services	refined tar spill rags & absorbents (non-hazardous)	6 drums
1/18/99	Clive,Utah	Safety –Kleen (TG) Inc.	creosote spill, rags & absorbents	4 drums

Koppers016694

(16)

SPILL/RELEASE REPORT

1 - GENERAL INFORMATION

OERS No. 98-0227

a. Company/Individual Name: Koppers Industries, Inc.

b. Address: 7540 NW St Helens Road
Portland, OR 97210

c. Company Contact Person: Amos Kamerer

d. Phone Number(s): (503) 286-3681

e. Specific on-site location of the release (and address if different from above):
Area around tank #68

Please provide a map of the site showing area(s) where the release occurred, any sample collection locations, location of roads/ditches/surface water bodies, etc.

2 - RELEASE INFORMATION

a. Date/Time Release started: estimated 1:05pm Date/Time stopped: 1:15pm

b. Release was reported to (specify Date/Time/Name of Person contacted where applicable):

ODEQ

OERS 1/28/98, 5:50pm, Tami

NRC 1/28/98, 5:40pm, Miss Ebner

(1) Other (describe): Portland Fire Bureau, Station #22, Bill Henle, 1/28/98, 1:30pm

c. Person(s) reporting release: Amos Kamerer

d. Name, quantity and physical state (gas, liquid, solid or semi-solid) of material(s) released:
coal tar pitch, liquid

Please attach copies of material safety data sheets (MSDS) for released material(s).

e. The release affected: ___Air ___Groundwater ___Surface Water ___Soil _X_ Sediment

f. Name and distance to nearest surface water body(s), even if unaffected (include locations of creeks, streams, rivers and ditches that discharge to surface water on maps):
Willamette River, about 2,000 feet to the north

Has the release reached the surface water identified above?: ___Yes _X_ No
Could the release potentially reach the surface water identified above? ___Yes _X_ No
Explain: Coal tar pitch solidifies as hard as coal at ambient temperatures, when contained and cooled, we picked it up and recycled it.

g. Depth to nearest aquifer/groundwater: unknown

Is nearest aquifer/groundwater potable (drinkable)? ___Yes _X_ No
Has the release reached the nearest aquifer/groundwater? ___Yes _X_ No
Explain: Material solidifies when cooled and is not water soluable.

(1) City of Portland, Environmental Services, Steve Rosenberger, John Holtrop, 1/28/98, 1:30pm

h. Release or potential release to the air occurred? ___Yes _X_No
Explain:_____

i. Was there a threat to public safety? ___Yes _X_No
j. Is there potential for future releases? ___Yes _X_No
Explain: Similar event is possible, but unlikely.

k. Describe other effects/impacts from release (emergency evacuation, fish kills, etc.):
Insignificant environmental impact.

l. Describe how the release occurred. Include details such as the release source, cause, contributing weather factors, activities occurring prior to or during the release, dates and times of various activities, first responders involved in containment activities, etc.:
While transferring molten pitch to our shipping tank, T-68, the tank over flowed due to the mechanical failure of the gauging device. All spilled material was contained on site. 100% was recovered. 99% was recycled, and 1% was disposed of as a non-hazardous material. A passer by called 911 and the Portland Fire Bureau station #22 responded at about 1:30pm, saw that we had the material contained, and then departed.

3 - SITE INFORMATION

a. Adjacent land uses include (check all that apply and depict on site maps):
___Residential ___Commercial ___Light Industrial _X_Heavy Industrial
___Agricultural ___Other (describe):_____
b. What is the population density surrounding the site: light
c. Is the site and/or release area secured by fencing or other means? _X_Yes ___No
d. Soil types (check all that apply): ___alluvial ___bedrock _X_clay _X_sandy
___silt ___silty loam _X_artificial surface (cement/asphalt/etc.)
e. Describe site topography: Flat

(18)

5 - SAMPLING INFORMATION

Attach copies of all sample data and indicate locations of sample collection on maps.

a. Were samples of contaminated soil collected? ____Yes ____No __x__N/A
b. Were samples of contaminated water collected? ____Yes ____No __x__N/A
c. Were samples collected to show that all contamination had been removed?
____Yes ____No __x__N/A
d. Describe sampling activities, results and discuss rationale for sampling methods:

6 - SPILL REPORT CHECKLIST

To ensure that you have gathered all the information requested by the Department in this Spill/Release Report, please complete the following checklist:

__x__ Map(s) of the site showing buildings, roads, surface water bodies, ditches, waterways, point of the release, extent of contamination, areas of excavation and sample collection locations attached.

__x__ Material Safety Data Sheet (MSDS) for released material(s) attached.

__N/A__ Sampling data/analytical results attached.

__N/A__ Receipts/manifests (if any) for disposal of cleanup materials attached.

__N/A__ Contractor reports (if any) attached.

4 - CLEANUP INFORMATION

a. Was site cleanup performed? _X_ Yes ___ No
If No, explain: _____

b. Who performed the site cleanup?
Company Name: Koppers Industries, Inc.
Address: 7540 NW St Helens Road
Portland, OR 97210
Cleanup Supervisor: T.J. Turner
Phone Number(s): (503) 286-3681

c. Has all contamination been removed from the site? ___ Yes _X_ No
If No, explain: This material has been collected and is being held in a secure area, to be properly land fill disposed of, in the future.

d. Estimated volume of contaminated soil removed: less than 100 pounds

e. Estimated volume of contaminated soil left in place: 0

f. Was a hazardous waste determination made for cleanup materials? ___ Yes _X_ No

g. Based on the determination, are the cleanup materials hazardous wastes?
___ Yes _X_ No If Yes, list all waste codes: _____

h. Was contaminated soil or water disposed of at an off-site location? ___ Yes _X_ No
If yes, attach copies of receipts/manifests/etc., and provide the following information:
Facility Name: _____
Address: _____
_____
Facility Contact: _____
Phone Number(s): _____

i. Is contaminated soil or water being stored and/or treated on-site? _X_ Yes ___ No
If yes, please describe the material(s), storage and/or treatment area, and methods utilized (attach additional sheets if necessary):
This material has been collected and is being held in a secure area, to be properly land fill disposed of, in the future.

j. Describe cleanup activities including what actions were taken, dates and times actions were initiated and completed, volumes of contaminated materials that were removed, etc. (attach additional sheets or contractor reports if necessary or more convenient):
After the pitch cooled and solidified, it was picked up with shovels and front end loaders for recycling back into our process. The calculated spillage was 6.985 tons. All of this was cleaned up and recycled with in 7 working days.

Mr. Steve Fortuna, Remedial Action Specialist
Site Assessment Program
Oregon Department of Environmental Quality
2020 NW Fourth Avenue, Suite 400
Portland, Oregon 97201-4987

March 12, 1999

Reference: Site Assessment Review Notice

Dear Mr. Fortuna.

This is to acknowledge receipt of your March 5, 1999 letter, on this subject.

Our site is owned by NW Natural. They advise that it is part of the GASCO site, which is a part of the Portland Harbor Sediments Management Plan. Further that this GASCO site has been under the site assessment review process with the ODEQ for several years now, with your Mr. Eric Blischke as the site overseer. NW Natural also feels that the data that Mr. Blischke has on this site, should be sufficient to answer the questions contained in your request.

If we have misinterpreted what you are asking for, or if I can be of any further assistance to you, please feel free to call me at #286-3681.

Sincerely,

Amos Kamerer

CC: Sandra K. Hart, Manager
Risk Environment & Land
NW Natural

Author: AMOS KAMERER at PITT
Date: 3/10/99 4:40 PM
Priority: Normal
TO: Kevin Fitzgerald at PITT, Randy Collins at PITT, Jim Dietz at PITT, Steven Smith at UNIXGATE, Traci Self at PITT
Subject: Portland Harbor Sediments Issue

I have faxed to each of you, a copy of a letter received today from ODEQ asking that we fill out a Site Assessment Information Request, as part of review of the above subject.

Randy, this is the same matter where we received the notification letter about this subject from the ODEQ on Jan. 15, 1999, addressed to Dear Property Owner. By the way, Bob Shuftan and I never were able to get together to discuss this matter, when I was back for the seminar in February.

They ask for a response by 3/23/99, so we need to get together about how we respond to this and what we provide to them.

I called and left a message with Sandra Hart, NW Natural this PM, and also faxed her a copy of this letter. I will advise her comments on this matter, when we talk.

Amos

3/13/97

Portland Terminal
Cameron McKenna

May need at least 4-6 piles at mid point of proposed
New location involves the least amount of work but
results in approx 400 ft of 10" piping that spans
and/or is over water.

Terminaling owners normally want a tonnage fee
Several projects shut down because owners could
not come to lease and tonnage agreements
Need a proforma lease for use of the property
Amos + Dietz to discuss with NW Natural

Permitting - Waterfront facilities
McKenna letter Sullivan in 1992 See copy
[redacted] Preconstruction Permits
① City of Portland Land Use Review (8½×11 only) } Concurrent
② Army Corps + Oregon State Lands together } 3 months
③ Portland Building Permits (almost routine) 45 days
Operating Permits
① DEQ - Air permit ACDP
② USCG - Ship bilge discharge, garbage, etc.
TDL
① Develop a lease proposal prior to contact with
② Establish a lease arrangement
③ Owner to review Pacific Northern Oil Op. Permits
④ Submit permits applications

Koppers016701

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 10
1200 Sixth Avenue
Seattle, Washington 98101

RECEIVED
OCT - 4 2000
KOPPERS INDS. INC.
PORTLAND OR

October 2, 2000

Dear Facility Manager:

EPA Region 10 is unveiling a preliminary version of a public web site on which you can review information about inspections or other regulatory actions involving your organization/facility. This web-based data quality review effort is being jointly conducted by EPA Region 10, the Alaska Department of Environmental Conservation (ADEC), the Idaho Department of Environmental Quality (IDEQ), the Oregon Department of Environmental Quality (ODEQ) and Washington Department of Ecology (Ecology). **This letter is to invite your review and comments on the accuracy of the web site's data on your facility by October 31.**

Background: Over the past few years EPA has taken a number of steps at the national level to improve public access to compliance and enforcement information. EPA Region 10's site will contain inspection, violation and enforcement data on all facilities regulated by EPA and the states under several programs, including air, water and hazardous waste. Prior to releasing this information, we have reviewed recent inspection and enforcement data, looking for major areas where data is inconsistent or missing, and corrected those data errors we noted.

We will be making these public records more widely available to interested citizens on November 1, 2000. This is your opportunity to review this information on-line prior to its being more broadly publicized. If you are receiving this notice it means that our records indicate you are one of approximately 4,000 facilities in the region that have a record of either an inspection, a violation, or an enforcement action by either EPA or a state environmental agency since January 1, 1998.

To Review & Comment on the report for your facility:

- **Go to the web site** at URL address: www.epa.gov/r10earth/ec-on-line.html. **Click on the "Data Access" tab. Scroll down that page and click on the "Click Here" link (bottom left).**
- **Use the Facility ID #** (from the top of this letter's mailing label) to see/print a copy of your report. If you want to, you can comment on it by using the "Submit a Comment" link at the top of the report screen (or by using the "Comments" tab on the EC-On-Line home page).

All comments will be reviewed and any resulting changes will later be reflected on the public site. We will also be working to resolve any data discrepancies you raise in this process. Some comments that involve changes to facility, inspection or enforcement records may require some form of documentation to be submitted before they can be processed. Instructions on the site itself will inform you where this applies.

Thank you for any comments you can provide to improve the quality of data. As was indicated above, we expect to publicize the site more broadly to interested citizens on November 1, 2000 so we would appreciate receiving any comments or change suggestions that you have by October 31, 2000. Please call our regional office at 1-800-424-4372 if you have any questions about this project, or if you are unable to access the web site.

Facility ID# OEC-164

Post-it® Fax Note 7671	Date 10/6/00	# of pages ▶ 1
To T. Seep	From Amos	
~~Co./Dept.~~ M. Cilley	~~Co.~~	
Phone #	~~Phone #~~ F.Y.I.	
Fax #	Fax #	

KOPPERS INDUSTRIES

FAX TRANSMITTAL

7540 N.W. Saint Helens Rd.
Portland, Oregon 97210-3663
Phone: (503) 286-3681
Fax: (503) 285-2831
Web Page: www.koppers.com

TO: Traci DATE: 1/15/00

FROM: Amos TOTAL # OF PAGES: 5

When you have A minute, call me About the Attached

IF THIS TRANSMITTAL IS IN ERROR, PLEASE CALL 503-286-3681 FAX # 503-285-2831

Detailed Facility Report

EXIT EPA ▶ Submit/View Comments
Data Dictionary

For Public Release - Unrestricted Dissemination Report Generated on 01/15/2001

Facility Permits and Identifiers

▶ Interpreting table data.

Statute	System	Source ID	Facility Name	Street Address	City	State	Zip
	FII	ORD027734359	KOPPERS INDUSTRIES INC CREOSOTE TERMINAL	7540 N.W. ST. HELENS RD.	PORTLAND CITY OF	OR	97210
CAA	AFS	4105102930	KOPPERS INDUSTRIES, INC.	7540 NW ST. HELENS ROAD	PORTLAND	OR	97210
CWA	PCS	OR0000779	KOPPERS INDUSTRIES INC CREOSOTE TERMINAL	7540 NW ST HELENS RD	PORTLAND CITY OF	OR	97229
RCRA	RCR	ORD027734359	KOPPERS INDUSTRIES INC	7540 NW ST HELENS RD	PORTLAND	OR	97210
EP313	TRI	97210KPPRS7540N				OR	

Facility Characteristics

▶ Interpreting table data.

Statute	Source ID	Facility Status	Permit Expiration Date	Lat/Long	Indian Lands?	Primary SIC	Secondary SICs
	ORD027734359			lat: 0.0012 long: -0.0034	NA		
CAA	4105102930	Operating, Minor (Not Fed.Rep.)			NA	4961	
CWA	OR0000779	Minor Active	2004/01/01	lat: 45.6889 long: -122.8389	NA	2865	
RCRA	ORD027734359	CEG		lat: 0.0012 long: -0.0034	No		2865
EP313	97210KPPRS7540N			lat: 45.5811 long: -122.7578	NA		

Inspection and Enforcement Summary Data

▶ Interpreting table data.

Statute	Source ID	RECAP Insp. Last 02Yrs	Date of Last Inspection	Formal Enf Act Last 02 Yrs	Penalties Last 02 Yrs
CAA	4105102930	1	06/16/1999	0	$00
CWA	OR0000779	0	10/07/1992	0	$00
RCRA	ORD027734359	1	05/25/1999	0	$00

Inspection History (02 years)

▶ Interpreting table data.

Statute	Source ID	Inspection Type	Lead Agency	Date
CAA	4105102930	Onsite Level 2 Inspection	State	06/16/1999
RCRA	ORD027734359	COMPLIANCE EVALUATION INSPECTION ON-SITE	State	05/25/1999

Entries in gray are not considered inspections in Reporting for Enforcement and Compliance Assurance Priorities (RECAP) official counts.

Compliance Summary Data

▶ Interpreting table data.

Statute	Source ID	Current SNC/HPV?	Current Quarter	Description	Qtrs in NC (of 8)
CAA	4105102930	N/A	Jul-Sep00		0
CWA	OR0000779	N/A	Apr-Jun00		N/A
RCRA	ORD027734359	NO	Jul-Sep00		6

Two Year Compliance Status by Quarter

▶ Interpreting table data.

AIR Compliance Status								
Statute:Source ID CAA: 4105102930	QTR1 Oct-Dec98	QTR2 Jan-Mar99	QTR3 Apr-Jun99	QTR4 Jul-Sep99	QTR5 Oct-Dec99	QTR6 Jan-Mar00	QTR7 Apr-Jun00	QTR8 Jul-Sep00
Program/Pollutant in Current Violation								
SIP			C-CERT	C-CERT	C-CERT	C-CERT	C-CERT	C-CERT

C=Compliance; V=Violation; S=Compliance Schedule.

Detailed Facility Report

RCRA Compliance Status								
Statute:Source ID RCRA: ORD027734359	QTR1 Oct-Dec98	QTR2 Jan-Mar99	QTR3 Apr-Jun99	QTR4 Jul-Sep99	QTR5 Oct-Dec99	QTR6 Jan-Mar00	QTR7 Apr-Jun00	QTR8 Jul-Sep00
Facility Level Status	Compl	Compl	In Viol	In Viol	In Viol	In Viol	In Viol	In Viol
Area of Violation								
GENERATOR-PRE-TRANSPORT REQUIREMENTS			06/25/1999	>>>>>>>>>	>>>>>>>>>	>>>>>>>>>	>>>>>>>>>	>>>>>>>>>
GENERATOR-GENERAL REQUIREMENTS			06/25/1999	>>>>>>>>>	>>>>>>>>>	>>>>>>>>>	>>>>>>>>>	>>>>>>>>>

Formal Enforcement Actions (02 year history)

▶Interpreting table data.

Statute	Source ID	Type of Action	Lead Agency	Date	Penalty	Penalty Description
- No data records returned.						

History of Reported Chemicals Released in Pounds per Year at Site:97210KPPRS7540N

▶Interpreting table data.

Chemical releases reported by TRI are not associated with non-compliance for that facility.

Year	Total Air Emissions	Surface Water Discharges	Underground Injections	Releases to Land	Total On-site Releases	Total Off-site Transfers	Total Releases and Transfers
1991							
1992							
1993							
1994							
1995							
1996							
1997	1,812	2			1,814		1,814
1998							

TRI Total Releases and Transfers by Chemical and Year

Chemical Name	1991	1992	1993	1994	1995	1996	1997	1998
POLYCYCLIC AROMATIC							26	1,814
NAPHTHALENE							1,738	
ANTHRACENE							61	209

Demographic Profile of Surrounding Area

▶Interpreting table data.

This section is for information purposes to provide context regarding the community setting of the facility. No relationship between this information, and other data included in this report is implied. Statistics are based upon the 1990 US Census data, and are accurate to the extent that the facility latitude and longitude listed below are correct.

Radius of Area:	3 Miles	Land Area:	91.21%	Households in area:	15,367
Center Latitude:	45.5686	Water Area:	8.79%	Housing units in area:	16,248
Center Longitude:	122.7521	Population Density:	1648.91/sq. mi.	Households On Public Assistance:	1,690
Total Persons:	40,632	Percent Minority:	18.59%	Persons Below Poverty Level:	7,011

Race Breakdown	Persons (%)	Age Breakdown:	Persons (%)
White:	33,836 (83.48%)	Child 6 years and less:	3,755 (9.26%)
African-american:	3,388 (8.36%)	Minors 17 years and younger:	10,723 (26.46%)
Hispanic-Origin:	1,637 (4.04%)	Adults 18 years and older:	29,809 (73.54%)
Asian/Pacific Islander:	1,850 (4.56%)	Seniors 65 years and older:	5,064 (12.49%)
American Indian:	816 (2.01%)		
Other race:	642 (1.58%)		

Detailed Facility Report

Education Level (Persons 25 & older)	Persons (%)	Income Breakdown:	Households (%)
Less than 9th grade:	1,988 (7.80%)	Less than $15,000:	4,663 (30.34%)
9th-12th grades:	4,250 (16.84%)	$15,000-$26,000:	3,000 (19.52%)
High School Diploma:	7,521 (29.81%)	$26,000-$50,000:	5,034 (32.76%)
Some College/2-yr:	7,365 (29.19%)	$50,000-$76,000:	1,711 (11.13%)
B.S./B.A. or more:	4,128 (16.36%)	Greater than $75,000:	3,755 (24.44%)

Map it

AFS refresh date: 12/10/2000.

PCS refresh date: 12/10/2000.

RCRIS refresh date: 12/09/2000.

9302- TECHNICAL REPORTS PORTLAND HARBOR
Portland Harbor Sediments Updates 2000
2001

Koppers016707

Koppers Industries, Inc.
PCB Inventory for Registration

Facility	# PCB Transformers	Quantity of Dielectric Fluid [gal]	Weight of Dielectric Fluid [kg]	Flammable?	Comments
CM&C					
Clairton Plant	4	1683	9172.35	n/a	Register
Follansbee Tar Plant	0	0	0	n/a	No PCBs
Monessen Coke Plant	2	425	2316.25	n/a	Register
Portland Tar Terminal	0	0	0	n/a	No PCBs
Stickney Tar Plant	0	0	0	n/a	No PCBs
Woodward Tar Plant	0	0	0	n/a	No PCBs
Wood					
Denver	0	0	0	n/a	Check for PCBs
Feather River	5	645	3515.25	n/a	Check for PCBs
Florence	0	0	0	n/a	Check for PCBs
Gainesville	0	0	0	n/a	No PCBs
Galesburg	0	0	0	n/a	Check for PCBs
Green Spring	0	0	0	n/a	No PCBs
Grenada	0	0	0	n/a	No PCBs
Guthrie	0	0	0	n/a	No PCBs
Industrial Track Supply	0	0	0	n/a	Check for PCBs
Logansport	0	0	0	n/a	No PCBs
Montgomery	0	0	0	n/a	Check for PCBs
North Little Rock	0	0	0	n/a	No PCBs
Portsmouth (KSA)	0	0	0	n/a	Check for PCBs
Roanoke	0	0	0	n/a	Check for PCBs
Somerville	0	0	0	n/a	Check for PCBs
Superior	0	0	0	n/a	Check for PCBs
Susquehanna	0	0	0	n/a	No PCBs

Register	These sites have PCB transformers, know the quantities, and will be registered with the USEPA.
Check for PCBs	These sites have possible PCB transformers and should be further investigated.
No PCBs	These sites have been investigated and have NO PCB transformers.

Koppers016708

PORTLAND

Author: Traci Self at PITT
Date: 12/22/98 7:34 AM
Priority: Normal
TO: Nate Prepelka at PITT, Steve Smith at PITT
Subject: Re: PCB Transformer Registration -REMINDER

Traci,

Portland does not have any PCB Transformers.

Amos

_____ Reply Separator _____
Subject: PCB Transformer Registration -REMINDER
Author: Traci Self at PITT
Date: 12/21/98 10:10 AM

Just a reminder that the information regarding PCB transformers, requested in a correspondence dated 12/15/98 from Steve Smith is due today. Please respond even if your facility does not require registration. Thank You.

Traci

KOPPERS INDUSTRIES

INTEROFFICE CORRESPONDENCE

To:	Plant Managers Environmental Managers	**From:**	S. T. Smith
Location:	Distribution	**Location**	K-1800
Subject:	**Polycholorinated Biphenyls Transformer Registration**	**Date:**	December 15, 1998

On June 29, 1998, the United States Environmental Protection Agency ("USEPA") promulgated considerable and far-reaching changes to the current Polychlorinated Biphenyls ("PCBs") regulations under the Toxic Substances Control Act. A great deal of the substantive changes deal with PCB disposal requirements and remediation of releases. However, while the Corporate Services Group continues to dissect the new rule and explore its application to Koppers Industries, Inc. ("KII"), one particular deadline regarding registration is imminent. Specifically, the USEPA is now requiring all owners of PCB Transformers to register these transformers with USEPA Fibers & Organics Branch by **December 28, 1998**. While each facility was previously required to locally register their PCB transformers with the fire department in the community (under the 1995 PCB Fire Rule), the USEPA wishes to centralize this type of information for use in emergency situations. Attached to this memorandum are three (3) documents:

1. Pertinent section of the new rule pertaining to this registration requirement;

2. A copy of the PCB Transformer Registration form (for your informational purposes only); and

3. Item-by-Item Instructions for completion of this form (again, for your informational purposes only).

As evidenced in the PCB Transformer Registration Form, the USEPA prefers that one Form (or submittal) be sent per company. Accordingly, and in order to fully complete the Form, please **provide the following information to either me or the respective Corporate Environmental Manager by December 21, 1998**:

1. Number of transformers (500 ppm or greater) at your location,

2. Total weight in kilograms of the PCB dielectric fluid in each transformer (or, if you do not know the weight – estimate the volume in gallons), and

3. Whether any transformers contain flammable dielectric fluid (per 40 CFR

261.21(a)(1)). This section is optional, but, if you do know that the flashpoint of the liquid is less than 140 °F, please indicate that fact.

Once this information is collected from all facilities to which it applies, I will complete and submit the company-wide PCB Transformer Registration Form to the USEPA Fibers & Organics Branch. Also, this comprehensive rule will be further examined for new or modified requirements that apply to our facilities. Thank you in advance for your expeditious cooperation in collecting this information.

CC:

R. D. Collins	K-1700
T. E. DuPlessis	K-1800
N. J. Prepelka	K-1800
T. I. Self	K-1800

(vi) (A) No later than December 28, 1998 all owners of PCB Transformers, including those in storage for reuse, must register their transformers with the Environmental Protection Agency, National Program Chemicals Division, Office of Pollution Prevention and Toxics (7404), 401 M St., SW., Washington, DC 20460. This registration requirement is subject to the limitations in paragraph (a)(1)of this section.

(1) A transformer owner who assumes a transformer is a PCB-Contaminated transformer, and discovers after December 28, 1998 that it is a PCB-Transformer, must register the newly-identified PCB Transformer, in writing, with the Environmental Protection Agency no later than 30 days after it is identified as such. This requirement does not apply to transformer owners who have previously registered with the EPA PCB Transformers located at the same address as the transformer that they assumed to be PCB-Contaminated and later determined to be a PCBTransformer.

(2) A person who takes possession of a PCB Transformer after December 28, 1998 is not required to register or re-register the transformer with the EPA.

(B) Any person submitting a registration under this section must include:

(1) Company name and address.

(2) Contact name and telephone number.

(3) Address where these transformers are located. For mobile sources such as ships, provide the name of the ship.

(4) Number of PCB Transformers and the total weight in kilograms of PCBs contained in the transformers.

(5) Whether any transformers at this location contain flammable dielectric fluid (optional).

(6) Signature of the owner, operator, or other authorized representative certifying the accuracy of the information submitted.

(C) A transformer owner must retain a record of each PCB Transformer's registration (e.g., a copy of the registration and the return receipt signed by EPA) with the inspection and maintenance records required for each PCB Transformer under paragraph (a)(1)(xii)(I) of this section.

(D) A transformer owner must comply with all requirements of paragraph (a)(1)(vi)(A) of this section to continue the PCB-Transformer's authorization for use, or storage for reuse, pursuant to this section and TSCA section 6(e)(2)(B).

[§761.30(a)(1)(vi) revised at 63 FR 35440, June 29, 1998]

Copyright 1993-1998, The Bureau of National Affairs, Inc.

USEPA	United States Environmental Protection Agency Washington, DC 20460	Form Approved OMB No. 2070-0159

PCB TRANSFORMER REGISTRATION

Return To:	For Official Use Only
Fibers & Organics Branch (7404) Office of Pollution Prevention & Toxics U.S. Environmental Protection Agency 401 M Street, S.W. Washington, DC 20460	

1. Company Name	Address	Contact Name & Phone #

2. a. Location of PCB Transformer(s) - Location #1	2. a. Location of PCB Transformer(s) - Location #2
b. No. of Transformers and wt. (kg):	b. No. of Transformers and wt. (kg):
c. Any transformers containing flammable dielectric fluid: **Yes** or **No**	c. Any transformers containing flammable dielectric fluid: **Yes** or **No**
2. a. Location of PCB Transformer(s) - Location #3	2. a. Location of PCB Transformer(s) - Location #4
b. No. of Transformers and wt. (kg):	b. No. of Transformers and wt. (kg):
c. Any transformers containing flammable dielectric fluid: **Yes** or **No**	c. Any transformers containing flammable dielectric fluid: **Yes** or **No**

7. Certification

Under civil and criminal penalties of law for the making or submission of false or fraudulent statements or representations (18 U.S.C. 1001 and 15 U.S.C. 2615), I certify that the information contained in or accompanying this document is true, accurate, and complete. As to the identified section(s) of this document for which I cannot personally verify truth and accuracy, I certify as a company official having supervisory responsibility for the persons who, acting under my direct instructions, made the verification that this information is true, accurate, and complete.

Signature	Name and Official Title (Type of Print)	Date Signed

Paperwork Reduction Act Notice

The annual public reporting burden for this collection of information is estimated to average 2 hours per response. This estimate includes time for reading instructions, searching existing data sources, gathering and maintaining the needed data, and completing and reviewing collection of information. Send comments regarding the burden estimate or any other aspect of this collection of information, including suggestions for reducing the burden to: Director, OPPE Regulatory Information Division, U.S. Environmental Protection Agency (mail code 2137), 401 M Street, S.W., Washington, D.C. 20460. Include the OMB number identified above in any correspondence. Do not send the completed form to this address. The actual information or form should be submitted in accordance with the instructions accompanying the form, or as specified in the corresponding regulations.

EPA Form 7720-12 (9/98)

Item-by-Item Instructions
for Completing EPA Form 7720-12

No information on this form may be claimed as confidential.

Return completed form to:

Fibers & Organics Branch (7404)
Office of Pollution Prevention & Toxics
U.S. Environmental Protection Agency
401 M Street, SW
Washington, DC 20460

PCB Transformer means any transformer that contains 500 ppm or greater PCB dielectric. For PCB concentration assumptions applicable to transformers containing three pounds or more of fluid other than mineral oil, see 40 CFR 761.2. For provisions permitting reclassification of electrical equipment containing 500 ppm or greater PCBs to PCB-Contaminated Electrical Equipment, see 40 CFR 761.30(a) and (h).

Type or print in black ink all items, except Item 3, "Certification." If you must use additional sheets, indicate clearly the number of the item on the form to which the information on the separate sheet applies.

Item 1 **Company Name:** Enter the name of the company which owns the equipment.
Address: Enter the street, city, state, and zip code of the company.
Contact Name and Phone Number: Enter the name and business telephone number of the person who should be contacted regarding information submitted on this form.

Item 2a **Location of PCB Transformers:** Enter the address (street, city, state, and zip code) where the PCB Transformer(s) is located. Please note that the address you give must be a physical address, not a P.O. Box. Route numbers are acceptable provided they include enough specificity to assist emergency response personnel in determining the location of the transformer(s).

Item 2b **Number (No.) of Transformers and weight (wt..):** Enter the total number of PCB (500 ppm or greater) Transformers at this location (address) and the total weight (wt..) in kilograms (kg) of the PCB dielectric fluid in the transformer(s).

Item 2c **Any transformers containing flammable dielectric fluid:** (Response optional) Circle yes or no if you have any knowledge that there are or are not transformers at this location (address) that contain flammable (see 40 CFR 261.21(a)(1) - Characteristics of Ignitability) dielectric fluid.

***Please note this form has been designed to accommodate companies submitting registrations for multiple locations. However, companies with more than 4 locations may choose to submit an additional form(s) or an attachment(s).

Item VII -- **Certification:** This certification must be signed by the owner, operator, or an authorized representative of the transformer owner or operator of the facility or property where the unit is located. An "authorized representative" is a person responsible for the overall operation of the facility (i.e., a plant manager or superintendent, or a person of equal responsibility). All notifications must include this certification to be complete.

Koppers016714

12/29/98

Amos,

Please sign this "Notice of Intent to Construct" and forward it to ODEQ. Please send a copy of the signed notice to both Dirk and Myself.

Thank You,

Traci

Identification Information

1. Permit Number 26-2930

2. Legal Company Name:	3. Facility Name: *(if different from legal company name)*
Koppers Industries Inc. Company Name	Portland Terminal Facility Name
7540 NW St. Helen Road Mailing Address	7540 NW St. Helen Road Location Address
Portland, OR 97210 City, State, Zip	Portland, OR 97210 City, State, Zip
4. Compliance Contact:	**5. Information/Clarification Contact:**
Amos S. Kamerer Name & Title	Amos S. Kamerer Name & Title
Plant Manager Mailing Address	Plant Manager Location Address
503 286 3681 Area Code & Telephone Number	503 286 3681 Area Code & Telephone Number

Facility Information

6. SIC Codes: 2865 _____ _____ _____

7. Other Department permits? (y/n; if y, specify type and permit number) Yes X No _____

N.P.D.E.S.

8. Increased capacity/emissions, new pollutants? Yes X No _____

9. If applicable, attach a Land Use Compatibility Statement.

Construction Information

10. Description of proposed construction: Construction will provide two storage tank foundations, one 50,000 barrel coar tar pitch storage tank equipped with hot oil heating coils, pitch transfer system, hot oil heater and fume collection piping.

UPS Next Day Air® UPS Worldwide Express Shipping Document

See instructions on back. Call 1-800-PICK-UPS (800-742-5877) for additional information.

TRACKING NUMBER: N171 324 041 5

1 SHIPMENT FROM

SHIPPER'S UPS ACCOUNT NO.: 3207036605 | UPS SHIPPER NO. / UPS BILLING NO. | FOR UPS USE: 183X82

REFERENCE NUMBER

NAME: Traci Self | TELEPHONE: 412-227-2883

COMPANY: KOPPERS INDUSTRIES

STREET ADDRESS: 436 7TH AVE

CITY AND STATE: PITTSBURGH PA | ZIP CODE: 152191800

2 EXTREMELY URGENT DELIVERY TO

NAME: Amos Kamerer | TELEPHONE: 503-286-3681

COMPANY: Koppers Industries, Inc.

STREET ADDRESS: 7540 NW Saint Helens Road | DEPT./FLOOR

CITY AND STATE (INCLUDE COUNTRY IF INTERNATIONAL): Portland, Oregon | ZIP CODE: 97210-3663

3 WEIGHT AND ZONE

WEIGHT (ENTER "LTR" IF LETTER)	DIMENSIONAL WEIGHT (If Applicable)	ZONE

SHIPPER'S COPY

4 TYPE OF SERVICE

	CHARGES
[X] NEXT DAY AIR [ ] WORLDWIDE EXPRESS (INTERNATIONAL)	$
FOR WORLDWIDE EXPRESS SHIPMENTS Mark an "X" in this box if shipment only contains documents of no commercial value. [ ] DOCUMENTS ONLY	

5 OPTIONAL SERVICES

[ ] SATURDAY PICKUP See instructions. [ ] SATURDAY DELIVERY See instructions.	$
[ ] DECLARED VALUE Contents are automatically protected up to $100. For declared value over $100, see instructions. $ AMOUNT	$
[ ] C.O.D. If C.O.D., enter amount to be collected and attach completed UPS C.O.D. tag to package. $ AMOUNT	$

6 ADDITIONAL HANDLING CHARGE

[ ] An Additional Handling Charge applies for certain items. See instructions. $

TOTAL CHARGES $

7 METHOD OF PAYMENT

[X] BILL SHIPPER [ ] BILL RECEIVER [ ] BILL THIRD PARTY (NEXT DAY AIR ONLY) [ ] CREDIT CARD (American Express, Diner's Club, MasterCard, Visa) [ ] CHECK

RECORD ACCOUNT NO. IN SECTION 8

8 RECEIVER'S / THIRD PARTY'S UPS ACCT. NO. OR MAJOR CREDIT CARD NO. | EXPIRATION DATE

THIRD PARTY'S COMPANY NAME

STREET ADDRESS

CITY AND STATE | ZIP CODE

9 SHIPPER'S SIGNATURE Traci Self | DATE OF SHIPMENT 12/29/98

Unless a greater value is declared in writing on this receipt, the shipper hereby declares and agrees that the released value of each package covered by this receipt is $100, which is a reasonable value under the circumstances surrounding the transportation. This value applies to the entire contents of any package containing articles of extraordinary value. Shipper agrees that UPS and its affiliates, subcontractors and suppliers (collectively, the UPS companies) are not liable for any loss, damage or delay of any kind to any shipment in excess of the released value. The carrier's limit of liability for any loss, damage or delay of any kind to any shipment is the lesser of the released value or the actual value of the shipment. Shipper agrees that the UPS companies are not liable for any special, incidental or consequential damages. This copy of a C.O.D. receipt is not a declaration of value. Customs value declared on export documents.

010191120 3/97 W

UPS WORLDWIDE EXPRESS TERMS AND CONDITIONS

United Parcel Service through its affiliates (the "carrier") is engaged in the international transportation of small packages in UPS Worldwide Express. Each package shall be considered a separate and distinct shipment

Commodities Handled and Restrictions upon Service

The carrier offers transportation of general commodities, as usually defined, subject to the following restrictions.

(a) No service shall be rendered in the transportation of articles of unusual value The maximum value or declared value for an international service package is $50,000 U.S and the maximum carrier liability is $50,000 U.S. except for packages containing jewelry (other than costume jewelry) in which case the maximum value or declared value is $500 U.S. per package and the maximum carrier liability per package is $500 U.S.

(b) Refer to the applicable service guide for weight and size restrictions.

(c) No service shall be rendered in the transportation of any of the prohibited articles listed in the applicable service guide.

(d) The carrier does not provide a protective service for the transportation of perishable commodities or of commodities requiring protection from heat or cold. Such commodities will be accepted for transportation solely at the shipper's risk for damage occasioned by exposure to heat or cold

Prohibited by Law

No service shall be rendered by the carrier in the transportation of any shipment which is prohibited by law or regulation of any federal, state, provincial or local government in the origin or destination countries.

Right of Inspection

The carrier reserves the right to open and inspect any package tendered to it for transportation.

Refusal of Packages

The carrier reserves the right to refuse any package which by reason of the dangerous or any other character of its contents is liable, in the judgement of the carrier, to soil, taint, or otherwise damage other merchandise or equipment, or which is economically or operationally impracticable to transport, or which is improperly packed or wrapped.

Packages must be so packed or wrapped as to pass the tests set forth in National Safe Transit Project 1-A

Services Not Provided

C O D . Call Tag, and Delivery Confirmation services are not provided for International shipments.

Provisions for Customs Clearance

The shipper must provide required documentation for customs clearance. By providing required documentation the shipper certifies that all statements and information relating to exportation and importation are true and correct. Furthermore, the shipper understands that civil and criminal penalties, including forfeiture and sale may be imposed for making false or fraudulent statements, or for the violation of U.S. laws on exportation (see 13 U.S.C. Section 305, 22 U.S.C Section 401, 18 U.S.C Section 1001, and 50 U.S.C App. 2410).

When a shipment is tendered to the carrier, the carrier is thereby appointed as the agent for performance of customs clearance, where allowed by law The carrier is specified as the nominal consignee for the purpose of designating a customs broker to perform customs clearance. Local authorities may require documentation confirming that the carrier has been designated as the nominal consignee.

Customs penalties, storage charges, or other expenses incurred as a result of an action by Customs or failure by the shipper or consignee to provide proper documentation or to obtain a required licence or permit will be charged to the consignee along with any applicable duty and tax However, the shipper is liable for payment in the event of non-payment by the consignee. The carrier provides brokerage service at no additional charge for routine customs clearance of Express and Expedited shipments Additional charges may apply for complex customs clearance procedures which include, but are not limited to, the following:

- Clearance procedures involving a government agency other than Customs
- Customs Bonds
- Drawbacks
- Formal entries involving more than five tariff lines
- Live Entries
- Marking Attendance
- Temporary Import Bonds (T.I.B.)

Correction of Wrong Address

If the carrier is unable to deliver any package because of an incorrect address, the carrier will refer to the telephone directory and make every other reasonable effort to secure the correct address. If the correct address is secured and found to be in the same destination country, the shipper will be notified of the correction, and an additional charge, as stated on the then current rate chart, will be assessed for delivery or attempted delivery to the correct address.

Postal Code and Telephone Number

The consignee's postal code, telephone number, and contact name are essential information To ensure prompt delivery always include postal code telephone number, and contact name on the UPS Air Shipping Document.

Delivery Attempts

If the carrier is unable to make delivery of a shipment, a nondelivery notice will be left at the consignee's address stating that delivery has been attempted. Thereafter, a second, and if necessary, a third attempt to deliver will be made without additional charge

Interruption of Service

The carrier shall not be liable for any interruption of delivery service due to a cause beyond the carrier's control, or to strikes, lockouts, or labor disputes.

Return of Undeliverable Packages

Air shipments refused by consignees, or which for any other reason cannot be delivered, will be held and the shipper will be contacted for further instructions. The shipper will be responsible for payment of all other charges including, but not limited to, forwarding, disposal, or return air transportation charges as well as any duty and tax, if applicable

Rates

See the applicable rate chart in effect at the time of shipping for rates. Transportation charges, except the charge for UPS letters, are based on the gross weight of the shipment or the dimensional (volumetric) weight of the shipment, whichever is greater. Dimensional weight is based on the current International Air Transport Association (IATA) volumetric standard, which is subject to change without notice. When the dimensional weight of a shipment exceeds the actual weight, the shipment must be recorded on a UPS Waybill. Fractions of a pound will be increased to the next full pound

Payment for Service

The carrier's credit terms require payment of all charges within seven (7) days after receipt of carrier's bill. When using a UPS Air Shipping Document, all UPS Worldwide Express shipments are prepaid and all charges must be paid by the shipper

Worldwide Express Service Guarantee

The carrier guarantees on-schedule delivery of UPS Worldwide Express Service shipments to specific locations. In the event the carrier fails to complete delivery or attempt delivery within the carrier's time commitment the carrier, at the carrier's option, will credit or refund the shipping charges to the payor upon request subject to the following conditions

(a) The carrier's guaranteed delivery schedule has been obtained by contacting the carrier's Customer Service office,

(b) The package bears a properly completed UPS Air Shipping Document showing the consignee's correct name, deliverable address, and postal code.

(c) The shipment is tendered to the carrier during the carrier's published business hours.

(d) All applicable documentation required by the origin and/or destination country is completed and included with the shipment.

(e) The carrier is notified in writing or by telephone of a service failure within fifteen (15) calendar days from the date of scheduled delivery and is advised of the consignee's name and address, date of shipment, package weight, and the UPS Tracking Number.

The guarantee does not apply to shipments which are delayed due to causes beyond the carrier's control including, but not limited to the following: The unavailability or refusal of a person to accept delivery of the shipment, acts of God, public authorities acting with actual or apparent authority on the premises, acts or omissions of Customs or similar authorities, failure by the shipper or consignee to provide proper documentation, riots, strikes or other labor disputes, civil commotions, disruptions in air or ground transportation networks, such as weather phenomena, and natural disasters

The carrier provides optional Saturday delivery to locations in Canada which are specified in the UPS guide for service to Canada. The shipment must be recorded on a UPS Waybill to receive Saturday delivery.

Responsibility for Loss or Damage

Unless a greater value for insurance is declared in writing in the space provided on the UPS Air Shipping Document, the shipper declares the released value of each shipment to be no greater than $100 U.S. For each $100 U.S. or fraction thereof of declared value for insurance per shipment in excess of $100 U.S. an additional charge, as stated on the rate chart in effect at the time of shipping, will be assessed. Liability for loss or damage is governed by these Terms and Conditions and shall be limited to proven damages up to an amount not exceeding $100 U.S. per shipment unless a higher value has been declared by the shipper. However, the rules relating to liability established by the Convention for the Unification of Certain Rules Relating to International Carriage by Air signed at Warsaw, Poland on October 12 1929, and any amendments thereto shall apply to the international carriage of any shipment hereunder insofar as the same is governed thereby. Except if otherwise directed by the shipper, the carrier will remit excess valuation charges to an insurance company or companies as a premium for shipper's interest cargo insurance for the shipper's account and on its behalf. When the carrier does so, claims for loss or damage to the shipper's property will be filed and settled by the carrier on behalf of the applicable insurance company. Shippers' Interest Cargo Policies are available for inspection at the office of the carrier. Claims not made within six (6) months after delivery of the package or in the case of non-delivery within six (6) months after a reasonable time for delivery has elapsed, shall be deemed waived. The carrier shall not be liable for any special, incidental, or consequential damages.

All shipments are subject to the terms and conditions contained in the UPS tariff which is maintained at local UPS offices

THE RULES RELATING TO LIABILITY ESTABLISHED BY THE WARSAW CONVENTION AND ANY AMENDMENTS THERETO SHALL APPLY TO THE INTERNATIONAL CARRIAGE OF ANY SHIPMENT HEREUNDER INSOFAR AS THE SAME IS GOVERNED THEREBY

11. Attach relevant forms from Form Series AQ200, Device/Process Forms, if applicable.

12. Attach Form AQ301, Control Device Description, if applicable.

13. Attach a process flow diagram.

Emissions Data SEE ATTACHMENTS

14. Pre-and Post-Construction emissions summary data

a. Emissions Point	b. Pollutant	c. Pre-Construction Emissions		d. Post-Construction Emissions	
		short-term (specify unit)	annual (tons/year)	short-term (specify unit)	annual (tons/year)

15. Description of waste disposal practices *before* the construction: Solid industrial waste hauled to secured landfill. No generation of hazardous waste.

16. Description of waste disposal practices *after* the construction: No change.

Construction Data

17. Timing of construction.

    a. Commence date (mm/dd/yy) 01/18/99

    b. Begin date (mm/dd/yy) 02/01/99

    c. Completion date (mm/dd/yy) 10/01/99

18. Will tax credits be requested once construction is completed? Yes _____ No X

Signature

19. Signature

I hereby certify that I have completed this application to the best of my ability and that the information herein and in the attached exhibits is true and correct to the best of my knowledge.

Name of Authorized Representative	Title
Signature	Date (mm/dd/yy)

Maximum Potential Emissions from Existing Units
Koppers Industries, Inc., Portland Terminal

Unit	Comments	Commodity	NOx (lb/hr)	NOx Tons/Yr	VOC (lb/hr)	VOC Tons/Yr	CO (lb/hr)	CO Tons/Yr	SO2 (lb/hr)	SO2 Tons/Yr	PM-10 (lb/hr)	PM-10 Tons/Yr
Atlas Boiler[1]		Gas	2.82	12.33	0.06	0.25	0.70	3.08	0.08	0.33	0.12	0.55
		Oil/Gas	3.00	12.52	0.06	0.22	0.75	3.13	10.65	11.31	0.30	1.24
		MAX	3.00	12.52	0.06	0.25	0.75	3.13	10.65	11.31	0.30	1.24
Hot Oil Heater(backup unit)[1]		Gas	0.81	3.57	0.04	0.19	0.17	0.75	0.03	0.14	0.04	0.16
		Oil/Gas	1.22	3.97	0.04	0.16	0.31	0.88	4.33	4.60	0.12	0.43
		MAX	1.22	3.97	0.04	0.19	0.31	0.88	4.33	4.60	0.12	0.43
Fume Recovery System [2,3]		NA			12.47	18.11						
Tank 33		Heavy Oil			0.37	0.016						
Tank 67		P1/P13 Distillate			0.59	0.024						
Loading Tank 67 to Rail		P1/P13 Distillate			1.71	0.003						
Fugitives		NA			0.98	0.568						
Plant Total			**4.22**	**16.49**	**16.22**	**19.15**	**1.06**	**4.01**	**14.98**	**15.91**	**0.42**	**1.67**

NOTES

[1] Combustion units may be run on natural gas or #2 fuel oil. However, fuel oil combustion will occur a maximum of 12 weeks during any given year.

[2] The fume recovery system receives emissions from the following units: T-68, T-65, T-200, railcar loading and tank car loading.

[3] Hourly and annual VOC emissions from the fume recovery system were calculated using ChemCAD.

Koppers016721

Maximum Potential Emissions, Phase I
Koppers Industries, Inc., Portland Terminal

Unit	Comments	Commodity	NOx (lb/hr)	NOx Tons/Yr	VOC (lb/hr)	VOC Tons/Yr	CO (lb/hr)	CO Tons/Yr	SO2 (lb/hr)	SO2 Tons/Yr	PM-10 (lb/hr)	PM-10 Tons/Yr
Atlas Boiler[1]		Gas	2.82	12.33	0.06	0.25	0.70	3.08	0.08	0.33	0.12	0.55
		Oil/Gas	3.00	12.52	0.06	0.22	0.75	3.13	10.65	11.31	0.30	1.24
		MAX	3.00	12.52	0.06	0.25	0.75	3.13	10.65	11.31	0.30	1.24
Hot Oil Heater(backup unit)[1]		Gas	0.81	3.57	0.04	0.19	0.17	0.75	0.03	0.14	0.04	0.16
		Oil/Gas	1.22	3.97	0.04	0.16	0.31	0.88	4.33	4.60	0.12	0.43
		MAX	1.22	3.97	0.04	0.19	0.31	0.88	4.33	4.60	0.12	0.43
Fume Recovery System [2,3]		NA			12.47	18.11						
Tank 33		Heavy Oil			0.37	0.016						
Tank 67		Heavy Oil			0.15	0.006						
Fugitives		NA			0.98	0.568						
New Hot Oil Heater[1]		Gas	1.34	5.87	0.03	0.12	0.34	1.47	0.04	0.16	0.06	0.26
		Oil/Gas	1.42	5.96	0.03	0.10	0.36	1.49	5.04	5.34	0.14	0.52
		MAX	1.42	5.96	0.03	0.12	0.36	1.49	5.04	5.34	0.14	0.52
T-200		Liquid Pitch				Note 4						
Plant Total			**5.64**	**22.45**	**14.10**	**19.25**	**1.41**	**5.50**	**20.02**	**21.26**	**0.56**	**2.19**

NOTES

[1] Combustion units may be run on natural gas or #2 fuel oil. However, fuel oil combustion will occur a maximum of 12 weeks during any given year.

[2] The fume recovery system receives emissions from the following units: T-68, T-65, T-200, railcar loading and tank car loading.

[3] Hourly and annual VOC emissions from the fume recovery system were calculated using ChemCAD.

[4] Emissions from T-200 are included in the fume recovery system's emissions.

Koppers016722

Author: AMOS KAMERER at PITT
Date: 5/5/98 3:54 PM
Priority: Normal
TO: John Kunkle at PITT
CC: Kevin Fitzgerald at PITT, Traci Self at PITT
Subject: Liquid Pitch Capital Project

John:

The Port of Longview advises that their operating permits are as follows;

Water - Expires 7/14/2001
Air - Is an open permit and does not have an expiration date, it's reviewed and updated, as needed, on an annual basis.

Regarding this info, I went back through my files, and I asked Traci to do the same, and we only found a reference that the water permit was good through the year 2001, and that Bill was going to review the air permit info with the Ports Env. Mgr., Judy Greggs. There was no further info in the files. Thus, I called the Port and talked to an Env. Tech. today, Larry Marko, to get this info in Judy's absence. Thus, based on this info, you will need to change the reference in your narrative that the Port has permits through 2002.

Also, you may, or may not, want to correct the narrative where it shows that our lease expires on 12/31/98. It actually expired on 12/31/97 and we are working on the 3rd extension, while it's still under review. It will become effective some month this year, when the review process is completed.

Amos

DEPARTMENT OF THE ARMY
PORTLAND DISTRICT, CORPS OF ENGINEERS
P.O. BOX 2946
PORTLAND, OREGON 97208-2946

July 17, 1997

REPLY TO
ATTENTION OF:

Operations, Construction,
and Readiness Division

SUBJECT: Permit Application ID No: 97-903

JUL 23 1997

Koppers Industries, Inc.
1950 Koppers Building
436 Seventh Avenue
Pittsburgh, Pennsylvania 15219

Dear Applicant:

Your application for the modification of an existing marine petroleum terminal pier at 7540 NW. St. Helens Road, Willamette River Mile 6.3, Portland, Multnomah County, Oregon, has been received. Please use the above application number on all future correspondence.

If you have any questions regarding your application, please contact me at the above address, or telephone (503) 808-4382.

Sincerely,

Judy L. Linton
Regulatory Project Manager
Regulatory Branch

Copies Furnished:

ODSL (Hedrick)
J. Cameron McKernan Company

7-23-97

Post-it™ brand fax transmittal memo 7671	# of pages ▷ 1
To Amos Kamerer	From WES/mtb
Co. KII	Co. KII
Dept.	Phone # 412-227-2337
Fax #	Fax #

facsimile
TRANSMITTAL

KOPPERS INDUSTRIES

DELIVER IMMEDIATELY!!

To: Amos Kamerer - Koppers Portland, OR
Jim Dietz - Koppers Harmarville, PA

Fax #: 503-285-2831 - Portland
412-826-3999 - Harmarville

Re: Portland Terminal Pier Modification Application - Army Engineers

Date: August 1, 1997

Pages: 2, including cover sheet.

Gentlemen:

Attached is a copy of the notification from the Army Engineers, Portland office that the subject application for pier modification has been received and assigned I. D. number 97-903.

I think Amos got a copy of this last week, but I am sending it to both of you anyway.

Regards,
WES

cc: W. W. Turner; K-1600

From .....

William E. Swearingen
Manager, Environmental Programs
Koppers Industries, Inc.
436 Seventh Avenue; K-1800
Pittsburgh, PA 15219-1800

Tel: 412-227-2883
Fax: 412-227-2423

Fate Portland

KOPPERS INDUSTRIES

Koppers Industries, Inc.
436 Seventh Avenue
Pittsburgh, PA 15219-1800

Telephone: (412) 227-2001
Fax: (412) 227-2423

January 18, 2001

Oregon Department of Environmental Quality
Northwest Region
2020 SW 4th Avenue, Suite 400
Portland, Oregon 97201-4987

Attention: Randall Bailey

Reference: Air Containment Discharge Permit # 26-2930
Thermal Oxidizer-NC No. 018175

Dear Mr. Bailey,

Koppers Industries, Inc. (KII) respectfully submits this letter as a request to delay installation of the new thermal oxidizer for which a Notice of Intent to Construct Approval was granted by the Oregon Department of Environmental Quality (ODEQ) on October 10, 2000.

KII is experiencing a very sharp decline in business conditions at the Portland terminal. As a result of the current West Coast power energy crisis, of which, I am sure you are aware, all of the aluminum customers that we service through the terminal have drastically reduced, or totally eliminated, receipt of KII products. Due to these developments, the terminal has had to reduce its total work force by 45%, in the recent months. Business losses at the terminal exceeded $1.5 million dollars last year, and losses are expected for this year, as well.

In a letter to you dated September 29, 2000, KII provided an estimate of the maximum potential emissions for one year, which would occur at the end of the 5-year period of the permit, based on processing 150,000 tons of coal tar pitch. For the year 2001, the emissions data was based on processing approximately 70,000 tons of coal tar pitch. Because of the bleak outlook for business in 2001, KII is now estimating that the terminal will only process approximately 31,000 tons of coal tar pitch. Therefore, the emissions upon which the necessity of adding a thermal oxidizer was originally based on, have also decreased.

However, we realize that the opacity emissions from the existing fume recovery system are more of a concern to ODEQ, and KII realizes that we cannot address this situation without the installation of the new thermal oxidizer. Thus, we are hoping that you will understand that KII is in a real business crisis position. As you are aware, the design and installation of a thermal oxidizer is very costly, and is an expenditure that KII is reluctant to take at this time, without a reasonable expectation of what our continued future business will be, in the Pacific Northwest.

KII requests that the implementation schedule that was outlined in the Notice of Intent to Construct be delayed, until business conditions improve. KII will notify ODEQ within 30 days of a change in the business conditions, which will warrant the continuation of this project, and this capital expenditure. We will at that time, resume the schedule at the point of contract award, as outlined in the Notice of Intent to Construct.

KII appreciates your understanding in this matter. If you have any questions, please contact Amos Kamerer at (503) 286-3681, or me at (412) 227-2883.

Sincerely,

Traci I. Self/HR

Traci I. Self
Environmental Manager

CC: A. Kamerer, KII
J. Dietz, KII
T. Self, KII
M. Cilley, KII
B. Meisinger, KII

Post-it® Fax Note 7671	Date 10/13/00	# of pages ▶ 2
To R. Meisinger	From Amos	
~~Co./Dept.~~ T. Pieto	Co.	
~~Phone #~~ T. Self	Phone #	
~~Fax #~~ M. Crilley	Fax #	

File

Department of Environmental Quality
Northwest Region
2020 SW Fourth Avenue
Suite 400
Portland, OR 97201-4987
(503) 229-5263 Voice
TTY (503) 229-5471

October 10, 2000

KOPPERS INDUSTRIES INC.
7540 NW ST HELENS ROAD
PORTLAND OR 97210

Re: AQ - Multnomah Co.
Koppers Industries Inc.
File No. 26-2930
NC No. 018175

Attention: Amos Kamerer, Plant Manager

Department action as indicated below has been taken on your Notice of Intent to Construct and Request(s) for Construction Approval.

Project Location	Project Description	Plans and Specifications Identification
7450 NW St Helens Rd, Portland OR, 97210	Installation of a thermal oxidizer to control emissions from an existing fume recovery system.	NC No. 018175

PLANS AND SPECIFICATIONS AND CONSTRUCTION APPROVAL

APPROVED - Subject to the attached conditions.

If the Department can be of assistance, or if there are any questions, please call me at (503) 229-6736.

Sincerely,

Randall Bailey
Air Quality Permitting
Northwest Region

RECEIVED
OCT 13 2000
KOPPERS INDS, INC.
PORTLAND OR

Attachment: Construction Approval General conditions
Enclosure: Notice of Construction Completion form

Koppers016728

PLANS AND SPECIFICATIONS AND CONSTRUCTION APPROVAL CONDITIONS

1. The construction of the project shall be in conformance to approved plans and specifications identified above. No changes or deviations, which would significantly alter the quantity or character of emissions, shall be made without prior written approval from the Department of Environmental Quality.

2. Granting approval does not relieve Koppers Industries Inc. of the obligation to obtain required local, state and other permits and to comply with the appropriate statutes, Administrative Rules, Standards, and if applicable, to demonstrate compliance.

3. This construction approval does not guarantee the adequacy of the proposed construction. Compliance with Department regulations and permit conditions remains the total responsibility of Koppers Industries Inc.

4. Visible emissions and particulate concentration limitations are set forth in your Air Contaminant Discharge Permit.

5. Koppers Industries Inc. shall operate the thermal oxidizer at a minimum temperature of 1400 °f for 0.75 seconds at all times unless otherwise approved in writing by the Department.

6. Koppers Industries Inc. shall operate and maintain all processes and emission control equipment at the highest reasonable efficiency and effectiveness to minimize emissions of air pollutants.

7. Please fill out and return the enclosed Notice of Construction Completion form within 30 days of completion of this approved project.

NC.LTR

KOPPERS INDUSTRIES

Koppers Industries, Inc.
436 Seventh Avenue
Pittsburgh, PA 15219-1800

Telephone: (412) 227-2001
Fax: (412) 227-2423

September 29, 2000

Oregon Department Of Environmental Quality
Northwest Region
2020 SW 4th Avenue, Suite 400
Portland. Oregon 97201-4987
Attention: Randall Bailey

RE: Koppers Industries Inc.

7540 NW ST. Helens Road
Portland, OR 97210
Air Contaminant Discharge Permit # 26-2930

Dear Mr. Bailey:

Attached is an estimate of "Maximum Potential Emissions, Phase II" that includes as part of the Fume combustion system emissions associated with installation of the Thermal Oxidizer. A stated in earlier communications with you, based on experience at other facilities, KII estimates installation of the thermal oxidizer based on the following schedule:

Milestone	Estimated Time frame
Prepare engineering package for bid	6 weeks
Receive bids and award contract	8 weeks
Order equipment/delivery	24-40 weeks
Installation	6 weeks
Start-up/Shake-down	4 weeks

KII began implementation of the schedule on June 1, 2000. KII has now received the bids for the thermal oxidizer unit and they are under evaluation at this time. With regard to the completion of this installation, we are still on schedule as stated in our Notice of Intent to Construct. As always, KII will provide updates as we progress.

If you have any questions please contact Amos Kamerer at (503) 503-286-3681 me at (412) 227-2883.

Sincerely,

Traci I. Self
Environmental Manager

cc:

Amos Kamerer
Mark Cilley
Jim Dietz
Leslie Hyde
Bill Meisinger

Maximum Potential Emissions, Phase II
Koppers Industries, Inc., Portland Terminal

Unit	Comments	Commodity	NOx (lb/hr)	NOx Tons/Yr	VOC (lb/hr)	VOC Tons/Yr	CO (lb/hr)	CO Tons/Yr	SO2 (lb/hr)	SO2 Tons/Yr	PM-10 (lb/hr)	PM-10 Tons/Yr
Atlas Boiler[1]		Gas	2.82	12.33	0.06	0.25	0.70	3.08	0.08	0.33	0.12	0.55
		Oil/Gas	3.00	12.52	0.06	0.22	0.75	3.13	10.65	11.31	0.30	1.24
		MAX	3.00	12.52	0.06	0.25	0.75	3.13	10.65	11.31	0.30	1.24
Hot Oil Heater(backup unit)[1]		Gas	0.81	3.57	0.04	0.19	0.17	0.75	0.03	0.14	0.04	0.16
		Oil/Gas	1.22	3.97	0.04	0.16	0.31	0.88	4.33	4.60	0.12	0.43
		MAX	1.22	3.97	0.04	0.19	0.31	0.88	4.33	4.60	0.12	0.43
Fume Combustion System [2,3]		NA	0.223	0.98	0.49	2.16	0.29	1.26	0.18	0.98		
Tank 33		Heavy Oil			0.37	0.016						
Tank 67		Heavy Oil			0.15	0.006						
Fugitives		NA			0.98	0.568						
New Hot Oil Heater[1]		Gas	1.34	5.87	0.03	0.12	0.34	1.47	0.04	0.16	0.06	0.26
		Oil/Gas	1.42	5.96	0.03	0.10	0.36	1.49	5.04	5.34	0.14	0.52
		MAX	1.42	5.96	0.03	0.12	0.36	1.49	5.04	5.34	0.14	0.52
T-200		Liquid Pitch				Note 4						
T-210		Liquid Pitch				Note 4						
Plant Total	**Maximum**		**5.64**	**22.45**	**2.12**	**3.30**	**1.41**	**5.50**	**20.02**	**21.26**	**0.56**	**2.19**

NOTES

[1] Combustion units may be run on natural gas or #2 fuel oil. However, fuel oil combustion will occur a maximum of 12 weeks during any given year.

[2] The fume combustion system receives emissions from the following units: T-68, T-65, T-200, T-210, railcar loading and tank car loading.

[3] Hourly and annual VOC emissions from the fume recovery system were calculated using ChemCAD.

[4] VOC Emissions from T-200 and T-210 are included in the fume combustion system's emissions.

Koppers016732

File

Oregon

John A. Kitzhaber, M.D., Governor

Department of Environmental Quality
Northwest Region
2020 SW Fourth Avenue
Suite 400
Portland, OR 97201-4987
(503) 229-5263 Voice
TTY (503) 229-5471

July 18, 2000

KOPPERS INDUSTRIES INC
7540 NW ST HELENS RD
PORTLAND OR 97210-3663

Re: AQ - Multnomah Co.
Koppers Industries Inc.
NC No. 018175
File No. 26-2930

Attention: Amos Kamerer, Plant Manager

I have reviewed your Notice of intent to Construct submitted June 1, 2000. This NC is accepted as fulfilling the requirement of Special Condition 13 of your Air Contaminant Discharge Permit.

To complete my review it is necessary to know the estimated criteria pollutant emissions from the proposed Thermal Oxidizer. These include emissions of PM_{10}, SO_2, NO_X, CO and VOC. I understand that you must receive this information from the supplier of the thermal oxidizer, and that the supplier has not yet been chosen. You estimate that a supplier will be chosen in September. Please forward the emissions information to the Department as soon as possible. Until that time I will suspend action on the NC approval.

Thank you for your attention to this matter. We look forward to the expeditious completion of this project. If I can be of assistance in these matters, please contact me at (503) 229-6736.

Sincerely,

Randall Bailey
Air Quality Permitting
Northwest Region

cc: J. Dietz
T. Self
M. Gilley
B. Meisinger
F.Y.I.
Amos
7/19/00

RECEIVED
JUL 19 2000
KOPPERS INDS, INC.
PORTLAND OR

DEQ-1

KOPPERS INDUSTRIES

Koppers Industries, Inc.
7540 N.W. St. Helens Road
Portland, OR 97210-3663

Amos S. Kamerer
Plant Manager

Telephone: 503-286-3681
Fax: 503-285-2831

JUN 5

June 1, 2000

Oregon Department of Environmental Quality
Northwest Region
2020 SW 4th Avenue, Suite 400
Portland, Oregon 97201-4987

Attention: Randall Bailey

Reference: Air Containment Discharge Permit # 26-2930
Notice of Intent to Construct

Dear Mr. Bailey,

As per our recent discussions, attached please find the Notice of Intent to Construct covering the new thermal oxidizer that Koppers Industries will be installing, to replace our existing system.

If you have any questions, please contact me at 286-3681, or via e-mail at: amos_kamerer@koppers.com

Sincerely,

Amos S. Kamerer

CC: J. Dietz, KII
T. Self, KII
M. Cilley, KII
B. Meisinger, KII

16. Description of waste disposal practices *after* the construction: No waste disposal is involved.

Construction Data

17. Timing of construction.

a. Commence date (mm/dd/yy) 06/01/00 -Engineering, equipment bidding and award, permitting and equipment delivery.

b. Begin date (mm/dd/yy) 06/01/01 -Installation

c. Completion date (mm/dd/yy) 09/01/01 -Start-up

18. Will tax credits be requested once construction is completed? Yes _____ No X

Signature

19. Signature

I hereby certify that I have completed this application to the best of my ability and that the information herein and in the attached exhibits is true and correct to the best of my knowledge.

Amos S. Kamerer	Plant Manager
Name of Authorized Representative	Title
Signature	06/01/00
	Date (mm/dd/yy)

Koppers016735

Identification Information

1. Permit Number 26-2930

2. Legal Company Name:	3. Facility Name: *(if different from legal company name)*
Koppers Industries, Inc. Company Name	 Facility Name
7540 NW Saint Helens Road Mailing Address	 Location Address
Portland, OR 97210 City, State, Zip	 City, State, Zip
4. Compliance Contact:	**5. Information/Clarification Contact:**
Amos S. Kamerer, Plant Manager Name & Title	 Name & Title
same as above Mailing Address	 Location Address
(503) 286-3681 Area Code & Telephone Number	 Area Code & Telephone Number

Facility Information

6. SIC Codes: 2 8 6 5

7. Other Department permits? (y/n; if y, specify type and permit number) Yes X No ____

NPDES # 101642

8. Increased capacity/emissions, new pollutants? Yes ____ No X

9. If applicable, attach a Land Use Compatibility Statement.

Construction Information

10. Description of proposed construction: To add a thermal oxidizer to the pitch fume recovery system. The new thermal oxidizer will replace the existing system.

11. Attach relevant forms from Form Series AQ200, Device/Process Forms, if applicable.

12. Attach Form AQ301, Control Device Description, if applicable.

13. Attach a process flow diagram.

Emissions Data

14. Pre-and Post-Construction emissions summary data

a. Emissions Point	b. Pollutant	c. Pre-Construction Emissions		d. Post-Construction Emissions	
		short-term (specify unit)	annual (tons/year)	short-term (specify unit)	annual (tons/year)
Liquid Pitch Storage Tanks and Load out locations				Per the data that was supplied with the original Air Permit application.	

15. Description of waste disposal practices *before* the construction:
No waste disposal is involved.

Koppers016737

file Portland AQ

Oregon

John A. Kitzhaber, M.D., Governor

Department of Environmental Quality
Northwest Region
2020 SW Fourth Avenue
Suite 400
Portland, OR 97201-4987
(503) 229-5263 Voice
TTY (503) 229-5471

April 24, 2000

KOPPERS INDUSTRIES INC
7540 NW ST HELENS RD
PORTLAND OR 97210-3663

Re: AQ - Multnomah Co.
Koppers Industries Inc.
File No. 26-2930

Attention: Amos Kamerer, Plant Manager

Thank you for your letter in response to our March 21 meeting. We look forward to a quick resolution of this issue.

While we believe that a thermal oxidizer would provide expedient control of the fume recovery stack emissions, we are open to other approaches including the oil cooler and carbon absorption, if these systems can be demonstrated to be effective. The Department would accept a Notice of Intent to Construct application for an Thermal oxidizer as fulfilling the feasibility study requirement if it can be submitted by June 1, 2000 and the proposed system can be installed expeditiously. Otherwise, we will wait for the results of the feasibility study.

The Department does not have authority to provide a variance from applicable rules or from enforcement actions for non-compliance, nor would we consider such a request.

If you have any questions regarding these matters, I can be contacted at (503) 229-6736.

Sincerely,

Randall Bailey
Air Quality Permitting
Northwest Region

RECEIVED
APR 2 8 2000
KOPPERS INDS, INC.
PORTLAND OR

Post-it® Fax Note 7671	Date 5/1/00	# of pages ▶ 1
To J. Dietz	From Amos	
Co./Dept. T. Self	Co.	
Phone # B. Meisinger	Phone #	
Fax # M. Cilley	Fax #	

DEQ-1

TO:	J. Dietz	**FROM:**	Mark A. Cilley
LOCATION:	Pittsburgh	**LOCATION:**	Stickney
SUBJECT:	Portland Fume System/Meeting with ODEQ	**DATE:**	3/22/00

On March 21, 2000, Amos and I met with Randy Bailey and Audrey O'Brien to discuss the emissions from the fume system and their concerns about permit violations from this source. During the meeting that was prompted by a letter from ODEQ, they made it very clear that on several occasions they have visited the site with as many as 5 inspectors to take opacity readings. It was noted on each of the dates (February 17, March 6 & 9) that the fume system was not in compliance with the 20% opacity limit stated in the permit.

Both of the personnel from the DEQ were experienced with the coke/aluminum industries and well versed in the potential pollutants emitted from it. As such, they stated that this meeting was the first step in developing a resolution to the current ongoing permit excursions that they were positive was occurring. They were also concerned that the potential to emit HAP's were in excess of the 10 ton/year limit that would make the source a major source subject to the title V permitting requirements or at least a synthetic minor.

We stated that we were aware of the problem with the fume system and had planned to submit the feasibility study by June first and install a cooler to reduce the emission levels by increasing the absorption capacity of the scrubber. We have also submitted an intent to construct modification for the cooler. They asked what the timing was on the thermal oxidizer and phase two of the permit application. Amos stated that phase two was scheduled to begin approximately June of 2001. Audrey O'Brien stated, "that is approximately one year and the DEQ is not willing to wait that long". They both stated that the agency did not believe that a cooler would resolve this issue and that if a resolution was not made that was amenable to all (mainly the DEQ) that appropriate actions would be taken including penalties for permit excursions. Amos asked what these penalties might entail. It was stated that the first step was the meeting we were having today that would be followed by a response from Koppers within two weeks (we agreed on April 6th). If the DEQ is not satisfied with the response received then they will perform daily inspections and write citations for permit exceedences. The penalties involved can be $10,000/day.

The local citizens in the area have also been putting tremendous pressure on the DEQ that I believe is prompting much of the current activity. The HAP's are causing concern with the citizens it is only a matter of time before the Koppers facility is recognized as a concern. Based on the permit application the DEQ does not feel confident that we know

what the total HAP emissions are and that the only way we can resolve this issue and prove that we are not a major source and subject to the title V requirements is to conduct testing on the system and perform speciated analysis. They stated that most of the aluminum industries have become major sources due to the emissions of polycyclic organic material (POM) and they believe our source may fall under the same permitting conditions. They further stated that if our intent was to install a cooler to meet the current permit conditions that the emissions would have to be calculated on a potential to emit basis for assessing the requirements of title V.

After more discussion, we toured the facility and observed the emissions from the fume system at approximately 11:00 a.m. The system in our view was emitting a level that was probably in the best case scenario (subjective of course). Even at this level (temperature was 200 degrees F) they felt that we would be in violation of our permit conditions but it was borderline. I stated that if the cooler would produce an exudate comparable to the current situation would they feel that it would satisfy an interim condition until phase two of the project could be completed. They would not commit and stated that they would have to determine that at the time of occurrence and actions would be based on their findings at that time.

In conclusion of our meeting we asked what our options were at this time. As stated, the following options exist:

1. Conduct monitoring and perform speciated analysis for HAP and assess applicability of title V permitting. Also conduct opacity measurements in conjunction.
2. If we proceed with the option of a cooler for an interim measure, conduct monitoring with speciated analysis and opacity measurements. Install the cooler and conduct the monitoring again all based on the potential to emit.
3. Install a thermal oxidizer and make it an integral part of the operation (i.e. have set points tied into operations that will shut down operations if exceeded) and perform monitoring but based on actual emissions with the oxidizer.

They basically concluded that if we install an oxidizer we could forego the feasibility study and the cost of a cooler and continue to be a minor source. If we choose to pursue our other options than they will take appropriate action to ensure that the air quality of Oregon is not being affected by our decision.

Amos had records of the temperature and operating conditions on the dates noted by the DEQ and they are:

1. On 2/17, at 1800 hours the temperature was 245 degrees F. At 2200 hours it was 251 degrees F. On 2/18 at 1100 hours the temperature reached 278 degrees at which time Amos had the system shutdown.
2. On 3/6 at 0200 hours the temperature was 176 degrees F. It increased to 180 by 0600 and 200 by 1000 and remained at this temperature the remainder of the day.

3. On 3/7 at 0200 the temperature was 210 degrees F, 214 at 0600, 220 at 1000, 225 at 1800 and 225 at 2200 hours.

On March 22, we met with Dick Law to discuss cost estimates of a thermal oxidizer to replace the current fume system. Based on previous estimates for the installation of a cooler and discussion with Mr. Law, the following options exist:

1. Install cooler:
   a. Estimated cost of cooler installation.....$55,000
   b. Emissions testing w/speciated analysis (2).....$24-30,000
   c. Install test ports on current stack (including cleaning).....$5,000-7,500
   d. Additional measures such as carbon filters.....$10-15,000
   e. Possible penalties for violation of 20% opacity.....$10,000/day
   f. Cost of community involvement/deteriorating relations with ODEQ ????
   g. Perform feasibility study.....$4,300
   h. Total cost.....$98,300-????

2. Install thermal oxidizer:
   a. Estimated cost of TO installation.....$75,000-????
   b. Emissions testing using FID.....$5,000

Based on the mentality of ODEQ and cost associated with our two options, I believe it would be in everyone's best interest to proceed with the installation of a thermal oxidizer. First, the day we toured the facility, the temperature of the fume system was in the range that the proposed cooler would be operating at and the personnel from ODEQ felt it's condition was marginal at best. Second, if we install the cooler we will most likely need to install carbon filter or some additional equipment to meet the 20% opacity limit (carbon filters may be questionable due to the plugging effect). Third, relations with ODEQ and possibly the community that is becoming very active will be diminished and harm future relationships. Fourth, the cost of a thermal oxidizer may be in line with the cost of the cooler (it will depend on the BTU value of the waste gas). Fifth, we could be assessed penalties that would exceed the cost either system.

Cc: A. Kamerer
W. Meisinger
T. Self

Oregon

John A. Kitzhaber, M.D., Governor

Department of Environmental Quality
Northwest Region Portland Office
Air Quality Program
2020 SW 4th Avenue, Suite 400
Portland, OR 97201-4987
(503) 229-5554
FAX (503) 229-5265
TTY (503) 229-5471

March 9, 2000

KOPPERS INDUSTRIES, INC.
7540 NW SAINT HELENS ROAD
PORTLAND OR 97210

RE: NOTICE OF INTENT TO CONSTRUCT
FILE / PERMIT # **26-2930**
NC # **017977**

On February 29, 2000 the Department of Environmental Quality accepted for processing a Notice of Intent to Construct for your facility located at 7540 NW St. Helens Road in Portland, Oregon. Your notice requests review of the installation of a cooler for the heavy oil wash fluid that is used in the fume recovery system.

Processing of this notice is assigned to Randy Bailey at (503) 229-6736.

Unless the Department requests additional information within thirty (30) days of the date of this letter, you will be notified of approval or disapproval within sixty (60) days.

In addition to meeting the air quality standards, your facility is also obligated to operate in compliance with the daytime and nighttime noise standards set forth in Oregon Administrative Rule (OAR) 340-35-035(1). For a copy of the noise regulations, please call me at (503) 229-5582.

Sincerely,

Daphne L. Bussey
Permit Coordinator
Air Quality Program
Northwest Region

RECEIVED
MAR 1 0 2000
KOPPERS INDS, INC.
PORTLAND OR

Cc: Randy Bailey/NWR

cc: T. Self, K-1800
M. Cilley, Stickney
B. Messenger, HTC

DEQ-1

KOPPERS INDUSTRIES

Koppers Industries, Inc.
7540 N.W. St. Helens Road
Portland, OR 97210-3663

Amos S. Kamerer
Plant Manager

Telephone: 503-286-3681
Fax: 503-285-2831

February 29, 2000

Kathy Amidon
Permit Writer
Oregon Dept. of Environmental Quality
Northwest Region, Air Quality Division
2020 SW Fourth Ave., Suite 400
Portland, Oregon 97201-4987

Reference: Notice of Intent to Construct
File NO. 26-2930

Dear Kathy,

Confirming our telephone conversation and my follow up letter to you last Friday, attached please find the application, Notice of Intent to Construct, on the cooler that we plan to add to our fume recovery system.

Again, I really appreciate all of your assistance, in this matter.

Sincerely,

Amos

Amos S. Kamerer

CC: T. Self, KII
M. Cilley, KII

MAR 17

Identification Information

1. Permit Number 26-2930

2. Legal Company Name:	3. Facility Name: *(if different from legal company name)*
Koppers Industries, Inc. Company Name	Facility Name
7540 NW Saint Helens Road Mailing Address	Location Address
Portland, OR 97210 City, State, Zip	City, State, Zip
4. Compliance Contact:	**5. Information/Clarification Contact:**
Amos S. Kamerer Plant Manager Name & Title	Name & Title
same Mailing Address	Location Address
(503) 286-3681 Area Code & Telephone Number	Area Code & Telephone Number

Facility Information

6. SIC Codes: 2 8 6 5

7. Other Department permits? (y/n; if y, specify type and permit number) Yes X No ____

NPDES # 101642

8. Increased capacity/emissions, new pollutants? Yes ____ No X

9. If applicable, attach a Land Use Compatibility Statement.

Construction Information

10. Description of proposed construction: We plan to add a cooler for the heavy oil wash fluid that is used in the fume recovery system.

11. Attach relevant forms from Form Series AQ200, Device/Process Forms, if applicable.

12. Attach Form AQ301, Control Device Description, if applicable.

13. Attach a process flow diagram.

Emissions Data

14. Pre-and Post-Construction emissions summary data

a. Emissions Point	b. Pollutant	c. Pre-Construction Emissions		d. Post-Construction Emissions	
		short-term (specify unit)	annual (tons/year)	short-term (specify unit)	annual (tons/year)
T-102 Fume Tank				Per the data limits of the air permit.	

15. Description of waste disposal practices *before* the construction:
No waste disposal is involved

Koppers016745

16. Description of waste disposal practices *after* the construction: No waste disposal is involved

Construction Data

17. Timing of construction.

a. Commence date (mm/dd/yy) 03/15/00

b. Begin date (mm/dd/yy) 06/15/00

c. Completion date (mm/dd/yy) 07/31/00

18. Will tax credits be requested once construction is completed? Yes ____ No X

Signature

19. Signature

I hereby certify that I have completed this application to the best of my ability and that the information herein and in the attached exhibits is true and correct to the best of my knowledge.

Amos S. Kamerer
Name of Authorized Representative

Plant Manager
Title

Signature

02/29/00
Date (mm/dd/yy)

KOPPERS INDUSTRIES

Koppers Industries, Inc.
7540 N.W. St. Helens Road
Portland, OR 97210-3663

Amos S. Kamerer
Plant Manager

Telephone: 503-286-3681
Fax: 503-285-2831

February 25,2000

Kathy Amidon
Permit Writer
Oregon Dept. of Environmental Quality
Northwest Region, Air Quality Division
2020 SW Fourth Ave., Suite 400
Portland, Oregon 97201-4987

Reference: NOTICE OF INTENT TO CONSTRUCT
FILE NO. 26-2930
NC # 017237

Dear Kathy,

As a follow up to our telephone conversation earlier today; attached please find the Notice of Approved Construction Completion, for the above referenced Construction Notice.

As I explained, this work was actually completed in April of last year. However, shortly after that work was completed, we decided that we wanted to make an additional improvement to the fume recovery system, by adding a cooler for the heavy oil wash fluid that is used in the system. After considerable reviews by our Engineering Department, we have finally decided on the design that we think will work the best and this is now out for bid.

During this period, I erroneously though that we could simply add this work the original Notice, thus, the very long delay In sending the attached Completion form to you.

As soon as I receive from you, the new application for construction, I will prepare it for the cooler work and get it back to you promptly.

I apologize for my over sight and the resulting delay in getting this Completion Notice back to you.

Sincerely,

Amos

Amos S Kamerer

CC: T. Self, KII
M. Cilley, KII

DEPARTMENT OF ENVIRONMENTAL QU. .TY
Northwest Region
2020 SW Fourth Ave., Suite 400
Portland, OR 97201-4987

NOTICE OF APPROVED CONSTRUCTION COMPLETION

(Return this form within 30 days of completion of approved construction)

Applicant: Supply all information requested in this block.

Company Koppers Industries, Inc. Phone (503) 286-3681

Address 7540 NW Saint Helens Road

City, State, Zip Portland, OR 97210 Contact Person Amos Kamerer

DEQ File No. 26-2930 NC No. 017237

Description of installed facility/equipment:

Replaced the steam heating system for our fume recovery tank with an automated electric impedance system and added a demister to the vent stack to further collect particulate matter.

Construction completed on: 4/15/99 Placed in operation on: 4/15/99

Tax Credits

Do you wish to apply for tax credit? Yes ____ No X

Amos S. Kamerer
Signature

Plant Manager
Title

2/25/00
Date

For DEQ Use Only

Assigned to ____ Date ____ Inspection report by ____ Date ____

Summary of Inspection:

NC.2
(9/93)

Air/Compliance Consultants, Inc.

Date: May 12, 1999

Page 1 of 2

Project Number: AC099

Please Deliver Immediately To:

Name:	Traci Self	Phone:	
Company:	Koppers	Fax:	227-2423

From:	Jill	Phone:	(412) 826-3636
	Air/Compliance Consultants, Inc.	Fax:	(412) 826-3640

Message:

Traci,

The attached is a typical PAC analysis for KII products. None of the compounds are listed 189 HAPs under the CAA .

The only possible CAA category for the PACs is the POM category. I would argue that since the PACs are not generated at the site they are not a product of incomplete combustion for the site. I will search the EPA websites for any similar determinations.

Regards,
Jill

Please call if transmission is incomplete.
This message is intended only for the use of the Individual or Entity to which it is addressed and may contain information that is privileged, confidential, and exempt from disclosure under applicable law. If the Reader of this message is not the intended recipient, you are hereby notified that any dissemination, distribution, or copying of this communication is strictly prohibited. If you have received this communication in error, please notify us immediately by telephone, and return the original transmission to us at the above address via U.S. Postal Services. Thank you.

1050 William Pitt Way, Pittsburgh, Pennsylvania 15238, (412) 826-3636, FAX (412) 826-3640

KOPPERS INDUSTRIES

Koppers Industries, Inc.
1005 William Pitt Way
Pittsburgh, PA 15238

Telephone: (412) 826-3970
FAX: (412) 826-3999

TO: D. R. McADAMS LOCATION:

COMPANY NAME: GERRITY & MILLER, INC.

COMPANY TELEPHONE NUMBER: 3640

FROM: O. MALMROS

NUMBER OF PAGES TO FOLLOW: 1

IF YOU DO NOT RECEIVE ALL MATERIAL TRANSMITTED, PLEASE CALL US ON: 412/826-3971

OUR PANAFAX NUMBER IS: 412/826-3999

Final results for the PAC testing. 6/27/1996 OM

	Q96-596 Ola tar	Q96-586 RCO	Q96-570 CMN
	0,14	ND	ND
Benz(a)anthracene	0,45	0,015	ND
Chrysene	ND	ND	ND
1-Nitropyrene	0,091	ND	ND
Benzo(b+k+f)fluoranthene + 7,12-Dimethylbenz(a)anthracene	0,13	ND	ND
Benzo(a)pyrene	ND	ND	ND
Dibenz(a,j)acridine	ND	ND	ND
Dibenz(ah)acridine	0,045	ND	ND
Indeno(1,2,3.cd)pyrene	0,023	ND	ND
Dibenzo(ah)anthracene	0,057	ND	ND
Benzo(ghi)pyrene + 7-H Dibenzo(c,g)carbazole	0,027	ND	ND
Dibenzo(al)pyrene	ND	ND	ND
Dibenzo(ai)pyrene	ND	ND	ND

Additional analyses for the PAC testing. Concentrations in % weight

963

Houston

O. Malmros.

Fume recovery Operating Hours- Maximum Case
Koppers Industries, Inc., Portland Tar Plant, Portland, Oregon

Assumptions:

All Pitch comes in as solid pitch		
Total Annual Pitch Production:	150,000	tons/yr
Pitch loading from barges	1,100	gallons/min
% Pitch loaded into trucks from T-68:	60	% of total pitch production
Pitch loading pumping rate into trucks from T-68:	55.5	tons/hr, based on 37 tons loaded per 40 minutes
% Pitch loaded into railcar from T-65:	40	% of total pitch production
Pitch loading pumping rate into railcars from T-65:	58.0	tons/hr, based on 87 tons loaded per 90 minutes Phase 1
Loading rate for 2 racks	116.0	tons/hr Phase II added a rack
% Pitch transferred from T-65 to T-68	60.0	% of total pitch production
Pitch transfer pumping rate from T-65 to T-68	70.0	tons/hr
Heavy oil pumping rate:	23	tons/hr, based on 1,200 gal/15min, and a density of 9.6 lbs/gal
Heavy Oil Annual Usage:	375	tons/yr, based on 1997 actual heavy oil usage of 42,421 gal times the ratio of potential pitch production (70,000 tons) over 1997 actual pitch production (38,000 tons)

Calculations:

Transfer Description	Amount per Charge (tons)	Pumping Rate (ton/hr)	Annual Amount Transferred (tons/yr)	Annual Transfer Time (hours)	Annual Number of Transfers	T-65 fume hours	T-68 fume hours	Total hours
Pitch loading from Docks	NA	297	150,000	505	NA	621		621
From T-68 to trucks	37	55.5	90,000	1,622	2,432		6486	6,486
From T-65 to rail	87	116.0	60,000	517	690	1,897		1,897
From T-65 to T-68	1200	70.0	90,000	1,286	75		1436	1,436
Heavy Oil transfer	5.76	23	375	16	65	73	73	146
TOTALS:				**3,946**	**3,262**	**2,591**	**7,995**	**10,586**

Assume all transfers are done independently and that the fume recoverys are at high capacity (1,050 scfm). Assume one hour before and after each transfer, 2 start/stop sequences. Therefore, the total fume recovery operating hours can be calculated as follows:

Actual case: fume recovery will run almost all of the time, many transfers will be done together.

Annual Operating Time: 100 % annual operating time

Maximum Potential Emissions from Combined Natural Gas/Fuel Oil Combustion, Koppers Industries, Inc., Portland Tar Plant

Unit ID	Heat Input (MM BTU/Hr)	Fuel Used	Hourly Potential Fuel Use (Mgal/hr) (mmcf/hr)	Annual Potential* Fuel Use (Mgal/yr) (mmcf/yr)	*Emission Factor NOx (lb/Mgal) (lb/mmcf)*	NOx (lb/hr)	NOx (tpy)	*Emission Factor VOC (lb/Mgal) (lb/mmcf)*	VOC (lb/hr)	VOC (tpy)	*Emission Factor CO (lb/Mgal) (lb/mmcf)*	CO (lb/hr)	CO (tpy)	*Emission Factor SO2 (lb/Mgal) (lb/mmcf)*	SO2 (lb/hr)	SO2 (tpy)	*Emission Factor* PM-10 *(lb/Mgal) (lb/mmcf)*	PM-10 (lb/hr)	PM-10 (tpy)
Atlas Boiler	21	Oil	0.15	302.40	*20.00*	3.00	3.02	*0.20*	0.03	0.03	*5.00*	0.75	0.76	*71.00*	10.65	10.74	*2.00*	0.30	0.30
		Gas	0.02	135.66	*140.00*	2.82	9.50	*2.78*	0.06	0.19	*35.00*	0.70	2.37	*3.80*	0.08	0.57	*6.20*	0.12	0.94
Hot Oil Heater	8.5	Oil	0.061	122.40	*20.00*	1.22	1.22	*0.20*	0.01	0.01	*5.00*	0.31	0.31	*71.00*	4.33	4.35	*2.00*	0.12	0.12
		Gas	0.01	54.91	*100.00*	0.81	2.75	*5.28*	0.04	0.14	*21.00*	0.17	0.58	*3.80*	0.03	0.26	*4.50*	0.04	0.31
New Hot Oil Heater	10	Oil	0.071	144.00	*20.00*	1.42	1.44	*0.20*	0.01	0.01	*5.00*	0.36	0.36	*71.00*	5.04	5.11	*2.00*	0.14	0.14
		Gas	0.01	64.60	*140.00*	1.34	4.52	*2.78*	0.03	0.09	*35.00*	0.34	1.13	*3.80*	0.04	0.23	*6.20*	0.06	0.38
Total							**22.451**			**0.481**			**5.503**			**21.257**			**2.191**

48,151 mcf or Okeathen

* Based on 2,016 hours/year of fuel oil combustion and 6744 hours/yr of natural gas combustion

oil combustion = 12 wks/yr x 7 days/wk x 24 hrs/day = 2016 hrs

natural gas combustion = 8760 hrs - 2016 hrs = 6744 hrs

* Assumed higher heating value of #2 Fuel Oil = 140,000 BTU/gal

* Higher Heating Value Natural Gas = 1044 BTU/cuft

* Emission Factors are taken from the AP-42, Section 1.3, Jan., 1995

* SO2 Emission Factor calculated by assuming 0.5% S in Oil

* Calculation for criteria pollutants during oil combustion = (max input in mm BTU/hr) / (higher heating value mm BTU/gal) X (2016 hr/yr) / (1000 gal/Mgal) x (Criteria emission factor lb/Mgal) / 2000 lbs/ton

* Calculation for criteria pollutants during natural gas combustion = (max input in mm BTU/hr) / (higher heating value mm BTU/mmcf) X (6744 hr/yr) x (Criteria emission factor lb/mmcf) / 2000 lbs/ton

* Assumed PM = PM-10

AC092/PERMIT/Emax1298.xls,oil-gas comb 3/3/99

Koppers016752

Maximum Potential Emissions from Natural Gas Combustion, Koppers Industries, Inc., Portland Tar Plant

Unit ID	Heat Input (MM BTU/Hr)	Fuel Used	Hourly Potential Fuel Use (mmcf/hr)	Annual Potential* Fuel Use (mmcf/yr)	Emission Factor NOx (lb/mmcf)	NOx (lb/hr)	NOx (tpy)	Emission Factor VOC (lb/mmcf)	VOC (lb/hr)	VOC (tpy)	Emission Factor CO (lb/mmcf)	CO (lb/hr)	CO (tpy)	Emission Factor SO2 (lb/mmcf)	SO2 (lb/hr)	SO2 (tpy)	Emission Factor PM-10 (lb/mmcf)	PM-10 (lb/hr)	PM-10 (tpy)
Atlas Boiler	21	Gas	0.02	176.21	140.00	2.82	12.33	2.78	0.06	0.25	35.00	0.70	3.08	3.80	0.08	0.33	6.20	0.12	0.55
Hot Oil Heater	8.5	Gas	0.01	71.32	100.00	0.81	3.57	5.28	0.04	0.19	21.00	0.17	0.75	3.80	0.03	0.14	4.50	0.04	0.16
New Hot Oil Heater	10	Gas	0.01	83.91	140.00	1.34	5.87	2.78	0.03	0.12	35.00	0.34	1.47	3.80	0.04	0.16	6.20	0.06	0.26
Total				**331.437**			**21.774**			**0.550**			**5.301**			**0.630**			**0.967**

* Based on 8760 hrs/yr of operation
Higher Heating Value Natural Gas = 1044 BTU/cuft
Emission Factors are taken from the AP-42, Section 1.4, Jan., 1995
Assumed PM = PM-10
Calculation for criteria pollutants = (max input in mm BTU/hr) X (Criteria emission factor) X (8760 hr/yr) / (2000 lbs/ton * 1044 BTU/SCF)

Koppers016753

Maximum Fugitive Equipment Leak Emissions, Koppers Industries, Inc., Portland Terminal

Reference: Protocol for Equipment Leak Estimates EPA-453/R-95-017, Average Emission Factors, Table 2--1

Heavy Oil Fugitive Equipment Leaks
Tanks 67

Process Description	Number In service	Emission Factor (lb/hr/source)	Hours (year)	Emission (lb/hr)	Emission (lb/yr)
Pump seals	3	0.01899	13	0.06	0.73
Valves (in line)	23	0.00051	13	0.01	0.15
Pressure relief valves	0	0.22907	13	0.00	0.00
Open ended valves	1	0.00374	13	0.00	0.05
Flanges	57	0.00403	13	0.23	2.95
		Total emissions		0.30	3.88

Assume pumping rate 200 gpm
Hours = 2 * gals throughput/gpm pump rate/60= 77,143 / 200 *2 /60 = 12.9

Heavy Oil: Storage Fugitive Equipment Leak
Tank 33

Process Description	Number In service	Emissions (lb/hr/source)	Hours year	Emission (lb/hr)	Emission (lb/yr)
Pump seals	1	0.01899	75	0.02	1.42
Valves (in line)	7	0.00051	75	0.00	0.27
Pressure relief valves	0	0.22907	75	0.00	0.00
Open ended valves	0	0.00374	75	0.00	0.00
Flanges	18	0.00403	75	0.07	5.44
		Total emissions		0.10	7.13

Assume pumping rate 80 gpm
Hours = 2 * gals throughput/gpm pump rate/60= 180,000 / 80 /60 * 2= 75.0

Pitch: Storage Fugitive Equipment Leak

Process Description	Number In service	Emissions (lb/hr/source)	Hours year	Emission (lbs/hr)	Emission (lb/yr)
Pump seals	5	0.01899	2,273	0.09	215.76
Valves (in line)	31	0.00051	2,273	0.02	35.69
Pressure relief valves	0	0.22907	2,273	0.00	0.00
Open ended valves	5	0.00374	2,273	0.02	42.55
Flanges	68	0.00403	2,273	0.27	622.82
		Total emissions		0.40	916.82

Assume pumping rate 400 gpm
Hours = 2 * gals throughput/gpm pump rate/60= 27,272,727 / 400 /60 *2= 2,272.7

Pitch: Loading Fugitive Equipment Leak

Process Description	Number In service	Emissions (lb/hr/source)	Hours year	Emissions (lb/hr)	Emission (lb/yr)
Pump seals	2	0.01899	1,136	0.04	43.15
Valves (in line)	11	0.00051	1,136	0.01	6.33
Pressure relief valves	0	0.22907	1,136	0.00	0.00
Open ended valves	2	0.00374	1,136	0.01	8.51
Flanges	33	0.00403	1,136	0.13	151.13
		Total emissions		0.18	209.12

Assume pumping rate 400 gpm
Hours = * gals throughput/gpm pump rate/60= 27,272,727 / 400 /60 = 1,136.4

Distillate Fugitive Equipment Leaks
Tanks 67 (Existing Case Only)

Process Description	Number In service	Emission Factor (lb/hr/source)	Hours (year)	Emission (lb/hr)	Emission (lb/yr)
Pump seals	3	0.01899	8	0.06	0.43
Valves (in line)	23	0.00051	8	0.01	0.09
Pressure relief valves	0	0.22907	8	0.00	0.00
Open ended valves	1	0.00374	8	0.00	0.03
Flanges	57	0.00403	8	0.23	1.72
		Total emissions		0.30	2.27

Assume pumping rate 200 gpm
Hours = 2 * gals throughput/gpm pump rate/60= 45,000 / 200 *2 /60 = 7.5

TOTALS FOR EXISTING CASE ONLY - i.e T67 containing Distillate
0.98 lb/hr
1135.34 lb/yr

TOTAL FOR OTHER CASES - i.e. T67 containing Heavy Oil
0.98 lb/hr
1136.96 lb/yr

Koppers016754

Maximum Potential Emissions from Uncontrolled Loading, Koppers Industries, Inc., Portland Terminal

Existing Case Only

Reference: AP-42, 1995, Section 5.2, "Transporation and Marketing of Petroleum Liquids"

Process Description	Label	Temp. (°F)	Vapor MW (lb/lb-mole)	V_p (psia)	Saturation Factor	Throughput (Mgal/min)	Throughput (Mgal/yr)	L_L (lb/Mgal)	L_L (lb/yr)	L_L (lb/hr)
Tank 67 to Rail	P1/P13 Distillate	170	128.34	0.0386	1.45	0.20	36	0.1422	5	1.71

Throughput given by Amoco 10/26/98 ROTC

Koppers016755

Maximum Hourly VOC Loading Emissions from Uncontrolled Tanks, Koppers Industries, Inc., Portland Terminal

Tank	Commodity	Vapor MW	Temp deg F	Temp deg R	PVA psia	Pump Rate Gal/min	VOC Emissions (lb/hr)	
67	Heavy Oil	139.56	200	660.0	0.0097	100.00	0.15	
33	Heavy Oil	143.22	250	710.0	0.0302	80.00	0.37	
67	P1/P13 Distillate	128.34	170	630.0	0.0386	100.00	0.59	Existing Case Only

Pound per hour (lb/hr) tank emissions were calculated as follows

$$\frac{\text{gal}}{\text{min}} \left| \frac{60\ \text{min}}{\text{hr}} \right| \frac{\text{cf}}{7.48\ \text{gal}} \left| \frac{\text{lb-mol}}{385\ \text{cf}} \right| \frac{\text{MW lb}}{\text{lb-mol}} \left| \frac{\text{PVA}}{14.7\ \text{psia}} \right| \frac{530\ \text{R}}{\text{TB deg R}} = \text{lbs/hr}$$

Koppers016756

Emissions from T-67, Koppers Industries, Inc., Portland Terminal
Existing Case Only

Reference: AP-42, Jan. 1995, Liquid Organic Storage Tanks

Tank ID	T-67	Description	P1/P13 Distillate
City	Portland	State	OR
Company	Koppers Industries, Inc.		

Tank Information		
Diameter (D)	*24.25*	ft
Shell Height (H_S)	*28.5*	ft
Liquid Height (H_L)	*14.3*	ft
Tank Volume	90,000	gal
Annual Throughput (assumed = remaining material)	*45,000*	gal
Number of Turnovers	0.5	turnovers
Is Tank Heated (Y/N)?	Y	
Breather Vent Pressure Range (P_B)	*0.00*	psia
Paint solar absorbance (primer, good) (.)	*0.89*	
Solar Insolation (I) for Portland, OR	*1,067*	Btu/ft^2-day

Content Information		
Vapor Molecular Weight (M_v)	*128.34*	lb/lb-mole
Vapor Pressure @ Average Daily Temp (P_{VA})	*0.0386*	psia @ 170 F
Daily Average Ambient Temp (T_{AA})	538	°R
Daily Max Ambient Temp (T_{AX})	548	°R
Daily Min Ambient Temp (T_{AN})	528	°R
Daily Ambient Temp Range (T_A)	20	°R
Daily Average Liquid Surface Temperature	630	°R
Maximum Liquid Surface Temperature	640	°R
Minimum Liquid SurfaceTemperature	620	°R
Bulk Liquid Temperature Range	20	°R
Maximum Liquid Surface Temp (T_{LX})	640.00	°R
Minimum Liquid Surface Temp (T_{LN})	620.00	°R
Average Liquid Surface Temp (T_{LA})	630.00	°R
Vapor Pressure @ Max Liq. Surface Temp(P_{LX})	*0.0500*	psia
Vapor Pressure @ Min Liq. Surface Temp (P_{LN})	*0.0297*	psia
Vapor Pressure Range (P_V)	0.02032	psia

BREATHING LOSSES

Vv =	6,698	ft^3	
$H_{VO} = (H_S - H_L + H_{RO})$	=	14.50	
$T_{LA} = (0.44T_{AA}) + (0.56T_B) + (0.0079I)$	=	629.44	°R
$T_B = T_{AA} + (6) - 1$	=	629	°R
Wv =	0.0007	lb/ft^3	
K_E =	0.024		
$T_v = (0.72*T_A) + 0.028I$	=	14.4	°R
K_S =	0.971		
L_S (2/96) =	42.3	lb/yr	

WORKING LOSSES

$L_W = 0.0010\ M_v P_{VA} OF_{WN} K_P$ =	5.3	lb/yr

TOTAL LOSSES

$L_S + L_W$ =	47.6	lb/yr

Koppers016757

Emissions from T-67, Koppers Industries, Inc., Portland Terminal

Reference: AP-42, Jan. 1995, Liquid Organic Storage Tanks

Tank ID	T-67	Description	Heavy Oil
City	Portland	State	OR
Company	Koppers Industries, Inc.		

Tank Information		
Diameter (D)	*24.25*	ft
Shell Height (H_s)	*28.5*	ft
Liquid Height (H_L)	*14.3*	ft
Liquid Temperature (F)	*200*	deg F
Tank Volume	90,000	gal
Annual Throughput	*77,143*	gal
Number of Turnovers	0.9	turnovers
Is Tank Heated (Y/N)?	Y	
Breather Vent Pressure Range (P_B)	*0.00*	psia
Paint solar absorbance (primer, good) (.)	*0.89*	
Solar Insolation (I) for Portland, OR	*1,067*	Btu/ft^2-day

Content Information		
Vapor Molecular Weight (M_v)	*139.56*	lb/lb-mole
Vapor Pressure @ Average Daily Temp (P_{VA})	*0.0097*	psia
Daily Average Ambient Temp (T_{AA})	538	°R
Daily Max Ambient Temp (T_{AX})	548	°R
Daily Min Ambient Temp (T_{AN})	528	°R
Daily Ambient Temp Range (T_A)	20	°R
Daily Average Liquid Surface Temperature	660	°R
Maximum Liquid Surface Temperature	670	°R
Minimum Liquid SurfaceTemperature	650	°R
Bulk Liquid Temperature Range	20	°R
Maximum Liquid Surface Temp (T_{LX})	670.00	°R
Minimum Liquid Surface Temp (T_{LN})	650.00	°R
Average Liquid Surface Temp (T_{LA})	660.00	°R
Vapor Pressure @ Max Liq. Surface Temp(P_{LX})	*0.0123*	psia
Vapor Pressure @ Min Liq. Surface Temp (P_{LN})	*0.0076*	psia
Vapor Pressure Range (P_V)	0.00466	psia

BREATHING LOSSES			
V_V =	6,698	ft^3	
$H_{VO} = (H_S - H_L + H_{RO})$	=		14.50
$T_{LA} = (0.44T_{AA}) + (0.56T_B) + (0.0079I)$	=		659.44 °R
$T_B = T_{AA} + (6.) - 1$	=		659 °R
W_V =	0.0002	lb/ft^3	
K_E =	0.022		
$T_V = (0.72*T_A) + 0.028I$	=		14.4 °R
K_S =	0.993		
L_S (2/96) =	10.3	lb/yr	
WORKING LOSSES			
$L_W = 0.0010\ M_V P_{VA} QK_N K_P$ =	2.5	lb/yr	
TOTAL LOSSES			
$L_S + L_W$ =	12.8	lb/yr	

Koppers016758

Emissions from T-33, Koppers Industries, Inc., Portland Terminal

Reference: AP-42, Jan. 1995, Liquid Organic Storage Tanks

Tank ID	T-33	Description	Heavy Oil
City	Portland	State	Oregon
Company	Koppers Industries, Inc.		

Tank Information		
Diameter (D)	*18.0*	ft
Shell Height (H_s)	*24.0*	ft
Liquid Height (H_L)	*12*	ft
Liquid Temperature (F)	*250*	deg F
Tank Volume	45,000	gal
Annual Throughput	*180,000*	gal
Number of Turnovers	4.0	turnovers
Is Tank Heated (Y/N)?	Y	
Breather Vent Pressure Range (P_B)	*0.00*	psia
Paint solar absorbance (primer, good) (.)	*0.89*	
Solar Insolation (I) for Portland, Oregon	*1,067*	Btu/ft^2-day
Content Information		
Vapor Molecular Weight (M_v)	*143.22*	lb/lb-mole
Vapor Pressure @ Average Daily Temp (P_{VA})	*0.0302*	psia
Daily Average Ambient Temp (T_{AA})	538	°R
Daily Max Ambient Temp (T_{AX})	548	°R
Daily Min Ambient Temp (T_{AN})	528	°R
Daily Ambient Temp Range (T_A)	20	°R
Daily Average Liquid Surface Temperature	710	°R
Maximum Liquid Surface Temperature	720	°R
Minimum Liquid SurfaceTemperature	700	°R
Bulk Liquid Temperature Range	20	°R
Maximum Liquid Surface Temp (T_{LX})	720.00	°R
Minimum Liquid Surface Temp (T_{LN})	700.00	°R
Average Liquid Surface Temp (T_{LA})	710.00	°R
Vapor Pressure @ Max Liq. Surface Temp(P_{LX})	*0.0373*	psia
Vapor Pressure @ Min Liq. Surface Temp (P_{LN})	*0.0243*	psia
Vapor Pressure Range (P_V)	0.01309	psia

BREATHING LOSSES			
Vv =	3,101	ft^3	
$H_{VO} = (H_S - H_L + H_{RO})$	=	12.19	
$T_{LA} = (0.44T_{AA}) + (0.56T_B) + (0.0079I)$	=	709.44	°R
$T_B = T_{AA} + (6) - 1$	=	709	°R
Wv =	0.0006	lb/ft^3	
K_E =	0.021		
$T_v = (0.72*T_A) + 0.028I$	=	14.4	°R
K_S =	0.981		
L_B (2/96) =	13.3	lb/yr	
WORKING LOSSES			
$L_W = 0.0010\ M_v P_{VA} OK_N K_C$ =	18.5	lb/yr	
TOTAL LOSSES			
$L_T = L_W$ =	31.8	lb/yr	

Koppers016759

Maximum Potential Emissions, Phase II
Koppers Industries, Inc., Portland Terminal

Unit	Comments	Commodity	NO_x (lb/hr)	NO_x Tons/Yr	VOC (lb/hr)	VOC Tons/Yr	CO (lb/hr)	CO Tons/Yr	SO2 (lb/hr)	SO2 Tons/Yr	PM-10 (lb/hr)	PM-10 Tons/Yr
Atlas Boiler[1]		Gas	2.82	12.33	0.06	0.25	0.70	3.08	0.08	0.33	0.12	0.55
		Oil/Gas	3.00	12.52	0.06	0.22	0.75	3.13	10.65	11.31	0.30	1.24
		MAX	3.00	12.52	0.06	0.25	0.75	3.13	10.65	11.31	0.30	1.24
Hot Oil Heater(backup unit)[1]		Gas	0.81	3.57	0.04	0.19	0.17	0.75	0.03	0.14	0.04	0.16
		Oil/Gas	1.22	3.97	0.04	0.16	0.31	0.88	4.33	4.60	0.12	0.43
		MAX	1.22	3.97	0.04	0.19	0.31	0.88	4.33	4.60	0.12	0.43
Fume Combustion System [2,3]		NA			0.49	2.16						
Tank 33		Heavy Oil			0.37	0.016						
Tank 67		Heavy Oil			0.15	0.006						
Fugitives		NA			0.98	0.568						
New Hot Oil Heater[1]		Gas	1.34	5.87	0.03	0.12	0.34	1.47	0.04	0.16	0.06	0.26
		Oil/Gas	1.42	5.96	0.03	0.10	0.36	1.49	5.04	5.34	0.14	0.52
		MAX	1.42	5.96	0.03	0.12	0.36	1.49	5.04	5.34	0.14	0.52
T-200		Liquid Pitch				Note 4						
T-210		Liquid Pitch				Note 4						
Plant Total	**Maximum**		**5.64**	**22.45**	**2.12**	**3.30**	**1.41**	**5.50**	**20.02**	**21.26**	**0.56**	**2.19**

NOTES

[1] Combustion units may be run on natural gas or #2 fuel oil. However, fuel oil combustion will occur a maximum of 12 weeks during any given year.

[2] The fume combustion system receives emissions from the following units: T-68, T-65, T-200, T-210, railcar loading and tank car loading.

[3] Hourly and annual VOC emissions from the fume recovery system were calculated using ChemCAD.

[4] VOC Emissions from T-200 and T-210 are included in the fume combustion system's emissions.

Koppers016760

Maximum Potential HAP Emissions, Phase III
Koppers Industries, Inc., Portland Terminal

Unit	Commodity	Benzene (lb/yr)	Toluene (lb/yr)	Ethylbenzene (lb/yr)	p-Xylene (lb/yr)	m-Xylene (lb/yr)	Phenol (lb/yr)	m-Cresol (lb/yr)	p-Cresol (lb/yr)	o-Cresol (lb/yr)	Naphthalene (lb/yr)	Quinoline (lb/yr)	Biphenyl (lb/yr)	Dibenzofuran (lb/yr)	Total HAPs (lb/yr)	
Atlas Boiler[1]	Gas															
	Oil/Gas															
	MAX															
Hot Oil Heater(backup unit)[1]	Gas															
	Oil/Gas															
	MAX															
Fume Combustion System [2,3]	NA										0.43				0.43	
Tank 33	Heavy Oil										0.03	0.03	0.11	0.68	0.85	
Tank 67	Heavy Oil										0.95	0.03	0.02	0.15	1.15	
Fugitives	NA										0.03	0.00	0.00	0.03	0.07	
New Hot Oil Heater[1]	Gas															
	Oil/Gas															
	MAX															
T-200[4]	Liquid Pitch															
T-210[4]	Liquid Pitch															
Plant Total											**1.44**	**0.06**	**0.14**	**0.85**	**2.50**	LB/YR
															0.001	TPY

NOTES

[1] Combustion units may be run on natural gas or #2 fuel oil. However, fuel oil combustion will occur a maximum of 12 weeks during any given year.

[2] The fume combustion system receives emissions from the following units: T-68, T-65, T-200, T-210, railcar loading and tank car loading.

[3] Annual HAP emissions from the fume recovery system were calculated using ChemCAD.

Koppers016761

Maximum Potential Emissions from Uncontrolled Loading, Koppers Industries, Inc., Portland Terminal

Existing Case Only

Reference: AP-42, 1995, Section 5.2, "Transporation and Marketing of Petroleum Liquids"

Process Description	Label	Temp. (°F)	Vapor MW (lb/lb-mole)	V_p (psia)	Saturation Factor	Throughput (Mgal/min)	Throughput (Mgal/yr)	L_L (lb/Mgal)	L_L (lb/yr)	L_L (lb/hr)
Tank 67 to Rail	P1/P13 Distillate	170	128.34	0.0386	1.45	0.20	36	0.1422	5	1.71

Throughput given by Amoco 10/26/93 ROTC

Emissions from T-67, Koppers Industries, Inc., Portland Terminal
Existing Case Only

Reference: AP-42, Jan. 1995, Liquid Organic Storage Tanks

Tank ID	T-67	Description	P1/P13 Distillate
City	Portland	State	OR
Company	Koppers Industries, Inc.		

Tank Information		
Diameter (D)	*24.25*	ft
Shell Height (H_S)	*28.5*	ft
Liquid Height (H_L)	*14.3*	ft
Tank Volume	90,000	gal
Annual Throughput (assumed = remaining material)	*45,000*	gal
Number of Turnovers	0.5	turnovers
Is Tank Heated (Y/N)?	Y	
Breather Vent Pressure Range (P_B)	*0.00*	psia
Paint solar absorbance (primer, good) (.)	*0.89*	
Solar Insolation (I) for Portland, OR	*1,067*	Btu/ft^2-day

Content Information		
Vapor Molecular Weight (M_v)	*128.34*	lb/lb-mole
Vapor Pressure @ Average Daily Temp (P_{VA})	*0.0386*	psia @ 170 F
Daily Average Ambient Temp (T_{AA})	538	°R
Daily Max Ambient Temp (T_{AX})	548	°R
Daily Min Ambient Temp (T_{AN})	528	°R
Daily Ambient Temp Range (T_A)	20	°R
Daily Average Liquid Surface Temperature	630	°R
Maximum Liquid Surface Temperature	640	°R
Minimum Liquid SurfaceTemperature	620	°R
Bulk Liquid Temperature Range	20	°R
Maximum Liquid Surface Temp (T_{LX})	640.00	°R
Minimum Liquid Surface Temp (T_{LN})	620.00	°R
Average Liquid Surface Temp (T_{LA})	630.00	°R
Vapor Pressure @ Max Liq. Surface Temp(P_{LX})	*0.0500*	psia
Vapor Pressure @ Min Liq. Surface Temp (P_{LN})	*0.0297*	psia
Vapor Pressure Range (P_V)	0.02032	psia

~~BREATHING LOSSES~~

V_V =	6,698 ft^3		
$H_{VO} = (H_S - H_L + H_{RO})$		=	14.50
$T_{LA} = (0.44T_{AA}) + (0.56T_B) + (0.0079I)$		=	629.44 °R
$T_B = T_{AA} + (6.) - 1$		=	629 °R
W_V =	0.0007 lb/ft^3		
K_E =	0.024		
$T_v = (0.72*T_A) + 0.028I$		=	14.4 °R
K_S =	0.971		
L_S (7/96) =	42.3 lb/yr		

WORKING LOSSES

$L_W = 0.0010\ M_V P_{VA} OK_N K_P$ =	5.3 lb/yr

TOTAL LOSSES

$L_S + L_W$ =	47.6 lb/yr

Koppers016763

Emissions from T-67, Koppers Industries, Inc., Portland Terminal

Reference: AP-42, Jan. 1995, Liquid Organic Storage Tanks

Tank ID	T-67	Description	Heavy Oil
City	Portland	State	OR
Company	Koppers Industries, Inc.		

Tank Information		
Diameter (D)	*24.25*	ft
Shell Height (H_s)	*28.5*	ft
Liquid Height (H_L)	*14.3*	ft
Liquid Temperature (F)	*200*	deg F
Tank Volume	90,000	gal
Annual Throughput	*77,143*	gal
Number of Turnovers	0.9	turnovers
Is Tank Heated (Y/N)?	Y	
Breather Vent Pressure Range (P_B)	*0.00*	psia
Paint solar absorbance (primer, good) (.)	*0.89*	
Solar Insolation (I) for Portland, OR	*1,067*	Btu/ft^2-day

Content Information		
Vapor Molecular Weight (M_v)	*139.56*	lb/lb-mole
Vapor Pressure @ Average Daily Temp (P_{VA})	*0.0097*	psia
Daily Average Ambient Temp (T_{AA})	538	°R
Daily Max Ambient Temp (T_{AX})	548	°R
Daily Min Ambient Temp (T_{AN})	528	°R
Daily Ambient Temp Range (T_A)	20	°R
Daily Average Liquid Surface Temperature	660	°R
Maximum Liquid Surface Temperature	670	°R
Minimum Liquid SurfaceTemperature	650	°R
Bulk Liquid Temperature Range	20	°R
Maximum Liquid Surface Temp (T_{LX})	670.00	°R
Minimum Liquid Surface Temp (T_{LN})	650.00	°R
Average Liquid Surface Temp (T_{LA})	660.00	°R
Vapor Pressure @ Max Liq. Surface Temp(P_{LX})	*0.0123*	psia
Vapor Pressure @ Min Liq. Surface Temp (P_{LN})	*0.0076*	psia
Vapor Pressure Range (P_V)	0.00466	psia

BREATHING LOSSES			
V_V =	6,698 ft^3		
$H_{VO} = (H_S - H_L + H_{RO})$		=	14.50
$T_{LA} = (0.44T_{AA}) + (0.56T_B) + (0.0079I)$		=	659.44 °R
$T_B = T_{AA} + (6.) - 1$		=	659 °R
W_V =	0.0002 lb/ft^3		
K_E =	0.022		
$T_v = (0.72*T_A) + 0.028I$		=	14.4 °R
K_S =	0.993		
L_S (3/96) =	10.3 lb/yr		
WORKING LOSSES			
$L_W = 0.0010 M_V P_{VA} Q K_E K_S$ =	2.5 lb/yr		
TOTAL LOSSES			
$L_S + L_W$ =	12.8 lb/yr		

Emissions from T-33, Koppers Industries, Inc., Portland Terminal

Reference: AP-42, Jan. 1995, Liquid Organic Storage Tanks

Tank ID	T-33	Description	Heavy Oil
City	Portland	State	Oregon
Company	Koppers Industries, Inc.		

Tank Information		
Diameter (D)	*18.0*	ft
Shell Height (H_s)	*24.0*	ft
Liquid Height (H_L)	*12*	ft
Liquid Temperature (F)	*250*	deg F
Tank Volume	45,000	gal
Annual Throughput	*180,000*	gal
Number of Turnovers	4.0	turnovers
Is Tank Heated (Y/N)?	Y	
Breather Vent Pressure Range (P_B)	*0.00*	psia
Paint solar absorbance (primer, good) (.)	*0.89*	
Solar Insolation (I) for Portland, Oregon	*1,067*	Btu/f^2-day
Content Information		
Vapor Molecular Weight (M_v)	*143.22*	lb/lb-mole
Vapor Pressure @ Average Daily Temp (P_{VA})	*0.0302*	psia
Daily Average Ambient Temp (T_{AA})	538	°R
Daily Max Ambient Temp (T_{AX})	548	°R
Daily Min Ambient Temp (T_{AN})	528	°R
Daily Ambient Temp Range (T_A)	20	°R
Daily Average Liquid Surface Temperature	710	°R
Maximum Liquid Surface Temperature	720	°R
Minimum Liquid SurfaceTemperature	700	°R
Bulk Liquid Temperature Range	20	°R
Maximum Liquid Surface Temp (T_{LX})	720.00	°R
Minimum Liquid Surface Temp (T_{LN})	700.00	°R
Average Liquid Surface Temp (T_{LA})	710.00	°R
Vapor Pressure @ Max Liq. Surface Temp(P_{LX})	*0.0373*	psia
Vapor Pressure @ Min Liq. Surface Temp (P_{LN})	*0.0243*	psia
Vapor Pressure Range (P_V)	0.01309	psia

BREATHING LOSSES			
V_V =	3,101	ft^3	
$H_{VO} = (H_S - H_L + H_{RO})$	=		12.19
$T_{LA} = (0.44T_{AA}) + (0.56T_B) + (0.0079I)$	=		709.44 °R
$T_B = T_{AA} + (6.) - 1$	=		709 °R
W_V =	0.0006	lb/ft^3	
K_E =	0.021		
$T_v = (0.72°T_A) + 0.028I$	=		14.4 °R
K_S =	0.981		
L_S (2/96) =	13.3	lb/yr	
WORKING LOSSES			
$L_W = 0.0010 M_v P_{VA} Q K_N K_P =$	18.5	lb/yr	
TOTAL LOSSES			
$L_S + L_W =$	31.8	lb/yr	

Koppers016765

Basis: **Potential Emissions**

Year	Pitch Total (tons)	Pitch Total (gallons)	Pitch Solid (tons)	Pitch Solid (gallons)	Pitch Liquid (tons)	Pitch Liquid (gallons)	Additive Heavy Oil (gallons)	Fume Recovery Heavy Oil (gallons)
Maximum	150,000	27,272,727	0	0	150,000	27,272,727	180,000	77,143

Gallons = tons * 2,000 lb/ton / (11 lb/gal)

- Heavy Oil Throughput (Tank 33) assumed to be equal to 1.2 gallons per ton of Total Pitch Throughput
- New Tank(s) throughput assumed to be equal to total liquid pitch Shipments
- Rail Car througput assumed equal to 60% of total pitch shipments
- Truck througput assumed equal to 40% of total pitch shipments
- Tank 68 assumed equal to Rail Car Shipments
- Tank 65 throughput assumed equal to total solid pitch deliveries
- Uncontrolled tank breathing losses are based on +/- 10 F temperature variations.
- Fume recovery system solution usage was calculated by assuming 3,000 gallons per month for every 70,000 tons of Pitch processed per year.
- Tank 67 throughput assumed equal to fume recovery system throughput
- Inlet pitch concentration to fume recovery system was assumed saturated pitch at 400F (Actual pitch concentration is expected to be lower)
- Fume recovery system emissions were calculated by ChemCad.

Phase 1 Revisions

- A new tank, T-200, is vented to Fume Recovery System . The effect on emissions is negligible.
- A new Hot oil Heater rated at 10 MMBTU/hr is added. The old heater remains as a backup . Unit can burn oil and natural gas.
- Combustion units may operate up to 12 weeks per year using Fuel Oil and up to 52 weeks per year using Natural Gas

Phase 2 Revisions

- A new tank, T-210, is vented to Fume recovery. The effect on emissions is negligible.
- The Fume Recovery System is replaced with a fume combustor. Pitch fumes are controlled at 98% based on an inlet loading which is assumed saturated at 400F.
- Combustion units may operate up to 12 weeks per year using Fuel Oil and up to 52 weeks per year using Natural Gas

Oregon
John A. Kitzhaber M.D., Governor

Department of Environmental Quality
Northwest Region
2020 SW Fourth Avenue
Suite 400
Portland, OR 97201-4987
(503) 229-5263 Voice
TTY (503) 229-5471

January 7, 1999

KOPPERS INDUSTRIES INC
7540 NW ST HELENS RD
PORTLAND OR 97210

RE: NOTICE OF INTENT TO CONSTRUCT
FILE / PERMIT # 26-2930
NC # 017284

On December 31, 1998 the Department of Environmental Quality accepted for processing a Notice of Intent to Construct for your facility located at 7540 NW St. Helens Road in Portland, Oregon. Your notice requests review of the installation of two storage tank foundations, one storage tank with hot oil heating coils, pitch transfer system, hot oil heater and fume collection piping.

Processing of this notice is assigned to Randy Bailey at (503) 229-6736.

Unless the Department requests additional information within thirty (30) days of the date of this letter, you will be notified of approval or disapproval within sixty (60) days.

In addition to meeting the air quality standards, your facility is also obligated to operate in compliance with the daytime and nighttime noise standards set forth in Oregon Administrative Rule (OAR) 340-35-035(1). For a copy of the noise regulations please call me at (503) 229-5582.

Sincerely,

Johnny D. Baumgartner

Johnny D. Baumgartner
Permit Coordinator
Air Quality Section
Northwest Region

Cc: Randy Bailey/NWR
Kathy Amidon/NWR

cc: Tami Self, K-1800
B. Meiklejohn, HTC
J. Dietz, HTC

RECEIVED
JAN 11 1999
KOPPERS INDS, INC.
PORTLAND OR

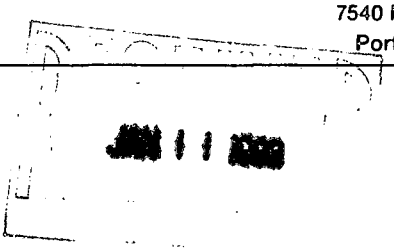
DEQ-1

KOPPERS INDUSTRIES

Koppers Industries, Inc.
7540 N.W. St. Helens Road
Portland, OR 97210-3663

Amos S. Kamerer
Plant Manager

Telephone: 503-286-3681
Fax: 503-285-2831



December 30, 1998

Oregon Department Of Environmental Quality
Northwest region
2020 SW Fourth Avenue
Suite 400
Portland, OR 97201-4987

Attention: Kathy Amidon

RE: Koppers Industries, Inc.- Portland Terminal
Air Permit Application No. 26-2930
Multnomah County

Dear Ms. Amidon,

Enclosed please find the "Notice of Intent to Construct", as promised in Traci's memo that was sent to you yesterday. I also want to point out, that we have shown the "Begin" date as February 1,1999, however, the actual construction will not start until the building permits are issued, and as a result, it is possible that this date could be later.

If you have any questions, please contact me at (503) 286-3681.

Sincerely,

Amos S. Kamerer

cc: Traci Self
Jim Dietz
Kevin Fitzgerald
Steve Smith

Identification Information

1. Permit Number 26-2930

2. Legal Company Name:	3. Facility Name: *(if different from legal company name)*
Koppers Industries Inc. (Company Name)	Portland Terminal (Facility Name)
7540 NW St. Helen Road (Mailing Address)	7540 NW St. Helen Road (Location Address)
Portland, OR 97210 (City, State, Zip)	Portland, OR 97210 (City, State, Zip)
4. Compliance Contact:	**5. Information/Clarification Contact:**
Amos S. Kamerer (Name & Title)	Amos S. Kamerer (Name & Title)
Plant Manager (Mailing Address)	Plant Manager (Location Address)
503 286 3681 (Area Code & Telephone Number)	503 286 3681 (Area Code & Telephone Number)

Facility Information

6. SIC Codes: 2865 ____ ____ ____

7. Other Department permits? (y/n; if y, specify type and permit number) Yes X No ____

N.P.D.E.S.

8. Increased capacity/emissions, new pollutants? Yes X No ____

9. If applicable, attach a Land Use Compatibility Statement.

Construction Information

10. Description of proposed construction: Construction will provide two storage tank foundations, one 50,000 barrel coar tar pitch storage tank equipped with hot oil heating coils, pitch transfer system, hot oil heater and fume collection piping.

11. Attach relevant forms from Form Series AQ200, Device/Process Forms, if applicable.

12. Attach Form AQ301, Control Device Description, if applicable.

13. Attach a process flow diagram.

Emissions Data SEE ATTACHMENTS

14. Pre-and Post-Construction emissions summary data

a. Emissions Point	b. Pollutant	c. Pre-Construction Emissions		d. Post-Construction Emissions	
		short-term (specify unit)	annual (tons/year)	short-term (specify unit)	annual (tons/year)

15. Description of waste disposal practices *before* the construction: Solid industrial waste hauled to secured landfill. No generation of hazardous waste.

16. Description of waste disposal practices *after* the construction: No change.

Koppers016770

Construction Data

17. Timing of construction.

a. Commence date (mm/dd/yy) 01/18/99

b. Begin date (mm/dd/yy) 02/01/99

c. Completion date (mm/dd/yy) 10/01/99

18. Will tax credits be requested once construction is completed? Yes ____ No X

Signature

19. Signature

I hereby certify that I have completed this application to the best of my ability and that the information herein and in the attached exhibits is true and correct to the best of my knowledge.

Amos S. KAMEREK
Name of Authorized Representative

PLANT MANAGER
Title

Signature

12/30/98
Date (mm/dd/yy)

Koppers016771

Maximum Potential Emissions from Existing Units
Koppers Industries, Inc., Portland Terminal

Unit	Comments	Commodity	NOx (lb/hr)	NOx Tons/Yr	VOC (lb/hr)	VOC Tons/Yr	CO (lb/hr)	CO Tons/Yr	SO2 (lb/hr)	SO2 Tons/Yr	PM-10 (lb/hr)	PM-10 Tons/Yr
Atlas Boiler[1]		Gas	2.82	12.33	0.06	0.25	0.70	3.08	0.08	0.33	0.12	0.55
		Oil/Gas	3.00	12.52	0.06	0.22	0.75	3.13	10.65	11.31	0.30	1.24
		MAX	3.00	12.52	0.06	0.25	0.75	3.13	10.65	11.31	0.30	1.24
Hot Oil Heater(backup unit)[1]		Gas	0.81	3.57	0.04	0.19	0.17	0.75	0.03	0.14	0.04	0.16
		Oil/Gas	1.22	3.97	0.04	0.16	0.31	0.88	4.33	4.60	0.12	0.43
		MAX	1.22	3.97	0.04	0.19	0.31	0.88	4.33	4.60	0.12	0.43
Fume Recovery System [2,3]		NA			12.47	18.11						
Tank 33		Heavy Oil			0.37	0.016						
Tank 67		P1/P13 Distillate			0.59	0.024						
Loading Tank 67 to Rail		P1/P13 Distillate			1.71	0.003						
Fugitives		NA			0.98	0.568						
Plant Total			**4.22**	**16.49**	**16.22**	**19.15**	**1.06**	**4.01**	**14.98**	**15.91**	**0.42**	**1.67**

NOTES

[1] Combustion units may be run on natural gas or #2 fuel oil. However, fuel oil combustion will occur a maximum of 12 weeks during any given year.

[2] The fume recovery system receives emissions from the following units: T-68, T-65, T-200, railcar loading and tank car loading.

[3] Hourly and annual VOC emissions from the fume recovery system were calculated using ChemCAD.

Koppers016772

Maximum Potential Emissions, Phase I
Koppers Industries, Inc., Portland Terminal

Unit	Comments	Commodity	NOx (lb/hr)	NOx Tons/Yr	VOC (lb/hr)	VOC Tons/Yr	CO (lb/hr)	CO Tons/Yr	SO2 (lb/hr)	SO2 Tons/Yr	PM-10 (lb/hr)	PM-10 Tons/Yr
Atlas Boiler[1]		Gas	2.82	12.33	0.06	0.25	0.70	3.08	0.08	0.33	0.12	0.55
		Oil/Gas	3.00	12.52	0.06	0.22	0.75	3.13	10.65	11.31	0.30	1.24
		MAX	3.00	12.52	0.06	0.25	0.75	3.13	10.65	11.31	0.30	1.24
Hot Oil Heater(backup unit)[1]		Gas	0.81	3.57	0.04	0.19	0.17	0.75	0.03	0.14	0.04	0.16
		Oil/Gas	1.22	3.97	0.04	0.16	0.31	0.88	4.33	4.60	0.12	0.43
		MAX	1.22	3.97	0.04	0.19	0.31	0.88	4.33	4.60	0.12	0.43
Fume Recovery System [2,3]		NA			12.47	18.11						
Tank 33		Heavy Oil			0.37	0.016						
Tank 67		Heavy Oil			0.15	0.006						
Fugitives		NA			0.98	0.568						
New Hot Oil Heater[1]		Gas	1.34	5.87	0.03	0.12	0.34	1.47	0.04	0.16	0.06	0.26
		Oil/Gas	1.42	5.96	0.03	0.10	0.36	1.49	5.04	5.34	0.14	0.52
		MAX	1.42	5.96	0.03	0.12	0.36	1.49	5.04	5.34	0.14	0.52
T-200		Liquid Pitch				Note 4						
Plant Total			**5.64**	**22.45**	**14.10**	**19.25**	**1.41**	**5.50**	**20.02**	**21.26**	**0.56**	**2.19**

NOTES

[1] Combustion units may be run on natural gas or #2 fuel oil. However, fuel oil combustion will occur a maximum of 12 weeks during any given year.

[2] The fume recovery system receives emissions from the following units: T-68, T-65, T-200, railcar loading and tank car loading.

[3] Hourly and annual VOC emissions from the fume recovery system were calculated using ChemCAD.

[4] Emissions from T-200 are included in the fume recovery system's emissions.

Koppers016773

KOPPERS INDUSTRIES

Koppers Industries, Inc.
1005 William Pitt Way
Pittsburgh, PA 15238

Telephone: (412) 826-3970
FAX: (412) 826-3999

FROM

~~TO~~: TRACI STOLE LOCATION: _____

COMPANY NAME: K-1800

COMPANY TELEPHONE NUMBER: _____

TO

~~FROM~~: TIM DIETZ

NUMBER OF PAGES TO FOLLOW: _____

IF YOU DO NOT RECEIVE ALL MATERIAL TRANSMITTED, PLEASE CALL US ON: 412/826-3971

OUR PANAFAX NUMBER IS: 412/826-3999

SENT BY: _____

TIME: _____

DATE: _____

NOTES: TRACI,

PLEASE COMPLETE 2-5. & REPLY.

Jim

NOTICE OF INTENT TO CONSTRUCT — **FORM AQ104 ANSWER SHEET**

Identification Information

1. Permit Number 26-2930

2. Legal Company Name:	3. Facility Name: *(if different from legal company name)*
Koppers Industries Inc. (Company Name)	Portland Terminal (Facility Name)
(Mailing Address)	7540 NW St. Helens Rd Portland, OR 97210 (Location Address)
7540 NW St. Helens Rd Portland, OR 97210 (City, State, Zip)	(City, State, Zip)
4. Compliance Contact:	**5. Information/Clarification Contact:**
Amos S. Kamerer (Name & Title)	Amos Kamerer (Name & Title)
Plant Manager (Mailing Address)	Plant Manager (Location Address)
(503)-286-3681 (Area Code & Telephone Number)	(Area Code & Telephone Number)

Facility Information

6. SIC Codes: 2865 ____ ____ ____

7. Other Department permits? (y/n; if y, specify type and permit number) Yes ✓ No ____

N.P.D.E.S.

8. Increased capacity/emissions, new pollutants? Yes ✓ No ____

9. If applicable, attach a Land Use Compatibility Statement.

Construction Information

10. Description of proposed construction: CONSTRUCTION WILL PROVIDE TWO STORAGE TANK FOUNDATION, ~~Tank~~ ONE 50,000 BARREL COAL TAR ~~&~~ PITCH STORAGE TANK EQUIPPED WITH HOT OIL HEATING COILS, PITCH TRANSFER SYSTEM, HOT OIL HEATER AND FUMES COLLECTION PIPING.

Oregon

John A. Kitzhaber, M.D., Governor

Department of Environmental Quality
Northwest Region
2020 SW Fourth Avenue
Suite 400
Portland, OR 97201-4987
(503) 229-5263 Voice
TTY (503) 229-5471

November 30, 1998

KOPPERS INDUSTRIAL INC
7540 NW ST HELENS RD
PORTLAND OR 97210

RE: NOTICE OF INTENT TO CONSTRUCT
FILE / PERMIT # 26-2930
NC # 017237

On November 25, 1998 the Department of Environmental Quality accepted for processing a Notice of Intent to Construct for your facility located at 7540 NW St. Helens Road in Portland, Oregon. Your notice requests review of the installation of an automatic electric impedance heating system and an addition of a demister.

Processing of this notice is assigned to Randy Bailey at (503) 229-6736.

Unless the Department requests additional information within thirty (30) days of the date of this letter, you will be notified of approval or disapproval within sixty (60) days.

In addition to meeting the air quality standards, your facility is also obligated to operate in compliance with the daytime and nighttime noise standards set forth in Oregon Administrative Rule (OAR) 340-35-035(1). For a copy of the noise regulations please call me at (503) 229-5582.

Sincerely,

Johnny D. Baumgartner

Johnny D. Baumgartner
Permit Coordinator
Air Quality Section
Northwest Region

OK with making changes prior will not do anything until finalize plan make a change to permit application all tanks and heaters Notice of Intent to Construct

Cc: Randy Bailey/NWR
Kathy Amidon/NWR

Post-it® Fax Note 7671	Date 12/1/98	# of pages ▶ 1
To L. Self	From Amos	
Co./Dept. F.Y.I.	Co.	
Phone #	Phone #	
Fax #	Fax #	

DEQ-1

NOTICE OF INTENT TO CONSTRUCT

ET

Post-it® Fax Note 7671	Date 11/17/98	# of pages ▶ 3
To Traci Self	From Amos	
Co./Dept.	Co.	
Phone #	Phone #	
Fax #	Fax #	

Identification Information

1. Permit Number 26-2930

2. Legal Company Name:	
KOPPERS INDUSTRIES, INC.	
Company Name	Facility Name
7540 N.W. SAINT HELENS Road	
Mailing Address	Location Address
Portland, OREGON	
City, State, Zip	City, State, Zip
4. Compliance Contact:	**5. Information/Clarification Contact:**
AMOS KAMERER	SAME
Name & Title	Name & Title
Plant Manager	
Mailing Address	Location Address
SAME	
Area Code & Telephone Number (503) 286-3681	Area Code & Telephone Number

Facility Information

6. SIC Codes: 2 8 6 5

7. Other Department permits? (y/n; if y, specify type and permit number) Yes X No ____

NPDES # 101003

8. Increased capacity/emissions, new pollutants? Yes ____ No X

9. If applicable, attach a Land Use Compatibility Statement.

Construction Information

10. Description of proposed construction: 1) we plan to replace the steam heating system in the fume recovery tank, with an automated electric impedance heating system, to meet our desired heating requirements for this operation. We plan to add a demister to further collect particulate matter from the heat stack.

Koppers016777

11. Attach relevant forms from Form Series AQ200, Device/Process Forms, if applicable.

12. Attach Form AQ301, Control Device Description, if applicable.

13. Attach a process flow diagram.

Emissions Data

14. Pre-and Post-Construction emissions summary data

a. Emissions Point	b. Pollutant	c. Pre-Construction Emissions		d. Post-Construction Emissions	
		short-term (specify unit)	annual (tons/year)	short-term (specify unit)	annual (tons/year)
		?			

15. Description of waste disposal practices *before* the construction: No waste disposal involved.

16. Description of waste disposal practices *after* the construction: No waste disposal involved.

Koppers016778

Construction Data

17. Timing of construction.

a. Commence date (mm/dd/yy) _____

b. Begin date (mm/dd/yy) _____

c. Completion date (mm/dd/yy) _____

To be Add later per Jim Oefe

18. Will tax credits be requested once construction is completed? Yes ____ No X

Signature

19. Signature

I hereby certify that I have completed this application to the best of my ability and that the information herein and in the attached exhibits is true and correct to the best of my knowledge.

Name of Authorized Representative _____ Title _____

Signature _____ Date (mm/dd/yy) _____

Koppers016779

Koppers Industries Inc. 1005 William Pitt Way, Pittsburgh, PA 15238-1362

KOPPERS INDUSTRIES

FAX

Date: 10-27-98

Number of pages including cover sheet: 2

To: Traci Self.

K-1800.

Phone:

Fax phone: 227-2423

CC:

From:

CARL MUELLER

Phone: (412) 826-3993

Fax phone: (412) 826-3999

REMARKS: ☐ Urgent ☒ For your review ☐ Reply ASAP ☐ Please comment

Description of changes KTI intends to make to fume recovery system.

The existing pitch fume recovery system utilizes a Koppers Industries' (KII) P1/P13 creosote distillate to process fumes entering from the pitch fume collection duct network. Creosote is used because the KII Portland facility is a seller of P1/P13 creosote, thus the material is already on site and it is effective in this unit operation. During 1999, the KII Portland facility will transition into a non-seller of P1/P13 creosote and will no longer receive this material from other KII production facilities. As a result, it is necessary to utilize another liquid media in the fume recovery system.

The KII Portland facility also uses a KII produced commodity called "heavy oil". Calculations show that heavy oil is an excellent substitute for the P1/P13 creosote in the fume recovery system. Since heavy oil is a higher viscosity material than P1/P13 creosote, the fume recovery system is required to be sustained at a higher temperature to maintain proper operability. Thus it is intended to purchase electric heaters for the circulation tank (T-102) to boost the system's temperature.

Secondary to the heaters, KII intends to install a de-mister unit in the stack of the fume recovery system. Heavy oil normally contains between 0.5% up to 5% water whereas P1/P13 creosote contains virtually no water. The vaporization of water in the fume recovery system can result in entrainment or carryover of particulates as the circulating heavy oil becomes "dirty" with particulates from the pitch fume collection system. The de-mister acts to disengage any suspended matter from the vapor stream, allowing them to drop out and be returned to the fume recovery system.

KOPPERS INDUSTRIES

INTEROFFICE CORRESPONDENCE

TO: Jim Dietz
Traci Self
Amos Kamerer

FROM: Carl Mueller

SUBJECT: Portland Fume Scrubber Emission Calcs.

DATE: October 19, 1998

Four case studies have been done of the calculated VOC emissions from the Portland pitch fume scrubber. Disregard any previous calculations from me. Heavy oil has been used as the scrubber agent based on previous work because VOC emissions can be kept below a 25 ton/year rate without additional equipment.

Calculation Basis:

- The pitch fume composition is based on an analysis of pitch fumes collected and analyzed as part of IMTT Quebec Terminal project.
- The pitch fume loading was calculated based on vapor pressure of pitch (.8 mm Hg @ 400°F & 1.5 mm Hg @ 435°F) and at the selected temperatures of air. The base air flow rate is 1050 acfm.
- A scrubber circulation rate of 73 gpm has been used based on previous information.
- There is neither make-up nor bleed-off of liquid from the system. Each case has been run for 720 hours, the equivalent of 1 month.
- Heavy oil has been used in all cases. The heavy oil composition was determined from a recent sample from Portland. This sample contained 3.2% water. The numbers for VOC's to follow do not contain water.

Case Input Variable Studies:

- Case 1 - Air Inlet Temperature - 400°F
  Pitch Fume Temperature - 400°F
  Circulation Temperature - 160°F

- Case 2 - Air Inlet Temperature - 400°F
  Pitch Fume Temperature - 400°F
  Circulation Temperature - 180°F

most likely

- Case 3 - Air Inlet Temperature - 350°F
  Pitch Fume Temperature - 400°F
  Circulation Temperature - 180°F

- Case 4 - Air Inlet Temperature - 435°F
  Pitch Fume Temperature - 435°F
  Circulation Temperature - 180°F

Results:

Variable	Case 1	Case 2	Case 3	Case 4
Air Mass Flow (lbs/hr)	3,087	3,087	3,276	2,931
Pitch Fume Flow (lbs/hr)	24.7	24.7	26.3	45.3
Final Circ. Rate (gpm)	103	102	104	132
Initial Calc. Viscosity (cp)	2.7	2.2	2.2	2.2
Final Calc. Viscosity (cp)	5.0	4.0	4.0	3.6
Total VOC's Emitted (lbs/month)	**1,499**	**2,454**	**2,568**	**2,506**
Ave. VOC's Emitted (lbs/hr)	**2.08**	**3.41**	**3.57**	**3.48**
Calc. Scrubber Efficiency (%)	92%	86%	86%	86%

Based on the results above, it appears as though the system can be operated as is with heavy oil exclusively without the addition of new equipment.

If there is additional information that I can provide to support the permitting procedure, please let me know.

cc: Jill Merrill (Air Compliance)

Author: CARL MUELLER at TECHCTR
Date: 10/14/98 4:22 PM
Priority: Normal
TO: Traci Self at PITT
Subject: Portland Fume Scrubber

First of all, highlight this transmission and expand the margins out to so the numbers line up below. I have performed various simulations and the moment wanted to present some results. Keep in mind that each one o these takes 2 hours to run and I have not done as big of a matrix as I would like but time is short and the lab results were not complete till Tuesday (17th) noon.

Each trial is based on a closed system. In other words, the circulatin system is filled to level, run for the equivalent of 1 month, and the remaining contents then exchanged with fresh reagent. There is no sort bleed off or make-up during this time. I removed the necessity of addin make-up early on because it only increases the emmisions in general. Th emmissions guide I used was 4167 lbs/month or 25 tons/year. A initial circulation rate of 73 gpm has been used based on previous information. average 0.66 lbs/hour of pitch fumes and air flow rate of 1050 cfm has b used based on info from Air Compliance. The indicated ending circulatin rates is an indication of the magnitude of volume loss. Actual circulat rates would be the same or slightly less, but the overall volume would b less depending on initial system volume.

Heavy Oil

@ 180F VOC total - 2,958 lbs Starting and Ending Vis. - 2.1 to 4.9 cp Ending Circ rate - 66 gpm

@ 200F VOC total - 4,375 lbs Starting and Ending Vis - 1.7 to 3.9 cp Ending Circ Rate - 63 gpm

Creosote

@ 180F (based on actual sample from Portland) naph at 0.75%
VOC Total - 6,237 lbs Starting and Ending Vis. - 1.8 to 4.2 Ending Circ rate - 60 gpm

@ 180F (based on boosting naph % to 5% initially)
VOC Total - 8,048 lbs Starting and Ending Vis. - 1.6 to 3.9 Ending Circ Rate - 57 gpm

@ 150 (based on boosting naph % to 5% initially)
VOC Total - 4,733 lbs Starting and Ending Vis. - 2.2 to 4.9 Ending Circ Rate - 62 gpm

NSR

@ 140F VOC total - 7,100 lbs Starting and Ending Vis. - 3.3 to 4.2 Ending Circ Rate - 60 gpm

Amos, The analysis of the sample of Tank 102 you sent us had only 0.75% naphthalene and appeared much darker that normal. This is obviously fro not emptying the fume system completely before introducing fresh materia You also said that the system was changed out on October 2nd and the sam would have taken the 8th or 9th. In addition, the VOC curves on the simulations indicate the highest loading occurs in the first 3 to 4 days before dropping off significantly. Both of these factors contribute to

such low naphthalene numbers. This is the reason why I boosted the naph number to 5% to better represent creosote.

I also showed the viscosity values because I was concerned as to how "thick" the circulating stream would become for future pump consideratio

Water in the cresote or heavy oil is not included in the VOC totals.

At this time, it appears that heavy oil is favored by the results above after finding out that Portland will cease selling cresote sometime next year. The question I guess is what would Portland do with "spent" heavy oil? I do have a predicted analysis of the spent oil.

I sure there are questions to follow but I tried to highlight the good stuff.

Carl

Air/Compliance Consultants, Inc.

Date: 07/16/98

Page 1 of 15

REVISED!

Please Deliver Immediately To:

Name:	Jim Dietz cc: Traci Self	Phone:	(412) 227-2883
Company	Koppers Industries, Inc.	Fax:	(412) 227-2423
			Fax X3999

From:	Jill Merrill	Phone:	(412) 826-3636
	Air / Compliance Consultants, Inc.	Fax:	(412) 826-3640

Message:

Jim;

The attached pages show the Preliminary revisions you asked me to make. (show calcs, revise lb/Cu ft to gas basis, etc.) The overall efficiency is still close to 80% (at 77%) because it appears that the plant will have to operate the scrubber at full tilt 72% of the time based on the large number of transfer hours expected. I spoke to TJ at the plant to confirm my assumptions. Table 2 contains our analysis of the transfer hours that were used to make this revision.

Best Regards,

Jill

PS Effort was a total of about 12 hours of Kim & My time to get data/revisec/QA.

Please call if transmission is incomplete

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Jim - flow rate adjusted on time when not operating
look at total batch production and flow rate.

CONFIDENTIAL DRAFT

Table 1. Portland Fume Scrubber Efficiency Determination-

Basis:

12" Venturi Scrubber		
Operating Draft:	2.5	inches water
Motive liquid flow during transfer operations:	75	gpm
Approximate air flow from Manufacturer's Chart:	1,050	cfm
Liquid Pitch Throughput	70,000	tons
Pitch Vapor Pressure at 375 F (psia)	0.0077	reference Jim Dietz, 5/22/98
Pitch Vapor pressure at 500 F (psia)	0.058	reference Koppers 3/7/95

Scrubber Liquid

Material	Distillate
Temperature(degrees F):	170
Vapor Pressure (psia)	0.0012
Gas MW (estimated)	168

	VP	Log 10(VP)	T (R)	1/T
Pitch Vapor Pressure	0.0077	-2.113509275	835	0.001197605
Pitch Vapor Pressure	0.058	-1.236572006	960	0.001041667
				-0.000155938

	A	B
log p = A - (B/T)	4.621368946	5,623.62

Temp(F)	Temp(R)	VP(psia)
400	860	0.01209
170	630	0.00005
375	835	0.00770
425	885	0.01849

Scrubber conditions:

	Scrubber bldg.		Scrubber
	Melt Tank	Shipping Tank	Outlet
Temperature(degrees F):	375	425	170
Material	Pitch	Pitch	Pitch
Vapor Pressure -(psia)	0.0077	0.0185	0.000050
Gas MW	220	236	194

Production:

	Rail	Truck
Shipped		
Production (tons)	28,000	42,000
Density (lbs/gal)	11	11
Production (gallons)	5,090,909	7,636,364

Calculations

Potential Estimated Working Losses from Tanks without Scrubber Control

Liquid Pitch annual throughput: 70,000 tons
11 lb/gal

	Rail	Tank Truck	Total	
Percent of Total	40%	60%		
Annual Volume Displaced	5,090,909	7,636,364	12,727,273	gallons
Total number of turnovers	2	3		
Total displacement annually	10,181,818	22,909,091	33,090,909	gallons
Total displaced gas	1,361,024	3,062,303	4,423,327	cubic feet
Temperature	375.0	425.0		degrees F
mol fr. VOC @ Temp	0.0005	0.0013		
ppm of VOC (based on 14.7 psia)	524	1,258		
lb/cu ft of VOC in motive gas mixture	0.00030	0.00077		
Potential Estimated Uncontrolled VOC loss	0.20	1.18		tons/yr
				tons/yr

Total Potential Working Losses from pitch without Scrubber System:

1.38 tons/yr

Koppers016787

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DRAFT

Maximum Estimated Scrubber Operational Time:
The normal operational practice is to leave the scrubber at 2.5" vacuum when any loading is occurring. At other times the scrubber flow rate is dropped to a minimum. For the following analysis, it was assumed to be zero.

Total hours =	6,293		
Hours devoted to T-68	3,770		
% of total flow form T-68	60%	PCT	
Hours devoted to T-65	2,523		
% of total flow form T-65	40%	PCT	
Percent of total hours(6293/8760) =	72%		

Estimated VOC Loss:

Average Scrubber Flow rate	1050		
Annual average Flow rate (cfm) (1050*72%)	756		
flow rate (cf per hour)	45,258	CFH	
flow rate (gallons per hour)	338,574		
flow rate (gallons per minute)	5,643		

Potential Uncontrolled VOC	T-65 Rail Shipped	T-68 Tank Car Truck	Total		
Percent of transfer for this product	40%	60%		PCT	
Tank Temperature	373	425			
Vapor Pressure of Pitch (Saturated)	0.00770	0.01849		VPI	
ppm of VOC (based on 14.7 psia)	524	1,258		PPMI	VPI/14.7*10^6
lb/cu ft of VOC in motive gas mixture	0.000300	0.00077		X	PPMI/10^6*MW/385CF/mole
AVerage annual gas flow dedicated to Tank (cf/hr)=	18,103	27,155		AVGCFH	CFH*PCT
Average annual VOC (lb/hr)	5.43	20.92		AVVOCPPH	AVGCFH*X
Hours of operation dedicated to this tank	2,523	3,770		HRS	
Average VOC(lb/month)	3,907	15,061		PPMON	AVVOCPPH* 24*30
Average VOC(lb/yr)	47,538	183,246		PPY	AVVOCPPH* 8760
Uncontrolled VOC (tpy)	24	92	115	TPY	PPY/2000

Controlled Outlet VOC

Assume Temperature	0	170			
Assumed Vapor Pressure equivalent to:	Pitch	Pitch		VPO	
Vapor Pressure (psia)	0.00005	0.00005		PPMO	VPO/14.7*10^6
ppm of VOC (based on 14.7 psia)	3	3		X	PPMO/10^6*MW/385CF/mole
lb/cu ft of VOC in motive gas mixture	0.000002	0.000002		AVGCFH	CFH*PCT
Average Annual Gas flow dedicated to this tank (cf/ hr)	18,103.2	27,154.7		AVVOCPPH	AVGCFH*X
Average annual VOC (lb/hr)	0.03	0.06		HRS	
VOC(lb/month)	1.0	1.7		PPMON	AVVOCPPH* 24*30
VOC(lb/yr)	306	491		PPY	AVVOCPPH* 8760
VOC(tpy)	0.15	0.25	0.40	TPY	PPY/2000

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Scrubber Solution Losses

Scrubbing liquor
Density = 9 lb/gal
Usage = 3,000 gallons/ month

Distillate composition:

	wt%	MW	Devolitized?
Benzene	0.00	78	yes
Pyridine	0.00	79	yes
Toluene	0.13	92	yes
Phenol	0.24	94	yes
Xylenes	0.17	106	yes
Cresols	0.25	108	yes
Naphthalene	14.20	128	yes
Quinoline	0.90	129	yes
Biphenyl	1.50	154	no
Dibenzofuran	3.50	168	no
Anthracene	5.30	178	no
Poly aromatic compounds (PAC's)	3.50	268	no
Balance	60.00	350	no

Assume that all of the compounds with a MW < 150 volatize:

Total Percent Volatile lost from solution:	15.88 %
Total weight of Distillate (lbs)	27,000
Total weight of volatized distillates (lbs)	4,288
VOC (lb/hr)	5.87
VOC(lb/month)	4,288
VOC(lb/yr)	51,451
VOC(tpy)	25.73

Inlet Scrubber Pitch vapor loading (tpy)	115.39	
Outlet Scrubber Pitch vapor loss (tpy)	0.40	
Potential uncontrolled pitch loss(tpy)	1.38	
Scrubber solution loss (tpy)	25.73	
Efficiency of Pitch controls- 1-controlled/uncontrolled	71%	Worst presentation of data
Annual average VOC control efficiency of system	77%	Better presentation of data

Note that scrubber efficiency will vary as the scrubber solution and inlet loading vary.
A lower inlet loading will produce a lower efficiency.

Koppers016789

Table 2. Scrubber Revisions - Proposed Total Scrubber Operating Hours of Transfer Operation
Koppers Industries, Inc., Portland Tar Plant, Portland, Oregon

Assumptions:

Total Annual Pitch Production:	70,000 tons/yr
Dry Pitch Charging into T-65	58 tons/hr, based on 1,200 tons per each charge of 20.6 hrs
% Pitch loaded into trucks from T-68:	60 % of total pitch production
Pitch loading pumping rate into trucks from T-68:	55.5 tons/hr, based on 37 tons loaded per 40 minutes
% Pitch loaded into railcar from T-65:	40 % of total pitch production
Pitch loading pumping rate into railcars from T-65:	58.0 tons/hr, based on 87 tons loaded per 90 minutes
% Pitch transferred from T-65 to T-68	60.0 % of total pitch production
Pitch transfer pumping rate from T-65 to T-68	70.0 tons/hr
Heavy oil pumping rate	23 tons/hr, based on 1,200 gal/15min, and a density of 9.6 lbs/gal
Heavy Oil Annual Usage:	375 tons/yr, based on 1997 actual heavy oil usage of 42,421 gal times the ratio of potential pitch production (70,000 tons) over 1997 actual pitch production (38,000 tons)

Calculations:

Transfer Description	Amount per Charge (tons)	Pumping Rate (ton/hr)	Annual Amount Transferred (tons/yr)	Annual Transfer Time (hours)	Annual Number of Transfers	T-65 fume hours	T-68 fume hours	Total
Dry Pitch Charging	1200	58	70,000	1,207	58	1,323		1,323
From T-68 to trucks	37	55.5	42,000	757	1,135		3027-	3,027
From T-65 to rail	87	58.0	28,000	483	322	1,127		1,127
From T-65 to T-68	1200	70.0	42,000	600	35		670	670
Heavy Oil transfer	5.76	23	375	16	65	73	73	146
TOTALS:				**3,063**	**1,615**	**2,523**	**3,770**	**6,293**

Assume all transfers are done independently and that the scrubbers are at high capacity. Assume one hour before and after each transfer, 2 start/stop sequences. Therefore, the total scrubber operating hours can be calculated as follows:

3,063 hours + 1615 transfers x 2 start/stop/transfer x 1hr/start/stop =

6,293 hrs/yr

Annual Operating Time: 72 % annual operating time

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DRAFT

Koppers016790

Portland Fume Scrubber Efficiency Determination-

Basis:

12" Venturi Scrubber

Operating Draft:	2.5 inches water
Motive liquid flow:	73 gpm
Approximate air flow from Manufacturer's Chart:	1,050 cfm
Liquid Pitch Throughput	70,000 tons

Coal Tar Distillate data:

Scrubbing liquor

Density =	9 lb/gal
Usage =	3,000 gallons/ month

Distillate composition:

	wt%	MW	Devolitized?
Benzene	0.00	78	yes
Pyridine	0.00	79	yes
Toluene	0.13	92	yes
Phenol	0.23	94	yes
Xylenes	0.17	106	yes
Cresols	0.25	108	yes
Naphthalene	14.20	128	yes
Quinoline	0.90	129	yes
Biphenyl	1.50	154	no
Dibenzofuran	3.50	168	no
Anthracene	5.30	178	no
Poly aromatic compounds (PACs)	3.50	268	no
Balance	60.00	350	no

Assume that the compounds with a MW < 150 volatize:

Total Percent Volatile lost from solution:	15.88 %
Total weight of Distillate (lbs)	27,000
Total weight of volatized distillates (lbs)	4,288
VOC (lb/hr)	5.87
VOC(lb/month)	4,288
VOC(lb/yr)	51,451
VOC(tpy)	25.73

Inlet Scrubber Pitch vapor loading (tpy)	160.63
Outlet Scrubber Pitch vapor loss (tpy)	0.43
Scrubber solution loss (tpy)	25.73
Annual average VOC control efficiency of system	84%

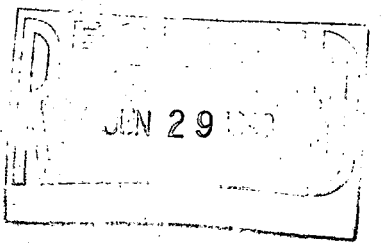
Note that scrubber efficiency will vary as the scrubber solution and inlet loading vary.
A lower inlet loading will produce a lower efficiency.

Koppers016791

Air/Compliance Consultants, Inc.

June 26, 1998

Project Number AC098



Ms. Traci Self
Koppers Industries, Inc.
436 Seventh Avenue
Pittsburgh, Pennsylvania 15219-1800

RE: Scrubber Emissions Control Efficiency

Dear Ms. Self:

Air/Compliance Consultants, Inc. (ACCI) has conducted an analysis to determine the emission control efficiency of the fume scrubber at the Portland Facility. This estimate was based on data supplied by Koppers Industries, Inc. (KII).

Based on our analysis, the average monthly scrubber efficiency is approximately 80 percent. The actual efficiency will vary with inlet load and the age of the scrubber solution. This analysis assumes that the fume scrubber draft is a constant 1,050 standard cubic feet per minute (scfm), that the vapor concentration in the motive gas is saturated at the storage temperature of the liquid pitch tanks, and that the scrubber solution will be changed monthly. Attachment 1 contains our assumptions and calculations. Attachment 2 contains design data on the fume scrubber.

Please do not hesitate to call us at (412) 826-3636 if you have any questions.

Sincerely,

AIR/COMPLIANCE CONSULTANTS, INC.

Jill W. Merrill

Jill W. Merrill
Principal Engineer/President

JWM:sls

Attachments

cc: J. Dietz
A. Kamerer
W. Meissinger

KOPPERS\KII_PORT\SCRUB%\KIIPORT3.DOC

1050 William Pitt Way
Pittsburgh, PA 15238
412-826-3636
412-826-3640 fax

ATTACHMENT 1

ASSUMPTIONS AND CALCULATIONS

Portland Fume Scrubber Efficiency Determination

Basis:

12" Venturi Scrubber

Operating Draft:	2.5	inches water
Motive liquid flow:	73	gpm
Approximate air flow from Manufacturer's Chart:	1,050	cfm
Liquid Pitch Throughput	70,000	tons
Pitch Vapor Pressure at 375 F (psia)	0.0077	reference Jim Dietz, 5/22/98
Pitch Vapor pressure at 500 F (psia)	0.058	reference Koppers 3/7/95

Scrubber Liquid

Material	Creosote	
Temperature(degrees F):	170	
Creosote data:	Creosote scrubbing liquor	
	Density =	9 lb/gal
	Usage =	3,000 gallons/ month

Creosote composition:

	wt%	MW	Devol?
Benzene	0.00	78	yes
Pyridine	0.00	79	yes
Toluene	0.13	92	yes
Phenol	0.23	94	yes
Xylenes	0.17	106	yes
Cresols	0.25	108	yes
Naphthalene	14.20	128	yes
Quinoline	0.90	129	yes
Biphenyl	1.50	154	no
Dibenzofuran	3.50	168	no
Anthracene	5.30	178	no
PACs	3.50	268	no
Balance	60.00	350	no

Assume that the compounds with a MW < 150 volatize:

Total Percent Volatiles lost from solution:	15.88	%
Total weight of Creosote (lbs)	27,000	
Total weight of volitized Creosote (lbs)	4,288	
VOC (lb/hr)	5.87	
VOC(lb/month)	4,288	
VOC(lb/yr)	51,451	
VOC(tpy)	26	

Inlet Scrubber Pitch vapor loading (tpy)	160.63
Outlet Scrubber Pitch vapor loss (tpy)	0.43
Scrubber solution loss (tpy)	25.73
Annual average VOC control efficiency of system	84%

Note that scrubber efficiency will vary as the scrubber solution and inlet loading vary.
A lower inlet loading will produce a lower efficiency.

Koppers016794

ATTACHMENT 2

DESIGN DATA

PORTLAND FUME SCRUBBER

TABLE 2. GAS HANDLING CAPACITIES—TYPE 7010 SCRUBBERS WITH *STANDARD* NOZZLES

DRAFT (in. H_2O Diff.)	WATER PRESSURE (psig)	SCRUBBER SIZE (inches) 3	4	6	8	10	12	14	16	18	20	24	30	36	42	48	54
		CAPACITIES (cfm air at flowing conditions)															
ZERO DRAFT	20	28	59	155	265	435	1040	1497	1848	2331	3310	4880	7626	11416	16230	21888	29792
	40	48	102	270	460	750	1600	2304	2844	3644	5174	7629	11921	17846	25370	34214	46569
	60	64	135	355	600	990	2000	2880	3555	4675	6637	9787	15292	22893	32545	43891	59740
	80	74	161	425	620	1180	2430	3499	4319	5105	7247	10686	16697	24996	35535	47923	65228
	100	86	183	485	815	1340	2660	3830	4728	5902	8380	12356	19306	28902	41088	55411	75420
1/4"	20	19	41	110	185	300	830	1195	1475	1644	2334	3442	5378	8051	11446	15436	21011
	40	45	95	250	425	700	1500	2160	2666	3362	4773	7038	10998	16464	23405	31564	42963
	60	61	130	345	580	955	1930	2779	3431	4430	6289	9273	14490	21692	30837	41587	56604
	80	74	158	415	705	1160	2360	3398	4195	4921	6986	10301	16095	24095	34254	46195	62876
	100	85	180	475	800	1320	2630	3787	4675	5767	8188	12073	18865	28241	40148	54144	73696
1/2"	20	13	27	71	120	200	560	806	995	1251	1777	2620	4094	6129	8713	11750	15993
	40	40	85	225	380	625	1330	1915	2364	3006	4268	6293	9834	14721	20928	28224	38416
	60	58	123	325	550	905	1840	2649	3271	4062	5766	8503	13285	19889	28274	38131	51900
	80	72	153	405	680	1120	2270	3268	4035	4724	6707	9850	15453	23134	32887	44352	60368
	100	83	176	465	785	1290	2560	3686	4551	5608	7961	11739	18343	27460	39037	52646	71657
3/4"	20	8.5	18	47	80	130	420	604	746	944	1341	1978	3090	4626	6577	8870	12073
	40	35	75	195	335	550	1130	1627	2008	2601	3693	5446	8509	12738	18109	24422	33241
	60	54	115	305	510	845	1730	2491	3075	3608	5122	7552	11800	17666	25114	33868	46099
	80	69	147	390	655	1080	2180	3139	3875	4528	6428	9479	14811	22172	31520	42508	57859
	100	81	172	455	770	1260	2490	3585	4426	5424	7700	11354	17741	26559	37756	50918	69305
1"	20	5.2	11	29	49	80	300	432	533	711	1010	1489	2328	3485	4954	6681	9094
	40	31	66	175	295	485	1000	1440	1777	2233	3170	4675	7305	10936	15546	20966	28537
	60	50	106	280	475	780	1600	2304	2844	3215	4564	6730	10516	15743	22380	30182	41081
	80	66	140	370	625	1030	2050	2952	3644	4344	6167	9093	14209	21271	30239	40780	55507
	100	78	166	440	740	1210	2400	3456	4266	5227	7421	10943	17099	25597	36389	49075	66796
1 1/2"	40	24	51	135	230	375	750	1080	1333	1718	2439	3596	5619	8412	11959	16128	21952
	60	43	92	240	410	675	1350	1944	2399	2613	3710	5471	8549	12798	18194	24537	33398
	80	59	125	330	560	915	1790	2577	3182	3865	5487	8091	12643	18927	26907	36288	49392
	100	73	155	410	690	1140	2200	3168	3911	4810	6829	10070	15734	23554	33485	45158	61465
2"	40	17	37	98	165	270	570	820	1013	1288	1829	2697	4214	6309	8969	12096	16464
	60	38	80	210	360	585	1070	1540	1902	2233	3170	4675	7305	10936	15546	20966	28537
	80	53	113	300	505	830	1600	2304	2844	3387	4808	7090	11078	16584	23576	31795	43276
	100	67	142	375	635	1040	2000	2880	3555	4246	6028	8888	13888	20790	29556	39859	54252
3"	40	7	15	40	67	110	300	432	533	809	1149	1695	2649	3965	5637	7603	10348
	60	27	57	150	255	420	800	1152	1422	1779	2526	3724	5820	8712	12386	16704	22736
	80	44	94	250	420	690	1240	1785	2204	2712	3850	5677	8870	13279	18878	25459	34652
	100	54	120	315	535	880	1630	2347	2897	3276	4651	6858	10717	16043	22807	30758	41865
4"	60	19	40	105	180	295	570	820	1013	1276	1811	2671	4174	6249	8883	11980	16307
	80	36	76	200	340	560	920	1324	1635	2172	3083	4546	7104	10635	15119	20390	27753
	100	46	98	260	440	720	1320	1900	2346	2822	4007	5908	9231	13820	19647	26496	36064
6"	80	21	45	120	200	330	500	720	888	1423	2020	2979	4656	6970	9908	13363	18188
	100	30	63	165	280	460	890	1281	1582	2049	2909	4290	6703	10034	14265	19238	26185
8"	100	16	35	92	155	255	480	691	853	1435	2038	3005	4696	7030	9994	13478	18345
		MOTIVE LIQUID FLOW (gpm)															
NOZZLE FLOW	20	1.9	3.4	9.2	16	26	42	60	74	103	146	215	337	504	717	967	1317
	40	2.6	4.8	14	24	38	58	84	104	144	204	302	472	706	1004	1354	1843
	60	3.2	5.9	17	29	48	71	103	127	176	250	368	576	862	1226	1654	2251
	80	3.8	6.8	20	34	54	82	118	145	201	285	421	658	895	1400	1889	2571
	100	4.2	7.6	22	39	60	92	132	163	225	320	472	738	1105	1571	2119	2885

Data on larger and/or specially constructed units can be furnished on request.

2½" → 1050

65 → 73 GPM

3

Kopper0016796

Portland Fume Scrubber Efficiency Determination-

Basis:

12" Venturi Scrubber		
Operating Draft:	2.5	inches water
Motive liquid flow:	73	gpm
Approximate air flow from Manufacturer's Chart:	1,050	cfm
Liquid Pitch Throughput	70,000	tons
Pitch Vapor Pressure at 375 F (psia)	0.0077	reference Jim Dietz, 5/22/98
Pitch Vapor pressure at 500 F (psia)	0.058	reference Koppers 3/7/95

Scrubber Liquid

Material	Creosote
Temperature(degrees F):	170
Vapor Pressure (psia)	0.0012
Gas MW (estimated)	168

NSR composition data -analysis provided by Koppers on May 21, 1997 (Attachment 1)
The following analysis is based on steady state conditions. Actual conditions are transient.

	VP	Log 10(VP)	T (R)	1/T
Pitch Vapor Pressure	0.0077	-2.113509275	835	0.0011976
Pitch Vapor Pressure	0.058	-1.236572006	960	0.0010417
				-0.000156

	A	B
log p = A - (B/T)	4.621368946	5,623.62

Temp(F)	Temp(R)	VP(psia)
500	960	0.05800
170	630	0.00005
375	835	0.00770
425	885	0.01849

Scrubber conditions:	Scrubber Inlet		Scrubber
	Melt Tank	Shipping Tank	Outlet
Temperature(degrees F):	375	425	170
Material	Pitch	Pitch	Pitch
Vapor Pressure -(psia)	0.0077	0.0185	0.0077
Gas MW	220	236	194

Production:

Shipped	Rail	Truck
Production (tons)	28,000	42,000
Density (lbs/gal)	11	11
Production (gallons)	5,090,909	7,636,364

Koppers016797

Calculations

Potential Estimated Working Losses from Tanks without Scrubber Control

Liquid Pitch annual throughput	70,000		tons
	11		lb/gal
	Rail	Tank Truck	
Percent of Total	40%	60%	
Annual Volume Displaced	5,090,909	7,636,364	gallons
Total number of turnovers	2	3	
Total displacement annually	10,181,818	22,909,091	gallons
Total displaced gas	1,361,024	3,062,303	cubic feet
Temperature	375.0	425.0	degrees F
mol fr. VOC @ 375	0.0005	0.0013	
Potential Estimated Uncontrolled VOC loss	0.41	2.92	tons/yr
Total Potential Loss	3.33		tons/yr
Average gal/min displaced	0		

Estimated VOC Loss-			
Design flow rate (cfm)	1,050		
flow rate (cf per hour)	63,000		
flow rate (gallons per hour)	471,303		
flow rate (gpm)	7,855		
Potential Uncontrolled VOC	**Rail Shipped**	**Tank Car**	**Total**
Percent of Product	40%	60%	
Tank Temperature	375	425	
Vapor Pressure of Pitch (Saturated)	0.00770	0.01849	
ppm of VOC (based on 14.7 psia)	524	1,258	
VOC lb/cu ft-	0.57	0.61	
VOC(cf/hr)	13.20	48	
VOC (lb/hr)	7.55	29.12	
VOC(lb/month)	5,439	20,966	
VOC(lb/yr)	66,174	255,083	
Uncontrolled VOC (tpy)	33	128	161
Controlled Outlet VOC			
Assume Temperature	0	170	
Assumed Vapor Pressure equivalent to:	Pitch	Pitch	
Vapor Pressure (psia)	0.00005	0.00005	
ppm of VOC (based on 14.7 psia)	3	3	
Total scrubber gas flow (cf/hr)	63,000	63,000	
VOC flow (cf/ hr)	0.1	0.1	
VOC lb/cu ft-	0.50	0.44	
VOC (lb/hr)	0.04	0	
VOC(lb/month)	31	40	
VOC(lb/yr)	376	487	
VOC(tpy)	0.19	0.24	0.43
Amount Pitch collecteed in scrubber (lbs/month)	33	127	160
Amount Pitch collecteed in scrubber (gal/month)	3	12	15

Koppers016798

Creosote data:

Creosote scrubbing liquor
Density = 9 lb/gal
Usage = 3,000 gallons/ month

C reosote composition:

	wt%	MW	Devol?
Benzene	0.00	78	yes
Pyridine	0.00	79	yes
Toluene	0.13	92	yes
Phenol	0.23	94	yes
Xylenes	0.17	106	yes
Cresols	0.25	108	yes
Naphthalene	14.20	128	yes
Quinoline	0.90	129	yes
Biphenyl	1.50	154	no
Dibenzofuran	3.50	168	no
Anthracene	5.30	178	no
PACs	3.50	268	no
Balance	60.00	350	no

Assume that the compounds with a MW < 150 volatize:

Total Percent Volatiles lost from solution:	15.88 %
Total weight of Creosote (lbs)	27,000
Total weight of volitized Creosote (lbs)	4,288
VOC (lb/hr)	5.87
VOC(lb/month)	4,288
VOC(lb/yr)	51,451
VOC(tpy)	25.73

Inlet Scrubber Pitch vapor loading (tpy)	160.63
Outlet Scrubber Pitch vapor loss (tpy)	0.43
Scrubber solution loss (tpy)	25.73
Annual average VOC control efficiency of system	84%

Note that scrubber efficiency will vary as the scrubber solution and inlet loading vary.
A lower inlet loading will produce a lower efficiency.

Koppers016799

June 24, 1998

Project Number AC098

Ms. Traci Self
Koppers Industries, Inc.
436 Seventh Avenue
Pittsburgh, Pennsylvania 15219-1800

DRAFT

RE: Scrubber Emissions Control Efficiency

Dear Ms. Self:

Air/Compliance Consultants, Inc. (ACCI) has conducted an analysis to determine the emission control efficiency of the fume scrubber at the Portland Facility. This estimate was based on data supplied by Koppers Industries, Inc. (KII).

Two scrubber solvents were studied, Napthalene Still Residue (NSR) and coal tar distillates (distillates). Our analysis indicated that the distillates which are currently used at the facility, would provide the highest control efficiency. According to Mr. Jim Dietz, (June 24, 1998), the KII Portland plant will continue to use distillates as the scrubbing solution in the future.

Based on our analysis, the average monthly scrubber efficiency is approximately 80 percent. The actual efficiency will vary with inlet load and the age of the scrubber solution. This analysis assumes that the fume scrubber draft is a constant 1,050 standard cubic feet per minute (scfm), that the vapor concentration in the motive gas is saturated at the storage temperature of the liquid pitch tanks, and that the scrubber solution will be changed monthly. Attachment 1 contains our assumptions and calculations.

Attachment 2 contains design data on the fume scrubber.

Sincerely,

AIR/COMPLIANCE CONSULTANTS, INC.

Jill W. Merrill
Principal Engineer/President

JWM:sls

Attachments

KOPPERS\KII_PORT\SCRUB%\KIIPORT3.DOC

DRAFT

ATTACHMENT 1

ASSUMPTIONS AND CALCULATIONS

Portland Fume Scrubber Efficiency Determination

Basis:

12" Venturi Scrubber		
Operating Draft:	2.5	inches water
Motive liquid flow:	73	gpm
Approximate air flow from Manufacturer's Chart:	1,050	cfm
Liquid Pitch Throughput	70,000	tons
Pitch Vapor Pressure at 375 F (psia)	0.0077	reference Jim Dietz, 5/22/98
Pitch Vapor pressure at 500 F (psia)	0.058	reference Physical Properties Table 3/7/95

Existing and Potential Scrubber Liquids

Material	Creosote	NSR	
Temperature(degrees F):	170	170	
Vapor Pressure (psia)	0.0012	0.0150	~~Jim Dietz, 5/22/98~~
Gas MW (estimated)	168	149	

NSR composition data -analysis provided by Koppers on May 21, 1997 (Attachment 1)
The following analysis is based on steady state conditions. Actual conditions are transient.

	VP	Log 10(VP)	T (R)	1/T
Pitch Vapor Pressure	0.0077	-2.113509275	835	0.0011976
Pitch Vapor Pressure	0.058	-1.236572006	960	0.0010417
				-0.000156

	A	B
log p = A - (B/T)	4.621368946	5,623.62

Temp(F)	Temp(R)	VP(psia)
500	960	0.05800
170	630	0.00005
375	835	0.00770
425	885	0.01849

Scrubber conditions:	Scrubber Inlet		Scrubber
	Melt Tank	Shipping Tank	Outlet
Temperature(degrees F):	375	425	170
Material	Pitch	Pitch	Pitch
Vapor Pressure -(psia)	0.0077	0.0185	0.0077
Gas MW	220	236	194

Production:

Shipped	Rail	Truck
Production (tons)	28,000	42,000
Density (lbs/gal)	11	11
Production (gallons)	5,090,909	7,636,364

JUN-24-98 WED 10:39 AIR COMPLIANCE FAX NO. 4128263640 P.04

Koppers016802

Calculations

Estimated VOC Loss-			
Design flow rate (efm)	1,050		
flow rate (cf per hour)	63,000		
flow rate (gallons per hour)	471,303		
flow rate (gpm)	7,855		
Potential Uncontrolled VOC	Rail Shipped	Tank Car	Total
Percent of Product	40%	60%	
Tank Temperature	375	425	
Vapor Pressure of Pitch (Saturated)	0.00770	0.01849	
ppm of VOC (based on 14.7 psia)	524	1,258	
VOC lb/cu ft-	0.57	0.61	
VOC(cf/hr)	13.20	48	
VOC (lb/hr)	7.55	29.12	
VOC(lb/month)	5,439	20,966	
VOC(lb/yr)	66,174	255,083	
Uncontrolled VOC (tpy)	33	128	161
Controlled Outlet VOC			
Assume Temperature	170	170	
Assumed Vapor Pressure equivalent to:	Pitch	Pitch	
Vapor Pressure (psia)	0.00005	0.00005	
ppm of VOC (based on 14.7 psia)	3	3	
Total scrubber gas flow (cf/hr)	63,000	63,000	
VOC flow (cf/ hr)	0.1	0.1	
VOC lb/cu ft-	0.50	0.44	
VOC (lb/hr)	0.04	0	
VOC(lb/month)	31	40	
VOC(lb/yr)	376	487	
VOC(tpy)	0	0	0
Amount Pitch collected in scrubber (lbs/month)	33	127	160
Amount Pitch collected in scrubber (gal/month)	3	12	15

JUN-24-98 WED 10:40 AIR COMPLIANCE FAX NO. 4128263640 P.05

Koppers016803

~~Option 1~~ Creosote Solvent

Creosote scrubbing liquor
Density = 9 lb/gal
Usage = 3,000 gallons/ month

Creosote composition:

	wt%	MW	Devol?
Benzene	0.00	78	yes
Pyridine	0.00	79	yes
Toluene	0.13	92	yes
Phenol	0.23	94	yes
Xylenes	0.17	106	yes
Cresols	0.25	108	yes
Naphthalene	14.20	128	yes
Quinoline	0.90	129	yes
Biphenyl	1.50	154	no
Dibenzofuran	3.50	168	no
Anthracene	5.30	178	no
PACs	3.50	268	no
Balance	60.00	350	no

Assume that the compounds with a MW < 150 volatize:

Total Percent Volatiles lost from solution:	15.88 %
Total weight of Creosote (lbs)	27,000
Total weight of volitized Creosote (lbs)	4,288
VOC (lb/hr)	5.87
VOC(lb/month)	4,288
VOC(lb/yr)	51,451
VOC(tpy)	26

Summary (Creosote)	
Inlet Scrubber Pitch vapor loading (tpy)	161
Outlet Scrubber Pitch vapor loss (tpy)	4.E-01
Scrubber solution loss (tpy)	26
Annual average VOC control efficiency of system	84%

Note that scrubber efficiency will vary as the scrubber solution and inlet loading vary. A lower inlet loading will produce a lower efficiency.

JUN-24-98 WED 10:40 AIR COMPLIANCE FAX NO. 4128263640 P. 06

Koppers016804

DRAFT

ATTACHMENT 2

DESIGN DATA

PORTLAND FUME SCRUBBER

TABLE 2. GAS HANDLING CAPACITIES—TYPE 7010 SCRUBBERS WITH *STANDARD* NOZZLES

DRAFT (in. H_2O Diff.)	WATER PRESSURE (psig)	SCRUBBER SIZE (inches) 3	4	6	8	10	12	14	16	18	20	24	30	36	42	48	54
		CAPACITIES (cfm air at flowing conditions)															
ZERO DRAFT	20	28	59	155	265	435	1040	1497	1848	2331	3310	4880	7626	11816	16230	21888	29792
	40	48	102	270	460	750	1800	2304	2844	3644	5174	7629	11921	17846	25370	34214	46569
	60	64	135	355	600	990	2000	2880	3555	4675	6637	9787	15292	22893	32545	43891	59740
	80	74	161	425	620	1180	2430	3499	4319	5105	7247	10686	16697	24996	35535	47923	65228
	100	86	183	485	815	1380	2660	3830	4728	5902	8380	12356	19306	28902	41088	55401	75420
1/4"	20	19	41	110	185	300	830	1195	1475	1844	2334	3442	5378	8051	11446	15436	21011
	40	45	95	250	425	700	1500	2160	2666	3362	4773	7038	10998	16464	23405	31564	42963
	60	61	130	345	580	955	1930	2778	3431	4430	6289	9273	14490	21692	30837	41587	56604
	80	74	158	415	705	1160	2360	3398	4195	4921	6986	10301	16095	24095	34254	46195	62876
	100	85	180	475	800	1320	2630	3787	4675	5767	8188	12073	18865	28241	40148	54144	73696
1/2"	20	13	27	71	120	200	560	806	995	1251	1777	2620	4094	6129	8713	11750	15993
	40	40	85	225	380	625	1330	1915	2364	3006	4268	6293	9834	14721	20928	28224	38416
	60	58	123	325	550	905	1840	2649	3271	4062	5766	8503	13285	19889	28274	38131	51900
	80	72	153	405	680	1120	2270	3268	4035	4724	6707	9850	15453	23134	32887	44352	60368
	100	83	176	465	785	1290	2560	3686	4551	5608	7961	11739	18343	27460	39037	52646	71657
3/4"	20	8.5	18	47	80	130	420	604	746	944	1341	1978	3090	4628	6577	8870	12073
	40	35	75	195	335	550	1130	1627	2008	2601	3693	5446	8509	12738	18109	24422	33241
	60	54	115	305	510	845	1730	2491	3075	3608	5122	7552	11800	17666	25114	33868	46099
	80	69	147	390	655	1080	2180	3139	3875	4528	6428	9479	14811	22172	31520	42508	57859
	100	81	172	455	770	1260	2490	3585	4426	5424	7700	11354	17741	26559	37756	50918	69305
1"	20	5.2	11	29	49	80	300	432	533	711	1010	1489	2328	3485	4954	6681	9094
	40	31	66	175	295	485	1000	1440	1777	2233	3170	4675	7305	10936	15546	20966	28537
	60	50	106	280	475	780	1600	2304	2844	3215	4564	6730	10515	15743	22380	30182	41081
	80	65	140	370	625	1030	2050	2952	3644	4344	6167	9093	14203	21271	30239	40780	55507
	100	78	166	440	740	1210	2400	3456	4266	5227	7421	10943	17099	25597	36389	49075	66796
1 1/2"	40	24	51	135	230	375	750	1080	1333	1718	2439	3596	5619	8412	11959	16128	21952
	60	43	92	240	410	675	1350	1944	2399	2613	3710	5471	8549	12798	18194	24537	33398
	80	59	125	330	560	915	1790	2577	3182	3865	5487	8091	12643	18927	26907	35288	49392
	100	73	155	410	690	1140	2200	3168	3911	4810	6829	10070	15734	23554	33485	45158	61465
2"	40	17	37	98	165	270	570	820	1013	1288	1829	2697	4214	6309	8969	12096	16464
	60	38	80	210	360	585	1070	1540	1902	2233	3170	4675	7305	10936	15546	20966	28537
	80	53	113	300	505	830	1600	2304	2844	3387	4808	7090	11078	16584	23576	31795	43276
	100	67	142	375	635	1040	2000	2880	3555	4246	6028	8898	13888	20790	29556	39859	54252
3"	40	7	15	40	67	110	300	432	533	809	1149	1635	2649	3955	5637	7603	10348
	60	27	57	150	255	420	800	1152	1422	1779	2526	3724	5820	8712	12386	16704	22736
	80	44	94	250	420	690	1240	1785	2204	2712	3850	5677	8870	13279	18878	25459	34652
	100	54	120	315	535	880	1630	2347	2897	3276	4651	6856	10717	16043	22807	30758	41865
4"	60	19	40	105	180	295	570	820	1013	1276	1811	2671	4174	6249	8883	11980	16307
	80	36	76	200	340	560	920	1324	1635	2172	3083	4546	7104	10635	15119	20390	27753
	100	46	98	260	440	720	1320	1900	2346	2822	4007	5908	9231	13820	19647	26496	36061
6"	80	21	45	120	200	330	500	720	888	1423	2020	2979	4656	6970	9908	13363	18188
	100	30	63	165	280	460	890	1281	1582	2049	2909	4290	6703	10034	14265	19238	26185
8"	100	16	35	92	156	255	480	691	853	1435	2038	3005	4696	7030	9994	13478	18345
		MOTIVE LIQUID FLOW (gpm)															
NOZZLE FLOW	20	1.9	3.4	9.2	16	26	42	60	74	103	146	215	337	504	717	967	1317
	40	2.6	4.8	14	24	38	58	84	104	144	204	302	472	705	1004	1354	1843
	60	3.2	5.9	17	29	46	71	103	127	176	250	368	576	862	1226	1654	2251
	80	3.8	6.8	20	34	54	82	118	145	201	285	421	658	985	1400	1889	2571
	100	4.2	7.6	22	39	60	92	132	163	225	320	472	738	1105	1571	2119	2885

Data on larger and/or specially constructed units can be furnished on request.

2 1/2" →

105 GPM

65 → 73 GPM

Air/Compliance Consultants, Inc.

Date: 06/22/98

Page 1 of 5

Please Deliver Immediately To:

Name:	Traci Self/ Jim Dietz	Phone:	(412) 227-2883
Company	Koppers Industries, Inc.	Fax:	(412) 227-2423
			Fax X3999

From:	Jill Merrill	Phone:	(412) 826-3636
	Air / Compliance Consultants, Inc.	Fax:	(412) 826-3640

Message:

The attached pages show the scrubber calculations after a few minor revisions. I think you can consider an efficiency of 60 %. If you go to NSR, be sure to stress it's a long term average. These efficiency numbers are conservative, but you may want to supply the backup data to avoid future risk.

Kim - Please let us have your comments on Follansbee and Woodward Reports as soon as possible and we can send those out.

Regards,

Jill

Please call if transmission is incomplete

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Preliminary

Portland Fume Scrubber Efficiency Determination

Basis:

12" Venturi Scrubber		
Operating Draft:	2.5	inches water
Motive liquid flow:	73	gpm
Approximate air flow from Manufacturer's Chart:	1,050	cfm
Liquid Pitch Throughput	70,000	tons
Pitch Vapor Pressure at 375 F (psia)	0.0077	reference Jim Dietz, 5/22/98
Pitch Vapor pressure at 500 F (psia)	0.058	reference Physical Properties Table 3/7/95

Existing and Potential Scrubber Liquids

Material	Creosote	NSR	
Temperature(degrees F):	170	170	
Vapor Pressure (psia)	0.0012	0.0150	Jim Dietz, 5/22/98
Gas MW (estimated)	168	149	

NSR composition data -analysis provided by Koppers on May 21, 1997 (Attachment 1)
The following analysis is based on steady state conditions. Actual conditions are transient.

	VP	Log 10(VP)	T (R)	1/T
Pitch Vapor Pressure	0.0077	-2.113509275	835	0.0011976
Pitch Vapor Pressure	0.058	-1.236572006	960	0.0010417
				-0.000156

	A	B
log p = A - (B/T)	4.621368946	5,623.62

Temp(F)	Temp(R)	VP(psia)
500	960	0.05800
170	630	0.00005
375	835	0.00770
425	885	0.01849

Scrubber conditions:	Scrubber Inlet		Scrubber
	Melt Tank	Shipping Tank	Outlet
Temperature(degrees F):	375	425	170
Material	Pitch	Pitch	Pitch
Vapor Pressure -(psia)	0.0077	0.0185	0.0077
Gas MW	220	236	194

Production:

Shipped	Rail	Truck
Production (tons)	28,000	42,000
Density (lbs/gal)	11	11
Production (gallons)	5,090,909	7,636,364

Calculations

Potential Estimated Working Losses from Tanks without Scrubber Control

Liquid Pitch annual throughput	70,000	tons	
	11	lb/gal	
	Rail	Tank Truck	
Percent of Total	40%	60%	
Annual Volume Displaced	5,090,909	7,636,364	gallons
Total number of turnovers	2	3	
Total displacement annually	10,181,818	22,909,091	gallons
Total displaced gas	1,361,024	3,062,303	cubic feet
Temperature	375.0	425.0	degrees F
mol fr. VOC @ 375	0.0005	0.0013	
Potential Estimated Uncontrolled VOC loss	0.41	2.92	tons/yr
Total Potential Loss	3.33		tons/yr
Average gal/min displaced	63		
note: Average volume displaced	*8*	*is less than*	*1,050* cfm

Estimated VOC Loss-			
Design flow rate (cfm)	1,050		
flow rate (cf per hour)	63,000		
flow rate (gallons per hour)	471,303		
flow rate (gpm)	7,855		

Potential Uncontrolled VOC	Rail Shipped	Tank Car	Total
Percent of Product	40%	60%	
Tank Temperature	375	425	
Vapor Pressure of Pitch (Saturated)	0.00770	0.01849	
ppm of VOC (based on 14.7 psia)	524	1,258	
VOC lb/cu ft-	0.57	0.61	
VOC(cf/hr)	13.20	48	
VOC (lb/hr)	7.55	29.12	
VOC(lb/month)	5,439	20,966	
VOC(lb/yr)	66,174	255,083	
Uncontrolled VOC (tpy)	33	128	161
Controlled Outlet VOC			
Assume Temperature	170	170	
Assumed Vapor Pressure equivalent to:	Pitch	Pitch	
Vapor Pressure (psia)	0.00005	0.00005	
ppm of VOC (based on 14.7 psia)	3	3	
Total scrubber gas flow (cf/hr)	63,000	63,000	
VOC flow (cf/ hr)	0.1	0.1	
VOC lb/cu ft-	0.50	0.44	
VOC (lb/hr)	0.04	0	
VOC(lb/month)	31	40	
VOC(lb/yr)	376	487	
VOC(tpy)	0	0	0
Amount Pitch collected in scrubber (lbs/month)	33	127	160
Amount Pitch collected in scrubber (gal/month)	3	12	15

Koppers016809

Option 1 - Creosote Solvent

Creosote scrubbing liquor
Density = 9 lb/gal
Usage = 3,000 gallons/ month

Creosote composition:

	wt%	MW	Devol?
Benzene	0.00	78	yes
Pyridine	0.00	79	yes
Toluene	0.13	92	yes
Phenol	0.23	94	yes
Xylenes	0.17	106	yes
Cresols	0.25	108	yes
Naphthalene	14.20	128	yes
Quinoline	0.90	129	no
Biphenyl	1.50	154	no
Dibenzofuran	3.50	168	no
Anthracene	5.30	178	no
PACs	3.50	268	no
Balance	60.00		no

Total Percent Volatiles lost from solution:	15.88 %
Total weight of Creosote (lbs)	27,000
Total weight of volitized Creosote (lbs)	4,288
VOC (lb/hr)	5.87
VOC(lb/month)	4,288
VOC(lb/yr)	51,451
VOC(tpy)	26

Summary (Creosote)	
Inlet Scrubber Pitch vapor loading (tpy)	161
Outlet Scrubber Pitch vapor loss (tpy)	4.E-01
Solvent loss (tpy)	26
Annual average VOC control efficiency of system	84%

Note that scrubber efficiency will vary as the scrubber solution varies.

Option 2 - NSR Solvent:

NSR scrubbing liquor
Density = 9 lb/gal
Usage = 3,000 gallons/ month

NSR composition:

	wt%	MW	Devol?
Naphthalene	1.00	128	yes
Quinoline	2.31	129	no
2-Methylnaphthalene	11.93	142.19	no
1-Methylnaphthalene	5.33	142.19	no
Biphenyl	2.72	154	no
Acenaphthene	11.23	154.21	no
dimethyl naphthalene	4.65	156.23	no
Flourene	8.32	166.22	no
Carbazole	1.47	167.2	no
Dibenzofuran	6.89	168	no
Anthracene	4.18	178	no
Phenanthrene	12.77	178.2	no
Flouranthene	2.39	202	no
Pyrene	1.56	202.24	no
PACs	0.67	268.33	no
Balance	22.58	200	no

Assume that all compounds with less than 150 evaporate:

Total Percent Volatiles lost from solution(MW< 150):	34.52 %
Total weight of NSR (lbs)	27,000
Total weight of volitized NSR (lbs)	9,320
VOC (lb/hr)	12.77
VOC(lb/month)	9,320
VOC(lb/yr)	111,845
VOC(tpy)	56

Summary (NSR)	
Inlet Scrubber Pitch vapor loading (tpy)	161
Outlet Scrubber Pitch vapor loss (tpy)	4.E-01
Solvent loss (tpy)	56
Annual average VOC control efficiency of system	65%

Note that scrubber efficiency will vary as the scrubber solution varies between changes.

Air/Compliance Consultants, Inc.

Date: 06/03/98

Page 1 of 5

Please Deliver Immediately To:

Name:	Traci Self/ Jim Dietz	Phone:	(412) 227-2883
Company	Koppers Industries, Inc.	Fax:	(412) 227-2423

Fax X3999

From:	Jill Merrill	Phone:	(412) 826-3636
	Air / Compliance Consultants, Inc.	Fax:	(412) 826-3640

Message:

The attached pages show revised calculations with the vapor pressure correction for Pitch.

Best Regards,
Jill

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1550 William Pitt Way Pittsburgh, Pennsylvania 15238 (412) 826-3636 FAX (412) 826-3640

fax doc

JUN-04-98 THU 08:09 AIR COMPLIANCE FAX NO. 4128263640 P.01

Koppers016812

Portland Fume Scrubber Efficiency Determination

Basis:

12" Venturi Scrubber		
Operating Draft:	2.5	inches water
Motive liquid flow:	73	gpm
Approximate air flow from Manufacturer's Chart:	1,050	cfm
Liquid Pitch Throughput	70,000	tons
Pitch Vapor Pressure at 375 F (psia)	0.0077	reference Jim Dietz, 5/22/98
Pitch Vapor pressure at 500 F (psia)	0.058	reference Physical Properties Table 3/7/95

Existing and Potential Scrubber Liquids

Material	Creosote	NSR	
Temperature(degrees F):	170	170	
Vapor Pressure (psia)	0.0012	0.0150	Jim Dietz, 5/22/98
Gas MW (estimated)	168	149	

NSR composition data -analysis provided by Koppers on May 21, 1997 (Attachment 1)
The following analysis is based on steady state conditions. Actual conditions are transient.

	VP	Log 10(VP)	T (R)	1/T
Pitch Vapor Pressure	0.0077	-2.113509275	835	0.0011976
Pitch Vapor Pressure	0.058	-1.236572006	960	0.0010417
				-0.000156

	A	B
log p = A - (B/T)	4.621368946	5,623.62

Temp(F)	Temp(R)	VP(psia)
500	960	0.05800
170	630	0.00005
375	835	0.00770
425	885	0.01849

Scrubber conditions:	Scrubber Inlet		Scrubber
	Melt Tank	Shipping Tank	Outlet
Temperature(degrees F):	375	425	170
Material	Pitch	Pitch	Pitch
Vapor Pressure -(psia)	0.0077	0.0185	0.0077
Gas MW	220	236	194

Production:

Shipped	Rail	Truck
Production (tons)	28,000	42,000
Density (lbs/gal)	11	11
Production (gallons)	5,090,909	7,636,364

JUN-04-98 THU 08:10 AIR COMPLIANCE FAX NO. 4128263640 P. 02

Koppers016813

Calculations

Potential Estimated Working Losses from Tanks without Scrubber Control

Liquid Pitch annual throughput	70,000	tons		
	11	lb/gal		
	Rail	Tank Truck		
Percent of Total	40%	60%		
Annual Volume Displaced	5,090,909	7,636,364	gallons	
Total number of turnovers	2	3		
Total displacement annually	10,181,818	22,909,091	gallons	
Total displaced gas	76,170,182	171,382,909	cubic feet	
Temperature	375.0	425.0	degrees F	
mol fr. VOC @ 375	0.0005	0.0013		
Potential Estimated Uncontrolled VOC loss	23	163		
Total Potential Loss	186			
Average gal/min displaced	3,525			
note: Average volume displaced	*471*	*is less than*	*1,050*	cfm

Estimated VOC Loss-			
Design flow rate			
flow rate (cf per hour)	63,000		
flow rate (gallons per hour)	471,303		
flow rate (gpm)	7,855		

Potential Uncontrolled VOC	Rail Shipped	Tank Car	Total
Percent of Product	40%	60%	
Tank Temperature	375	425	
Vapor Pressure of Pitch (Saturated)	0.00770	0.01849	
ppm of VOC (based on 14.7 psia)	524	1,258	
VOC lb/cu ft-	0.57	0.61	
VOC(cf/hr)	13.20	48	
VOC (lb/hr)	7.55	29.12	
VOC(lb/month)	5,439	20,966	
VOC(lb/yr)	66,174	255,083	
VOC (tpy)	33	128	161
Controlled Outlet VOC			
Assume Temperature	170	170	
Assumed Vapor Pressure equivalent to:	Pitch	Pitch	
Vapor Pressure (psia)	0.00005	0.00005	
ppm of VOC (based on 14.7 psia)	3	3	
Total scrubber gas flow (cf/hr)	63,000	63,000	
VOC flow (cf/ hr)	0.1	0.1	
VOC lb/cu ft-	0.50	0.44	
VOC (lb/hr)	0.04	0	
VOC(lb/month)	31	40	
VOC(lb/yr)	376	487	
VOC(tpy)	0	0	0
Amount Pitch collected in scrubber (lbs/month)	33	127	160
Amount Pitch collected in scrubber (gal/month)	3	12	15

JUN-04-98 THU 08:11 AIR COMPLIANCE FAX NO. 4128263840 P. 03

Koppers016814

Option 1 - Creosote Solvent

Creosote scrubbing liquor
Density = 9 lb/gal
Usage = 3,000 gallons/ month

Creosote composition:

	wt%	MW	Devol?
Benzene	0.00	78	yes
Pyridine	0.00	79	yes
Toluene	0.13	92	yes
Phenol	0.23	94	yes
Xylenes	0.17	106	yes
Cresols	0.25	108	yes
Naphthalene	14.20	128	yes
Quinoline	0.90	129	yes
Biphenyl	1.50	154	yes
Dibenzofuran	3.50	168	yes
Anthracene	5.30	178	no
PACs	3.50	268	no
Balance (BP >180 F)	60.00		no

Total Percent Volatiles lost from solution:	20.88 %
Total weight of Creosote (lbs)	27,000
Total weight of volitized Creosote (lbs)	5,638
VOC (lb/hr)	7.72
VOC(lb/month)	5,638
VOC(lb/yr)	67,651
VOC(tpy)	34

Summary (Creosote)	
Inlet Scrubber Pitch vapor loading (tpy)	161
Outlet Scrubber Pitch vapor loss (tpy)	4.E-01
Solvent loss (tpy)	34
Annual average VOC control efficiency of system	79%

Note that scrubber efficiency will vary as the scrubber solution varies.

JUN-04-98 THU 08:11 AIR COMPLIANCE FAX NO. 4128283640 P. 04

Koppers016815

Option 2 - NSR Solvent:

NSR scrubbing liquor
Density = 9 lb/gal
Usage = 3,000 gallons/ month

NSR composition:

	wt%	MW	Devol?
Naphthalene	1.00	128	yes
Quinoline	2.31	129	yes
2-Methylnaphthalene	11.93	142.19	yes
1-Methylnaphthalene	5.33	142.19	yes
Biphenyl	2.72	154	yes
Acenaphthene	11.23	154.21	yes
dimethyl naphthalene	4.65	156.23	yes
Flourene	8.32	166.22	yes
Carbazole	1.47	167.2	yes
Dibenzofuran	6.89	168	yes
Anthracene	4.18	178	no
Phenanthrene	12.77	178.2	no
Flouranthene	2.39	202	no
Pyrene	1.56	202.24	no
PACs	0.67	268.33	no
Balance (BP >180 F)	22.58	200	no

Total Percent Volatiles lost from solution:	55.85 %
Total weight of NSR (lbs)	27,000
Total weight of volitized NSR (lbs)	15,080
VOC (lb/hr)	20.66
VOC(lb/month)	15,080
VOC(lb/yr)	180,954
VOC(tpy)	90

Summary (NSR)	
Inlet Scrubber Pitch vapor loading (tpy)	161
Outlet Scrubber Pitch vapor loss (tpy)	4.E-01
Solvent loss (tpy)	90
Annual average VOC control efficiency of system	43%

Note that scrubber efficiency will vary as the scrubber solution varies between changes.

JUN-04-98 THU 08:12 AIR COMPLIANCE FAX NO. 4128263640 P.05

Koppers016816

Air/Compliance Consultants, Inc.

faxed 5/29 6:30
note → does not agree with permit!

Date: 05/29/98

Please Deliver Immediately To:

Name:	Traci Self/ Jim Dietz/Amos Kamerer	Phone:	(412) 227-2883
Company	Koppers Industries, Inc.	Fax:	(412) 227-2423

From:	Jill Merrill	Phone:	(412) 826-3636
	Air / Compliance Consultants, Inc.	Fax:	(412) 826-3640

Message:

Traci,

The attached pages show my preliminary calculations for the scrubber efficiency determination. Key assumptions are as follows:

1. Vapor Pressure of Pitch. Note that a lower VP could reduce control efficiency.
2. All of the light ends (BP< 180F) are evaporated from the scrubbing solution.
3. The scrubber gas velocity is constant at about 1,050 cfm. (Although annual average displacement rate is about half)

I will have these QAed next week and await yours & Jim's input for final version.

Best Regards,
Jill

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Portland Fume Scrubber Efficiency Determination

Basis:

12" Venturi Scrubber

Operating Draft:	2.5	inches water
Motive liquid flow:	73	gpm
Approximate air flow from Manufacturer's Chart:	1,050	cfm
Liquid Pitch Throughput	70,000	tons
Pitch Vapor Pressure at 170 F	0.0077	reference Jim Dietz, 5/22/98
Pitch Vapor pressure at 500 F	0.058	reference Physical Properties Table 3/7/95

Existing and Potential Scrubber Liquids

Material	Creosote	NSR	
Temperature(degrees F):	170	170	
Vapor Pressure calculated (psia)	0.0652	0.0295	more conservative
Vapor Pressure (psia)	0.0012	0.0150	Jim Dietz, 5/22/98
Gas MW	168	149	

NSR composition data -analysis provided by Koppers on May 21, 1997 (Attachment 1)
The following analysis is based on steady state conditions. Actual conditions are transient.

	VP	Log 10(VP)	T (R)	1/T
Pitch Vapor Pressure	0.0077	-2.113509275	630	0.001587
Pitch Vapor Pressure	0.058	-1.236572006	960	0.001042
				-0.000546

	A	B
log p = A - (B/T)	0.43758096	1,607.19

Temp(F)	Temp(R)	VP(psia)
500	960	0.0580
170	637	0.0082 ✓
375	835	0.0326
425	885	0.0418

Scrubber conditions:	Scrubber Inlet		Scrubber
	Melt Tank	Shipping Tank	Outlet
Temperature(degrees F):	375	425	170
Material	Pitch	Pitch	Pitch
Vapor Pressure -(psia)	0.0326	0.0418	0.0077
Gas MW	220	236	154

Note: ~~inlet vapor pressures are calculated~~.

Production:

Shipped	Rail	Truck
Production (tons)	28,000	42,000
Density (lbs/gal)	11	11
Production (gallons)	5,090,909	7,636,364

Koppers016818

Calculations

Potential Estimated Working Losses from Tanks without Scrubber Control

Liquid Pitch annual throughput	70,000	tons	
	11	lb/gal	

	Rail	Tank Truck	
Percent of Total	40%	60%	
Annual Volume Displaced	5,090,909	7,636,364	gallons
Total number of turnovers	2	3	
Total displacement annually	10,181,818	22,909,091	gallons
Total displaced gas	76,170,182	171,382,909	cubic feet
Temperature	375.0	425.0	degrees F
mol fr. VOC @ 375	0.0022	0.0028	
Potential Estimated Uncontrolled VOC loss	97	294	
Total Potential Loss	390		
Average gal/min displaced	3,523		
note: Average volume displaced	*471*	*is less than*	*1,050* cfm

Estimated VOC Loss-			
Design flow rate			
flow rate (cf per hour)	63,000		
flow rate (gallons per hour)	471,303		
flow rate (gpm)	7,855		
Potential Uncontrolled VOC	Rail Shipped	Tank Car	Total
Percent of Product	40%	60%	
Assumed Temperature	375	425	
Vapor Pressure of Pitch	0.0326	0.0418	
ppm of VOC (based on 14.7 psia)	2,216	2,846	
VOC lb/cu ft-	0.57	0.61	
VOC(cf/hr)	55.83	108	
VOC (lb/hr)	31.95	65.88	
VOC(lb/month)	23,006	47,432	
VOC(lb/yr)	279,901	577,084	
VOC (tpy)	140	289	428
Controlled Outlet VOC			
Assume Temperature	170	170	
Assumed Vapor Pressure equivalent to:	Pitch	Pitch	
ppm of VOC (based on 14.7 psia)	524	524	
Total scrubber gas flow (cf/hr)	63,000	63,000	
VOC flow (cf/ hr)	13.2	19.8	
VOC lb/cu ft-	0.40	0.44	
VOC (lb/hr)	5.30	9	
VOC(lb/month)	3,814	6,221	
VOC(lb/yr)	46,403	75,686	
VOC(tpy)	23	38	61
Amount collected in scrubber (lbs/month)	117	251	367
Amount collected in scrubber (gal/month)	11	23	33

Koppers016819

Option 1 - Creosote Solvent Sorbent:

Creosote scrubbing liquor
Density = 9 lb/gal
Usage = 3,000 gallons/ month

Creosote composition:

	wt%	MW	Devol?
Benzene	0.00	78	yes
Pyridine	0.00	79	yes
Toluene	0.13	92	yes
Phenol	0.23	94	yes
Xylenes	0.17	106	yes
Cresols	0.25	108	yes
Naphthalene	14.20	128	yes
Quinoline	0.90	129	yes
Biphenyl	1.50	154	yes
Dibenzofuran	3.50	168	yes
Anthracene	5.30	178	no
PACs	3.50	268	no
Balance	60.00		no

Total Percent Volatiles lost from solution:	20.88 %
Total weight of Creosote (lbs)	27,000
Total weight of volitized Creosote (lbs)	5,638
VOC (lb/hr)	7.72
VOC(lb/month)	5,638
VOC(lb/yr)	67,651
VOC(tpy)	34

Summary (Creosote)	
Inlet Scrubber Pitch vapor loading (tpy)	428
Outlet Scrubber Pitch vapor loss (tpy)	61
Creosote loss (tpy)	34
Annual average VOC control efficiency of system	77.86%

Note that scrubber efficiency will vary as the scrubber solution varies between changes.

Koppers016820

Option 2 - NSR ~~Sorbent~~ Solvent

NSR scrubbing liquor
Density = 9 lb/gal
Usage = 3,000 gallons/ month

NSR composition:

	wt%	MW	Devol?
Naphthalene	1.00	128	yes
Quinoline	2.31	129	yes
2-Methylnaphthalene	11.93	142.19	yes
1-Methylnaphthalene	5.33	142.19	yes
Biphenyl	2.72	154	yes
Acenaphthene	11.23	154.21	yes
dimethyl naphthalene	4.65	156.23	yes
Flourene	8.32	166.22	yes
Carbazole	1.47	167.2	yes
Dibenzofuran	6.89	168	yes
Anthracene	4.18	178	no
Phenanthrene	12.77	178.2	no
Flouranthene	2.39	202	no
Pyrene	1.56	202.24	no
PACs	0.67	268.33	no
Balance NSR	22.58	200	no

Total Percent Volatiles lost from solution:	55.85 %
Total weight of NSR (lbs)	27,000
Total weight of volitized NSR (lbs)	15,080
VOC (lb/hr)	20.66
VOC(lb/month)	15,080
VOC(lb/yr)	180,954
VOC(tpy)	90

Summary (NSR)	
Inlet Scrubber Pitch vapor loading (tpy)	428
Outlet Scrubber Pitch vapor loss (tpy)	61
~~Creosote~~ loss (tpy)	90
Annual average VOC control efficiency of system	64.64%

NSR

Note that scrubber efficiency will vary as the scrubber solution varies between changes.

Koppers016821

Post-It™ brand fax transmittal memo 7671 | # of pages ▸ 2

To	From
Jack Stephenson	Traci Self
Co.	Co.
Dept.	Phone # 227-2883
Fax # 826-3905	Fax # 227-2423

Air/Compliance Consultants, Inc.

May 21, 1998

Proposal Number 119

Ms. Traci Self
Koppers Industries, Inc.
436 Seventh Avenue
Pittsburgh, Pennsylvania 15219-1800

RE: Scope of Services for Scrubber Emissions Control Efficiency

Dear Ms. Self:

As a follow up to our conversation on May 21, 1998, I am providing this scope of services for determining the emissions control efficiency for the scrubber at the Portland Facility. This estimate is based on information uncovered during our meeting today with Mr. Jim Dietz and Mr. Bill Meissinger. Essentially, we will be developing a method to account for the vapor space composition in a moving stream and the effect of the scrubbing solution vapor pressure. We are also concerned about mist carryover from the scrubber and will try to account for it.

This work can be performed on a time and materials basis for an estimated price of $2,600. This budget will be carefully tracked and if it becomes apparent that the actual costs may exceed the estimate, you will be promptly notified. Actual labor costs will be billed at the categorical rates shown in the attached Air/Compliance Consultants, Inc. (ACCI) fee schedule. Your verbal authorization is required for ACCI to initiate this project. A written purchase order to cover project costs can be submitted at your earliest convenience.

We appreciate the opportunity to prepare this proposal for KII and look forward to assisting you on these projects.

Sincerely,

AIR/COMPLIANCE CONSULTANTS, INC.

Jill W. Merrill

Jill W. Merrill
Principal Engineer/President

Attachment

PROPOSAL\1998\9805\KIIPORT3.DOC

1050 William Pitt Way
Pittsburgh, PA 15238
412-826-3636
412-826-3640 fax

AIR/COMPLIANCE CONSULTANTS, INC.
FEE SCHEDULE FOR PROFESSIONAL SERVICES

Invoices for services provided by Air/Compliance Consultants, Inc., (ACCI) consist of: (1) hourly rate professional services fees; (2) material and equipment expenditures and usage; (3) subcontractor costs; (4) travel, shipping, and communications charges; and (5) sales or gross receipt taxes, as applicable.

Subject to periodic revisions, hourly rate fees for ACCI professional services are indicated below:

STAFF CATEGORIES	HOURLY RATES
ENGINEERS & SCIENTISTS	
Technician	$40
Scientist/Engineer 1	54
Scientist/Engineer 2	67
Senior Scientist/Engineer 1	78
Senior Scientist/Engineer 2	93
Principal Scientist/Engineer	108
OFFICE SUPPORT STAFF	
Clerical/Word Processing/Accounting	$40

INVOICING AND PAYMENT

Progress invoices will be issued monthly and payment is due within 30 days of invoice date. Invoices for subcontractor charges are payable upon presentation. A finance charge of 1.5 percent per month will be payable on past-due account balances.

ADDITIONAL TERMS

- All project-related expenses, materials, field supplies, equipment charges; premiums for insurance, bonds, and letters of credit required by the client in addition to normal coverage; project-required permits and licenses; et. will be invoiced at cost plus 15 percent
- Charges for long-distance telephone, photocopying, express and regular shipping, and postage will be invoiced at cost plus 15 percent
- Charges for rental vehicles, meals, travel, and lodging will be invoiced at actual cost plus 15 percent. Personal vehicles will be charged at $0.31 per mile.
- Subcontractor (analytical laboratories) charges will be invoiced at cost plus 15 percent.
- Company-owned equipment, vehicles, and materials will be invoiced at fixed unit rates. A summary of these rates will be provided upon request.

Air/Compliance Consultants, Inc.

Date: 05/19/98

Page 1 of 5

Please Deliver Immediately To:

Name:	Traci Self	Phone:	(412) 227-2883
Company	Koppers Industries, Inc.	Fax:	(412) 227-2423

From:	Bill Cowell	Phone:	(412) 826-3636
	Air / Compliance Consultants, Inc.	Fax:	(412) 826-3640

Message:

Traci,

The attached analysis is for the installed scrubber at the Portland plant. Temperatures were provided by the plant engineer, Amos. Scrubber efficiencies were estimated by assuming that equilibrium vapor pressures were achieved over the tanks and after the scrubber. The pitch composition and vapor pressures were calculated using official Koppers Coal Tar Commodity Weight Percentages shown in the attached table. The reduction efficiency was calculated based on the reduction in vapor pressure across the scrubber. Amos said usually pitch is the only product that is scrubbed, but that sometimes a small amount of Heavy Oil is added to the pitch. As you can see from the attached table, the reduction efficiencies are negligibly affected by the addition of 10% Heavy Oil. Reduction efficiencies range from 94 to 99.3 percent. A conservative assumption might be to claim that there is 90% reduction efficiency. Call if more information is needed or there is anything else we can help you with. Thank you very much.

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DRAFT

Comparison of Vapor Pressures to Estimate APC Efficiency

Temp (°F)	Temp (°R)	100 % Pitch Vapor Pressure	90% Pitch/10% Heavy Oil Vapor Pressure
180	640	0.0015	0.0014
230	690	0.0052	0.0048
375	835	0.0871	0.0886
425	885	0.1928	0.2029

Note: Scrubber Temperatures varied between 375°F to 425°F inlet temperature and 180°F to 230°F exit temperature

For Pitch Only,

Inlet Temp (°F)	Inlet VP (psia)	Outlet Temp (°F)	Outlet VP (psia)	Scrubber Control Efficiency
375	0.0871	180	0.0015	98.3%
375	0.0871	230	0.0052	94.0%
425	0.1928	180	0.0015	99.2%
425	0.1928	230	0.0052	97.3%

For 90% Pitch / 10% Heavy Oils

Inlet Temp (°F)	Inlet VP (psia)	Outlet Temp (°F)	Outlet VP (psia)	Scrubber Control Efficiency
375	0.0886	180	0.0014	98.5%
375	0.0886	230	0.0048	94.6%
425	0.2029	180	0.0014	99.3%
425	0.2029	230	0.0048	97.6%

Maximum Efficiency =	99.3%
Minimum Efficiency =	94.0%

Pitch Lookup Table							
Temp	Temp	Vapor		% wt in Vapor			
(°F)	(°R)	MW	VP	Anthracene	Dibenzofuran	Naphthalene	PACs
180	640	131.39	0.0015	2.49		94.34	0.00
230	690	134.09	0.0052	3.42		90.55	0.00
375	835	150.17	0.0871	6.03		71.92	0.27
425	885	159.42	0.1928	6.56		63.16	1.53

90%Pitch/10% Heavy Oil Lookup Table							
Temp	Temp	Vapor		% wt in Vapor			
(°F)	(°R)	MW	VP	Anthracene	Dibenzofuran	Naphthalene	PACs
180	640	134.09	0.0014	5.65	0.87	87.97	0.00
230	690	138.07	0.0048	7.50	0.99	81.61	0.00
375	835	157.09	0.0886	11.82	1.12	57.89	0.25
425	885	166.09	0.2029	12.48	1.08	49.32	1.40

Koppers016826

Pitch

Used Heavies Vapor Pressure data for bal Pitch
Used Pyrene Vapor Pressure data for bal Heavy Oil

Process Description	Temp °F	Component	Mean Conc Wt %	MW lb/lb-mole	No Moles	MsubF (Xa)	Liquid MW lb/lb-mole	VPa (psia)	PPa (VP * Xa)	Yi (% by Vol)	Vapor MW lb/lb-mole	Y_w (% by wt.)
90% Pitch	180		Mixture Total		0.3424	1.0000	292.06		0.0013702	100	134.09	100
10% Heavy Oil		Anthracene	1.73	178	0.0097	0.0284	5.06	0.0021	0.0001	4.253	7.5708	5.646
		Dibenzofuran	0.04	168	0.0002	0.0007	0.12	0.0137	0.0000	0.694	1.1662	0.870
		Naphthalene	0.39	128	0.0030	0.0088	1.13	0.1430	0.0013	92.154	117.9567	87.971
		PACs	8.32	268	0.0310	0.0905	24.29	0.0000	0.0000	0.000	0.0000	0.000
		bal. Heavy Oil	8.95	210	0.0426	0.1245	26.15	0.0002	0.0000	1.657	3.4798	2.595
		bal. Pitch	80.57	315	0.2558	0.7470	235.32	0.0000	0.0000	1.242	3.9120	2.918
90% Pitch	230		**Mixture Total**		0.3424	1.0000	291.06		0.0048246	100	138.07	100
10% Heavy Oil		Anthracene	1.73	178	0.0097	0.0284	5.06	0.0099	0.0003	5.819	10.3573	7.501
		Dibenzofuran	0.04	168	0.0002	0.0007	0.12	0.0567	0.0000	0.817	1.3727	0.994
		Naphthalene	0.39	128	0.0030	0.0088	1.13	0.4810	0.0042	88.030	112.6789	81.608
		PACs	8.32	268	0.0310	0.0905	24.29	0.0000	0.0000	0.000	0.0005	0.000
		bal. Heavy Oil	8.95	210	0.0426	0.1245	26.15	0.0012	0.0001	2.988	6.2741	4.544
		bal. Pitch	80.57	315	0.2558	0.7470	235.32	0.0002	0.0001	2.346	7.3898	5.352
90% Pitch	375		Mixture Total		0.3424	1.0000	292.06		0.0885518	100	157.09	100
10% Heavy Oil		Anthracene	1.73	178	0.0097	0.0284	5.06	0.3253	0.0092	10.433	18.5701	11.821
		Dibenzofuran	0.04	168	0.0002	0.0007	0.12	1.3356	0.0009	1.049	1.7621	1.122
		Naphthalene	0.39	128	0.0030	0.0088	1.13	7.1251	0.0629	71.050	90.9439	57.892
		PACs	8.32	268	0.0310	0.0905	24.29	0.0015	0.0001	0.148	0.3979	0.253
		bal. Heavy Oil	8.95	210	0.0426	0.1245	26.15	0.0619	0.0077	8.704	18.2791	11.636
		bal. Pitch	80.57	315	0.2558	0.7470	235.32	0.0102	0.0076	8.616	27.1403	17.277
90% Pitch	425		**Mixture Total**		0.3424	1.0000	292.06		0.2028802	100	166.09	100
10% Heavy Oil		Anthracene	1.73	178	0.0097	0.0284	5.06	0.8319	0.0236	11.646	20.7307	12.481
		Dibenzofuran	0.04	168	0.0002	0.0007	0.12	3.1227	0.0022	1.070	1.7981	1.083
		Naphthalene	0.39	128	0.0030	0.0088	1.13	14.7048	0.1298	64.001	81.9216	49.323
		PACs	8.32	268	0.0310	0.0905	24.29	0.0194	0.0018	0.864	2.3186	1.396
		bal. Heavy Oil	8.95	210	0.0426	0.1245	26.15	0.1752	0.0218	10.755	22.5852	13.598
		bal. Pitch	80.57	315	0.2558	0.7470	235.32	0.0317	0.0237	11.663	36.7384	22.119

FAXED

Koppers016827

Pitch

Used Heavies Vapor Pressure data for bal Pitch

Process Description	Temp °F	Component	Mean Conc Wt %	MW lb/lb-mole	No Moles	MsubF (Xa)	Liquid MW lb/lb-mole	VPa (psia)	PPa (VP * Xa)	Yi (% by Vol)	Vapor MW lb/lb-mole	Y_w (% by wt.)
Pitch	180		Mixture Total		0.3258	1.0000	306.97		0.0015228	100	131.39	100
		Anthracene	0.79	178	0.0044	0.0136	2.43	0.0021	0.0000	1.836	3.2678	2.487
		Naphthalene	0.43	128	0.0034	0.0103	1.32	0.1430	0.0015	96.840	123.9549	94.338
		PACs	7.93	268	0.0296	0.0907	24.34	0.0000	0.0000	0.000	0.0000	0.000
		bal. Pitch	90.85	315	0.2884	0.8853	278.88	0.0000	0.0000	1.324	4.1718	3.175
Pitch	210		Mixture Total		0.3258	1.0000	306.97		0.0052288	100	134.09	100
		Anthracene	0.79	178	0.0044	0.0136	2.43	0.0099	0.0001	2.575	4.5842	3.419
		Naphthalene	0.43	128	0.0034	0.0103	1.32	0.4810	0.0050	94.859	121.4196	90.554
		PACs	7.93	268	0.0296	0.0907	24.34	0.0000	0.0000	0.000	0.0004	0.000
		bal. Pitch	90.85	315	0.2884	0.8853	278.88	0.0002	0.0001	2.565	8.0809	6.027
Pitch	375		**Mixture Total**		**0.3258**	**1.0000**	306.97		**0.0870308**	**100**	**150.17**	100
		Anthracene	0.79	178	0.0044	0.0136	2.43	0.3253	0.0044	5.089	9.0583	6.032
		Naphthalene	0.43	128	0.0034	0.0103	1.32	7.1251	0.0735	84.377	108.0020	71 918
		PACs	7.93	268	0.0296	0.0907	24.34	0.0015	0.0001	0.151	0.4055	0.270
		bal. Pitch	90.85	315	0.2884	0.8853	278.88	0.0102	0.0090	10.383	32.7077	21 780
Pitch	425		Mixture Total		0.3258	1.0000	306.97		0.192774	100	159.42	100
		Anthracene	0.79	178	0.0044	0.0136	2.43	0.8319	0.0113	5.880	10.4656	6.565
		Naphthalene	0.43	128	0.0034	0.0103	1.32	14.7048	0.1516	78.662	100.6877	63 158
		PACs	7.93	268	0.0296	0.0907	24.34	0.0194	0.0018	0.911	2.4456	1.534
		bal. Pitch	90.85	315	0.2884	0.8853	278.88	0.0317	0.0280	14.547	45.8223	28.743

MAY-19-98 TUE 10:33 AIR COMPLIANCE FAX NO. 4128283840 P. 05

Koppers016828

DRAFT

KOPPERS INDUSTRIES

Koppers Industries, Inc.
7540 N.W. St. Helens Road
Portland, OR 97210-3663

Amos S. Kamerer
Plant Manager

Telephone: 503-286-3681
Fax: 503-285-2831

May 4, 1998

Kathy Amodon
Environmental Specialist
Oregon, D.E.Q.
2020 SW Fourth Ave., #400
Portland, OR 97201-4987

Reference: Fume Recovery System Repair

To confirm our prior conversations, starting Monday, May 11, 1998, our Fume Recovery System will be down for repairs through May 22, 1998.

We are planning to do these repairs in 2 stages during the week days of both weeks, thus the system will be working over the weekend of May 16th and 17th, 1998.

If you have any questions, please give me a call.

Sincerely,

Amos S. Kamerer

cc: W.A. Meisinger, KII, HTC
T.I. Self, KII, K-1800

KOPPERS INDUSTRIES

Koppers Industries, Inc.
436 Seventh Avenue
Pittsburgh, PA 15219-1800

Telephone: (412) 227-2001
Fax: (412) 227-2423

October 27, 1998

Oregon Department Of Environmental Quality
Northwest Region
2020 SW Fourth Avenue
Suite 400
Portland, OR 97201-4987

Attention: Kathy Amidon

RE: Koppers Industries Inc. – Portland Terminal

Dear Ms. Amidon:

This letter is in response to our telephone conversation of October 26, 1998. You informed me that The Oregon Department of Environmental Quality (ODEQ) has been receiving odor complaints from neighbors of Koppers Industries Inc. (KII) Portland Terminal. We have investigated ways to improve the performance of the fume recovery system. We believe that the following modifications will make a significant reduction in odors and particulate emissions.

KII will replace the existing P1/P13 creosote distillate used in the fume recovery system with a KII produced commodity called " heavy oil". Changing from creosote will significantly reduce the amount of naphthalene in the fume recovery system.

To address the issue of particulate emissions, noticed by an ODEQ inspector, KII intends to install a de-mister unit in the stack of the fume recovery system. The de-mister acts to disengage any suspended matter from the vapor stream, allowing particles to drop out and be retumed to the fume recovery system.

KII intends to implement the changes within the next few weeks. We appreciate your informing us of the complaints and we are taking action to resolve the issue. If you have, any questions please contact Amos Kamerer at (503) 286-3681 or me at (412) 227-2883.

Sincerely,

Traci I. Self
Environmental Manager

cc: Amos Kamerer
Jim Dietz
Kevin Fitzgerald
Steve Smith

Author: AMOS KAMERER at PITT
Date: 10/5/98 6:17 PM
Priority: Normal
TO: Traci Self at PITT
CC: John Marcinowski at PITT, Kevin Fitzgerald at PITT, Steve Smith at PITT, JIM DIETZ at TECHCTR
Subject: Oregon DEQ

Traci,

I had a visit at about 4PM today from Greg Grunow, Air Quality Program, Oregon DEQ. Greg has been here before, so I know him, and he sat in on one of the early meetings with Bill Swearingen and Kathy Amidon, over the new air permit.

Greg said that he had a call from their complaint center late this AM, about several odor complaints from people to the south of us, saying that they were smelling TOXIC MOTH BALL type odors coming from around the Saint Johns bridge area. He said that when he came out and first drove around the area, that the only emissions that he could see were coming from our fume recovery stack. However, the wind was clearly from the south, blowing to the north which is in the opposite direction. The wind stayed in this direction the whole time he was here.

We took a walk and watched the fume stack for awhile and he commented that the emissions appeared to contain more particulates at this time, vs. when he was here the last time, when his recollection of the emissions from the stack was that they were straight steam vapors. To be quite honest, sense we cleaned, heat traced and insulated these fume lines back in the late spring, I too have felt that the emissions from the stack looked different to me, for what ever that is worth.

I explained to Greg that we are not doing any thing different today, than what we have been doing for the last several years, etc..

He asked what were we doing right at that time, and I said that we were just finishing the loading of the Melter. He asked for the actual schedule of when we were loading the Melter, over the last few days, which I gave him. He said that he would check that against the complaint log and get back to me.

Greg was not biased, he was just trying to find a solution to the complaint, if that was possible. I will report further if I hear from him.

By copy to John, would this require a FIFRA incident report?

Amos

CC: TJ Turner

Portland NPDES — 7/9/08

Chris Rich:

Has Materials - Should Complete the Draft Tonight for POTW

Dave Selock -

Will Have Drawings to KI By 7/18

Est. For System @ $647,000

O&M Costs @ ~6,000,000 gals. Rain Fall @ $74,000/yr.

Koppers016832

Laquinta Cindy

From: Traczek Gregory
Sent: Thursday, October 09, 2008 1:26 PM
To: Laquinta Cindy
Subject: FW: Koppers Plans and Specifications.

Cindy,

The e-mail below and the one I forwarded a minute ago go together to give you what you need.

Thanks,

Greg

-----Original Message-----
From: Traczek Gregory
Sent: Friday, August 08, 2008 1:12 PM
To: 'Rich, Christopher W. (Perkins Coie)'; Turner TJ; Self Traci; Meisinger William; Hyde Leslie
Subject: RE: Koppers Plans and Specifications.

Chris,

Yesterday afternoon TJ talked via phone to Anne O'Roke of Portland BES. Ms. O'Roke indicated that BES will issue us a draft permit for review. The only issue raised by Ms. O'Roke is that BES will require us to stop water discharge during periods of extremely high flow to the POTW. We'll have to wait for the draft permit to determine exactly what triggers this clause. This is something TJ and I believe we can do provided there is an emergency clause that allows us to discharge should our tanks be entirely full of water and rain continues to fall. We can at a reasonable cost add another tank(s) to our water storage capacity to meet this permit condition. Because of these very recent developments I believe we should ask Shaw to put their work on hold. Does anyone feel differently?

Greg

Gregory P. Traczek
CM&C Operations Manager
Koppers Inc.
Pittsburgh, PA
412-227-2318
412-227-2202 (fax)
TraczekGP@koppers.com

> -----Original Message-----
> **From:** Rich, Christopher W. (Perkins Coie) [mailto:CRich@perkinscoie.com]
> **Sent:** Friday, August 08, 2008 12:31 PM
> **To:** Turner TJ; Traczek Gregory; Self Traci; Meisinger William; Hyde Leslie
> **Subject:** Koppers Plans and Specifications.
>
> To clarify, under our existing proposal, Shaw has guaranteed final plans and specifications (100%) by August 30, and they are moving forward to make that deadline. Thus, additional authorization is not required, but I wanted to temporarily hold if BES had responded favorably. We need to move forward to meet the pre-approved schedule. They will be talking with T.J. and Bill Meisinger about some preferences in order to make this deadline. Thanks,

Christopher W. Rich
Perkins Coie LLP
1120 NW Couch, 10th Floor
Portland, Oregon 97209
Direct: (503) 727-2004
Fax: (503) 727-2222
CRich@perkinscoie.com

NOTICE: This communication may contain privileged or other confidential information. If you have received it in error, please advise the sender by reply email and immediately delete the message and any attachments without copying or disclosing the contents. Thank you.

Leslie Hyde
Traci Self
Bill Meisinger
TJ Turner
Chris Rich
Dave Seluga

Portland NPDES Con Call
~~[illegible]~~ - 5/13/08
CR - PAHs Are Our Biggest Concern At This Time
- Submit Plan By 7/31/08; Process Operating By 11/30/08
↳ w/Construction Detail Drawings
Can't Submit Letter to BES Until Shaw Provides Proposal

Shaw Will Provide Process Flow Diagram for Review By KI
- Carbon Absorption System Is Expected Design + Oil/Water Separator

Action Items:
0.5) Shaw to provide revised proposal
1) Shaw to Provide Process Flow Diagram to KI By [redacted] 5/19
2) " " " Cost Figure " [redacted] 5/19
3) " " Meet w/ODEQ (+ Traci, TJ ~~[illegible]~~) By 5/22 - Set For 10 am, 5/21
4) Complete Option 2 By ~~[illegible]~~ 7/18/08

Portland Visit - 1/29/08 page 1 of 2

POTW

Per Anne O'Roke - May Start 1/31/08, IF Her Boss Approves

4" Meter

Discharged to POTW Yesterday On Temp. Permit

Will Ask for 2nd Temp. Permit

$30-40 K ?

* Submit CER ASAP

Hold Off On Shaw for Sump Cleaning

* Built In 2000 - Last Cleaned Jun 05 T200 - No Agitation, Circ. Only Previously $125K for Manpower (Emerald) WARN MIKE!

24/5 Schedule Due To Inability to Heat

@ 30' In, Takes Until Wed. to Regain 5-7° Heat Loss From Weekend

Start Up Midnight Sun.

Shut Down Sat AM (~8 AM)

Working thru This Weekend, Shipping Intalco T/Ws,

68th - 1000 tons

65th (Melter) - 3000 tons

Ship Due Sun - Wed.

Sunbird Arrow - Problem Ship - Will Turn Every 80 Days - Only Ship In Rotation

Rides Lower

Only One Crane (Osprey Had Two)

Need Min. 30 Days to Clean Out Coke

Must Make Arrangements for Intalco, Wenatchee

* Clean Before Wen Starts 3rd Line?

Line Supports

Must Install Where Ties Are Being Removed (Used to Support Lines)

Maint. Issues

Pumps (3-4)

~ $4000 - $6000 Per

* $20K - Viking + $3K Installation

Expect ~ $500 In Bins From Jaminie's for Column Removal

Waiting for Disposal Charges

10.1th

Done

Few Invoices Still Out

* Credit Back to Portland For Coverstar Mat'l

SPCC - Must Comply Within 2 Years

PE Requires Internal/External Inspection

Raises ~ 3.5%

Give Steve A Little More

Currently @ $19.12

Move Scott & Jason to $19.75; Steve to $20.75

Jason Christiansen - Perf. Review & Should Get Updated Job To Do's Project

Chris Rich
Sole
Turner
Messinger

PORTLAND NPDES UPDATE CONCALL - 8/9/07

PURSUIT OF POTW IS MORE DESIRABLE AT THIS TIME DUE TO COSTS ASSOCIATED WITH STUDY AND PRE-TREATMENT CONTROLS THAT WILL BE NECESSARY

SUMP PIPING IS ALL DOWNSTREAM OF SUMPS, INFILTRATION THRU PIPE WALLS IS NOT POSSIBLE. ONLY ENGINEERING CONTROL POSSIBLE IS PAVING OF THE LOWER TANK FARM.

PERFORM STUDY OF VOLUME OF GROUNDWATER THAT FLOWS TO SUMPS DURING RAINFALLS.

3RD PARTY TO SUPPLY COST ESTIMATE FOR TESTING

USE DMR DATA TO GAUGE NEED FOR PRE-TREATMENT

PUT SHAW ON HOLD

* SAMPLE WATER CURRENTLY IN INVENTORY
* USE SHAW TO CLEAN SUMPS
  COMPARE SAMPLE RESULTS, PRE- AND POST-SUMP CLEANING

CITY OF PORTLAND ENVIRONMENTAL SERVICES

Water Pollution Control Laboratory
6543 N. Burlington Ave., Portland, Oregon 97203-5452
(503) 823-5600

October 3, 2005

Koppers Industries, Inc.
Amos Kamerer
7540 NW St. Helen's Rd.
Portland, OR 97210

Re: Stormwater discharge to City of Portland sewer system.

Dear Mr. Kamerer:

In response to your request for stormwater discharge to the City sewer system dated September 28, 2005; the city has discharge limits that will need to be met before discharge can be allowed. The following is the current local limitations in effect at this time.

Pollutant Name	Local Limit Daily Max (mg/L)	10/26/05 Sample Test Results
METALS		
Arsenic	0.2	ND
Cadmium	0.7	ND
Chromium	5.0	ND
Copper	3.7	1.0
Lead	0.7	0.03
Mercury	0.010	0.00011
Molybdenum	1.4	ND
Nickel	2.8	ND
Selenium	0.6	ND
Silver	0.4	ND
Zinc	3.7	0.39
NON-METALS (INORGANICS)		
Cyanide	1.2	ND
pH	5.0-11.5 su	
Sulfide	4.0	ND

NON-METALS (ORGANICS)		
1,2-Dichloroethane	0.50	NO
2,4-Dinitrotoluene	0.13	NO
Acrylonitrile	1.00	NO
Chlordane	0.03	NO
Chlorobenzene	0.20	NO
Chloroform	0.20	NO
Nitrobenzene	2.00	NO
Pentachlorophenol	0.04	ND
Trichloroethylene	0.20	NO
Non-polar Oil & Grease	110	NO

Sampling listed in your submittal indicated high readings for Selenium; 6.9 mg/l and for Zinc, 6.3 mg/l. Benzene at 29 mg/l would also be a concern. If you want to consider pretreating the discharge to local limitations you may apply for a permit at any time. I am also enclosing a copy of the City Code which includes the local limits for your review.

If you have comments or questions as you read through the materials, please do not hesitate to contact me at 823-7230.

Respectfully,

Ann O'Roke, Permit Manager
Industrial Source Control Division

Cc: Industry File

PORTLAND VISIT - 7/31/07 page 1 of 3

LOADER LIVES IN ST. HELENS - WILLING TO SPLIT TIME BETWEEN PORT & LONG

HIRE LOADER @ PORT AND IMPLEMENT

NPDES

OPTION: POTW $1725/DISCHARGE

SMALLER CAPEX FOR SEWER TIE-INS, PRE-TREATMENT THAN PRE-TREATMENT TO MEET NEW NPDES LIMITS

PRE-TREAT NEEDED FOR Sb, Zn, BENZENE

BILL

FIRE SYSTEM

NEED $25K/40 FOR FIRE WATER SYSTEM IMPROVEMENTS

- BUT - CANNOT DO BECAUSE NW NATURAL WATER SYSTEM WON'T HANDLE IT

COCHENOUR

NW NATURAL

TALK 2 HEATH

- NOT SAFE
- TALK W/ NW NAT. RE: WATER
- USE FOAM?

OPERATING CAPABILITIES

@ 20-25% OF CAPACITY

- WOULD NEED MORE PEOPLE, OF COURSE
- COULD MEET, IF NECESSARY
- COULD HANDLE 60-80,000 TONS OF L.Q. + 3000 TONS PER LOAD INTO MELTER
- T200 - UNLOADING TK, T68 TIN LOAD TK, T65 OLD MELTER

PORTLAND NPDES PERMIT CONCALL - 7/23/07

CHRIS RICH HAS INFORMED SHAW THAT PRICE IS RATHER STEEP

TASK 1 - $1200 LABOR, $4335 CONTRACTORS, $530 MISC. } COLLECT GROUND H_2O AT ~~TANK FARM~~ (2 BORINGS)

TJ - GROUND H_2O TEST RESULTS ARE CONSISTENT

TS - WON'T GAIN MUCH FROM BORINGS

CR - WILL COMMUNICATE OUR POSITION

TASK 2 - $1570 LABOR, $6160 CONTRACTORS, $315 MISC. } SEDIMENT SAMPLING, ~~AND~~ CLEANING OF BASINS AND SUMPS, ~~MONITOR FOR GROUND H_2O INFILTRATION~~

TS - GROUND H_2O MONITORING IS WORTHWHILE

CR - DOES NOT ADVISE SEDIMENT SAMPLING - SAMPLE ONLY FOR DISPOSAL

TASK 3 - $1520 LABOR, $7920 CONTRACTORS, $175 MISC. } STORM H_2O SAMPLING & ANALYSIS

AW - NECESSARY FOR STUDY

TASK 4 - $2960 LABOR, $3375 PARTS } ~~INSTALL H_2O FLOW METERS~~

AW - THIS IS NOT NECESSARY. TJ KNOWS THE FLOWS

TASK 5 - $11,100 LABOR, $80 MISC. } REPORT WRITING

AW - OK

OUT-OF-SCOPE SERVICES - $3596 LABOR, $404 MISC. } VISITS, MTGS, HISTORICAL DATA COLLECTION

SEPARATE - PUMP H_2O TO POTW? ~ $1725 / DISCHARGE (~220,000 gallons)

kpff
Consulting Engineers

FAX COVER SHEET

111 SW FIFTH AVENUE SUITE 2500
PORTLAND, OR 97204-3628
(503) 227-3251 FAX: (503) 227-7980

ATTENTION: BILL THORPE	DATE: 6/4/99 JOB NO. 98567
COMPANY: HARDER MECHANICAL	RE:
FROM: SAM MOSS	PAGES SENT: 2

MESSAGE:

COPIES SENT TO:

☒ BILL MEISINGER ☐ _____

☐ _____ ☐ _____

HARD COPY MAILED YES ☐ NO ☐

IF YOU DO NOT RECEIVE ALL PAGES, PLEASE CONTACT THE SENDER

kpff Consulting Engineers

CONFIRMATION RECORD

111 S.W. Fifth Avenue, Suite 2500
Portland, Oregon 97204-3628 (503) 227-3251 FAX (503) 227-7980

JOB NO.	CLIENT	☒ TELEPHONE ☐ DIRECT
98567	GEOENGINEERS	
PROJECT		DATE
KOPPERS		6/4/99
LOCATION		TIME
PORT. ORE		9:15

INITIATOR	RESPONDER
INDIVIDUAL: SAM MOSS	INDIVIDUAL: PETER TAYLOR
COMPANY: KPFF	COMPANY: CTL

DESCRIPTION

CTL WILL RECEIVE THEIR FIRST TEST SAMPLES ON 6/7/99. THE THERMAL TESTING WILL BE COMPLETED ON 7/8/99. THE TOP 15' OF THE PILE MUST BE FILLED WITH THE THERMAL RESISTANT 5000 PSI CONCRETE. BE SURE NOT TO FILL THE TOP 15' OF THE PILE W/ 3000PSI CONCRETE OR A REGULAR 5000 PSI MIX. THE TESTING BY CTL MUST BE COMPLETED PRIOR TO POURING THE TOP 15' OF THE PILE.

HOW IS HARDER GOING TO KEEP WATER OUT OF THE PILE FOR THE NEXT MONTH? PLEASE RESPOND.

COPIES TO	LOCATION	ACTION REQ.	FOR INFO. ONLY	COPIES TO	LOCATION	ACTION REQ.	FOR INFO. ONLY

3007 (2/92)

kpff
Consulting Engineers

FAX COVER SHEET

111 SW FIFTH AVENUE SUITE 2500
PORTLAND, OR 97204-3628
(503) 227-3251 FAX: (503) 227-7980

ATTENTION: CHARLIE NORRIS	
COMPANY: KLOPPERS	
FROM: SAM MOSS	

DATE: 5/21/99	JOB NO. 98567
RE:	
PAGES SENT: 2	

MESSAGE:

ATTACHED IS AN UPDATED DETAIL FOR THE PILE SPLICE. I HAVE A CALL INTO THE BUILDING OFFICIAL CONCERNING THE FREQUENCY OF U.T. TESTING. ONCE I RECEIVE CONFIRMATION FROM THE CITY OF PORTLAND, I WILL FAX INFORMATION ON THE MINIMUM # OF U.T. TESTS REQ'D. PLEASE BE SURE PSI ARRANGES 100% INSPECTION AND TESTING UNTIL YOU RECEIVE WRITTEN CORRESPONDENCE. THANKS!

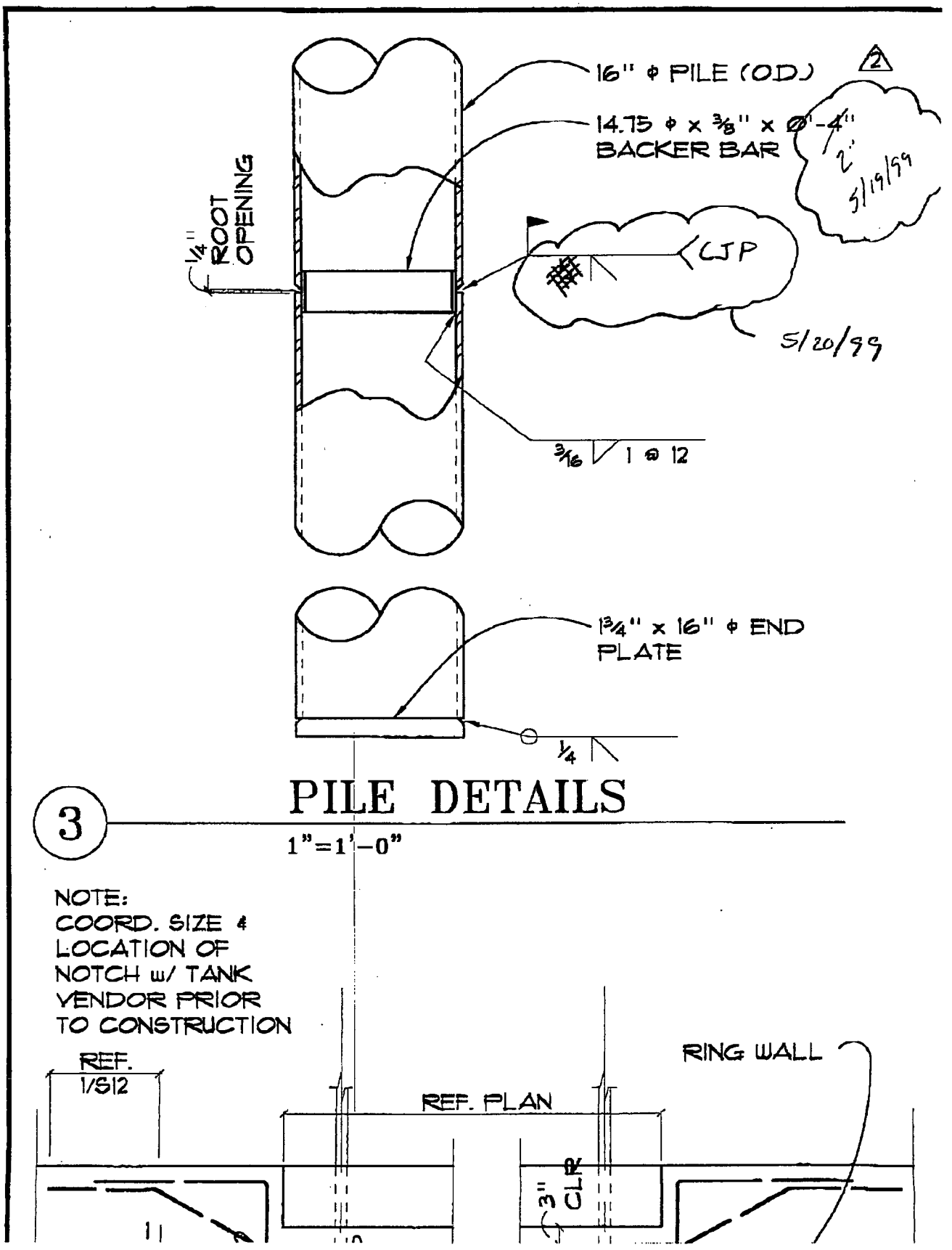
SAM MOSS

COPIES SENT TO:

☐ _____ ☐ _____
☐ _____ ☐ _____

HARD COPY MAILED YES ☐ NO ☐

IF YOU DO NOT RECEIVE ALL PAGES, PLEASE CONTACT THE SENDER


16" ϕ PILE (OD)
14.75 ϕ x 3/8" x Ø'-4" BACKER BAR
2
2'
5/19/99
1/4" ROOT OPENING
CJP
5/20/99
3/16 1 @ 12
1 3/4" x 16" ϕ END PLATE
1/4
PILE DETAILS
3
1"=1'-0"
NOTE:
COORD. SIZE & LOCATION OF NOTCH w/ TANK VENDOR PRIOR TO CONSTRUCTION
REF. 1/S12
REF. PLAN
RING WALL
3" CLR
1:1

nated by the engineer or architect responsible for the structural design, to perform structural observation as defined in Section 220. Observed deficiencies shall be reported in writing to the owner's representative, special inspector, contractor and the building official. The structural observer shall submit to the building official a written statement that the site visits have been made and identifying any reported deficiencies that, to the best of the structural observer's knowledge, have not been resolved.

SECTION 1703 — NONDESTRUCTIVE TESTING

In Seismic Zones 3 and 4, welded, fully restrained connections between the primary members of ordinary moment frames and special moment-resisting frames shall be tested by nondestructive methods for compliance with approved standards and job specifications. This testing shall be a part of the special inspection requirements of Section 1701.5. A program for this testing shall be established by the person responsible for structural design and as shown on plans and specifications.

As a minimum, this program shall include the following:

1. All complete penetration groove welds contained in joints and splices shall be tested 100 percent either by ultrasonic testing or by radiography.

NOTE

EXCEPTIONS: 1. When approved, the nondestructive testing rate for an individual welder or welding operator may be reduced to 25 percent, provided the reject rate is demonstrated to be 5 percent or less of the welds tested for the welder or welding operator. A sampling of at least 40 completed welds for a job shall be made for such reduction evaluation. Reject rate is defined as the number of welds containing rejectable defects divided by the number of welds completed. For evaluating the reject rate of continuous welds over 3 feet (914 mm) in length where the effective throat thickness is 1 inch (25 mm) or less, each 12-inch increment (305 mm) or fraction thereof shall be considered as one weld. For evaluating the reject rate on continuous welds over 3 feet (914 mm) in length where the effective throat thickness is greater than 1 inch (25 mm), each 6 inches (152 mm) of length or fraction thereof shall be considered one weld.

2. For complete penetration groove welds on materials less than $^5/_{16}$ inch (7.9 mm) thick, nondestructive testing is not required; for this welding, continuous inspection is required.

3. When approved by the building official and outlined in the project plans and specifications, this nondestructive ultrasonic testing may be performed in the shop of an approved fabricator utilizing qualified test techniques in the employment of the fabricator.

2. Partial penetration groove welds when used in column splices shall be tested either by ultrasonic testing or radiography when required by the plans and specifications. For partial penetration groove welds when used in column splices, with an effective throat less than $^3/_4$ inch (19.1 mm) thick, nondestructive testing is not required; for this welding, continuous special inspection is required.

3. Base metal thicker than $1^1/_2$ inches (38 mm), when subjected to through-thickness weld shrinkage strains, shall be ultrasonically inspected for discontinuities directly behind such welds after joint completion.

Any material discontinuities shall be accepted or rejected on the basis of the defect rating in accordance with the (larger reflector) criteria of approved national standards.

SECTION 1704 — PREFABRICATED CONSTRUCTION

1704.1 General.

1704.1.1 Purpose. The purpose of this section is to regulate materials and establish methods of safe construction where any structure or portion thereof is wholly or partially prefabricated.

1704.1.2 Scope. Unless otherwise specifically stated in this section, all prefabricated construction and all materials used therein shall conform to all the requirements of this code. (See Section 104.2.8.)

1704.1.3 Definition.

PREFABRICATED ASSEMBLY is a structural unit, the integral parts of which have been built up or assembled prior to incorporation in the building.

1704.2 Tests of Materials. Every approval of a material not specifically mentioned in this code shall incorporate as a proviso the kind and number of tests to be made during prefabrication.

1704.3 Tests of Assemblies. The building official may require special tests to be made on assemblies to determine their durability and weather resistance.

1704.4 Connections. See Section 1611.11.1 for design requirements of connections for prefabricated assemblies.

1704.5 Pipes and Conduits. See Section 1611.11.2 for design requirements for removal of material for pipes, conduit and other equipment.

1704.6 Certificate and Inspection.

1704.6.1 Materials. Materials and the assembly thereof shall be inspected to determine compliance with this code. Every material shall be graded, marked or labeled where required elsewhere in this code.

1704.6.2 Certificate. A certificate of approval shall be furnished with every prefabricated assembly, except where the assembly is readily accessible to inspection at the site. The certificate of approval shall certify that the assembly in question has been inspected and meets all the requirements of this code. When mechanical equipment is installed so that it cannot be inspected at the site, the certificate of approval shall certify that such equipment complies with the laws applying thereto.

1704.6.3 Certifying agency. To be acceptable under this code, every certificate of approval shall be made by an approved agency.

1704.6.4 Field erection. Placement of prefabricated assemblies at the building site shall be inspected by the building official to determine compliance with this code.

1704.6.5 Continuous inspection. If continuous inspection is required for certain materials where construction takes place on the site, it shall also be required where the same materials are used in prefabricated construction.

EXCEPTION: Continuous inspection will not be required during prefabrication if the approved agency certifies to the construction and furnishes evidence of compliance.

Koppers016847

CITY OF
PORTLAND, OREGON
BUREAU OF BUILDINGS

1120 S.W. 5th Avenue
Portland, Oregon 97204-1992
Mailing Address: P.O. Box 8120
Portland, Oregon 97207-8120
(503) 823-7300
FAX: (503) 823-6983
TDD: (503) 823-6868

PSI
12812 NE Marx
Portland OR 97230

May 10, 1999

We have been notified that the owner will retain your services to perform Special Inspections in accordance with the provisions of the Portland Building Code, permit documents and Special Inspection program Administrative Rules. The owner or the owner's agent must also confirm with you that they have authorized you to do the special inspection work. **Special Inspections are in addition to the inspections required to be performed by the Bureau of Buildings.**

As the regulatory agency, the City requires that you do the following:

1. Submit copies of all inspection reports promptly to the Bureau of Buildings *Special Inspections Section*, architect, engineer, owner and the contractor.
2. Maintain one copy of each field report at the job site.
3. Submit a final report at the completion of each category of work that you inspect.

If you fail to comply with the above requirements there may be cause for the City to revoke your authority as special inspector for this job. Should you have any questions feel free to contact me at 823-7386.

PERMIT NO:	BLD98-03757
OWNER:	Northwest Natural Gas Co
PROJECT ADDRESS:	7540 W St Helens Rd
PROJECT DESCRIPTION:	New Tank and Piping for Coal Tar Pitch
TYPES OF SPECIAL INSPECTION:	1) Reinforced concrete; verification of mix design for 5000 and 6200 psi concrete is required by Sheet 98567-509 and attached inspection program; 2) Expansion, wedge or epoxy anchors per ICBO research report; 3) Structural steel; includes material verification, weld procedures, welder qualification, shop and field welding and installation of high strength bolts; and special welding inspection procedures as outlined in attached inspection program

Sincerely,

Jay Ponce
Special Inspection Coordinator

JP:dr

cc: Northwest Natural Gas Co
J Cameron McKernan Co
GeoEngineers
Don Fairbanks, Building Inspector
KPFF
~~Koppers Industries Inc~~
Pacific Technical Industries Inc

CITY OF
PORTLAND, OREGON
BUREAU OF BUILDINGS

1120 S.W. 5th Avenue
Portland, Oregon 97204-1992
Mailing Address: P.O. Box 8120
Portland, Oregon 97207-8120
(503) 823-7300
FAX: (503) 823-6983
TDD: (503) 823-6868

May 10, 1999

KPFF Consulting Engineers
111 SW Fifth Ave #2500
Portland OR 97204-3628

RE: 7540 NW St Helens Rd, Permit No. BLD98-03757
New Tank and piping for Coal Tar Pitch

To whom it may concern:

You are hereby notified that the owner will retain your services to perform structural observation of all significant construction stages including phases outlined in inspection and observation program attached and at the completion of the project in accordance with the provisions of State Building Code Section 1702 and the City's Administrative Rules.

Please submit a copy of all observation reports to the architect, contractor, special inspector (when special inspections are required) and the City's Special Inspection Section. Submit a final summary report to the Special Inspection Section at the completion of the work, as required by the State Building Code Section 1702. Observation reports must provide the project address and permit number.

Confirmation of the authority to perform the observation should be obtained from the owner.

Should you have any further questions feel to contact me at 823-7277.

Sincerely,

Jay Ponce
Special Inspection Coordinator

JP:dr

cc: Northwest Natural Gas Co
KPFF
J Camercon McKernan Co
Koppers Industries Inc
GeoEngineers
Pacific Technical Industries Inc
Don Fairbanks, Building Inspector

CITY OF

PORTLAND, OREGON

BUREAU OF BUILDINGS

1120 S.W. 5th Avenue
Portland, Oregon 97204-1992
Mailing Address: P.O. Box 8120
Portland, Oregon 97207-8120
(503) 823-7300
FAX: (503) 823-6983
TDD: (503) 823-6868

May 10, 1999

Pacific Technical Industries Inc
1414 127th Pl NE, #107
Bellevue WA 98005

We have been notified that the owner will retain your services to perform Special Inspections in accordance with the provisions of the Portland Building Code, permit documents and Special Inspection program Administrative Rules. The owner or the owner's agent must also confirm with you that they have authorized you to do the special inspection work. **Special Inspections are in addition to the inspections required to be performed by the Bureau of Buildings.**

As the regulatory agency, the City requires that you do the following:

1. Submit copies of all inspection reports promptly to the Bureau of Buildings *Special Inspections Section*, architect, engineer, owner and the contractor.
2. Maintain one copy of each field report at the job site.
3. Submit a final report at the completion of each category of work that you inspect.

If you fail to comply with the above requirements there may be cause for the City to revoke your authority as special inspector for this job. Should you have any questions feel free to contact me at 823-7386.

PERMIT NO:	BLD98-03757
OWNER:	Northwest Natural Gas Co
PROJECT ADDRESS:	7540 NW St Helens Rd
PROJECT DESCRIPTION:	New Tank and Piping for Coal Tar Pitch
TYPES OF SPECIAL INSPECTION:	1) X-ray of tank welds in accordance with API 650 2) As required by attached inspection program

Sincerely,

Jay Ponce
Special Inspection Coordinator

JP:dr

cc: Northwest Natural Gas Co
KPFF
J Cameron McKernan Co
Koppers Industries Inc
GeoEngineers
PSI
Don Fairbanks, Building Inspector

CITY OF
PORTLAND, OREGON
BUREAU OF BUILDINGS

1120 S.W. 5th Avenue
Portland, Oregon 97204-1992
Mailing Address: P.O. Box 8120
Portland, Oregon 97207-8120
(503) 823-7300
FAX: (503) 823-6983
TDD: (503) 823-6868

May 10, 1999

GeoEngineers
7504 SW Bridgeport Rd
Portland OR 97224

We have been notified that the owner will retain your services to perform Special Inspections in accordance with the provisions of the Portland Building Code, permit documents and Special Inspection program Administrative Rules. The owner or the owner's agent must also confirm with you that they have authorized you to do the special inspection work. **Special Inspections are in addition to the inspections required to be performed by the Bureau of Buildings.**

As the regulatory agency, the City requires that you do the following:

1. Submit copies of all inspection reports promptly to the Bureau of Buildings *Special Inspections Section*, architect, engineer, owner and the contractor.
2. Maintain one copy of each field report at the job site.
3. Submit a final report at the completion of each category of work that you inspect.

If you fail to comply with the above requirements there may be cause for the City to revoke your authority as special inspector for this job. Should you have any questions feel free to contact me at 823-7386.

PERMIT NO:	BLD98-03757
OWNER:	Northwest Natural Gas Co
PROJECT ADDRESS:	7540 NW St Helens Rd
PROJECT DESCRIPTION:	New Tank and Piping for Coal Tar Pitch

TYPES OF SPECIAL INSPECTION:
1) Grading fill and backfill placement and compaction; 2) Foundation subgrade preparation; 3) Pile installation

Sincerely,

Jay Ponce
Special Inspection Coordinator

JP:dr

cc: KPFF
J Cameron McKernan Co
Northwest Natural Gas Co
PSI
McDowell Welding
[redacted]
Pacific Technical Industries Inc
Don Fairbanks, Building Inspector

CITY OF PORTLAND - ENVIRONMENTAL SERVICES

PRE-CONSTRUCTION Recycling Plan Form

5/4/99

THIS FORM MUST BE COMPLETED AND SIGNED BY THE GENERAL CONTRACTOR OR THE PROPERTY OWNER

Applies to every project valued at $50,000 or over including construction and demolition phases

For all construction and demolition projects in Portland where the total job is valued at $50,000 or more the Responsible Party must ensure that the materials listed below are separated from trash and recycled. Complete and submit this form within two weeks prior to the start of the building project.

MCDOWELL WELDING & PIPEFITTING
4000 NW ST HELENS ROAD
PORTLAND OR 97210

Job Site: NW ST HELENS RD
7540

Permit(s) Valuation: $4,050,000

Permit No(s): C BLD/RES: 98-03757

Description: **ALTERATION** NEW TANK AND PIPING FOR COAL TAR PITCH

Plat Name: SECTION 12 1 N 1 W **Property Owner:** NORTHWEST NATURAL GAS CO

I agree to set up a recycling program and containers on this job to recycle the following materials generated there. Employees and subcontractors will be instructed not to put these materials in a container together with garbage.

Recycled Material *(We need to know which of the materials listed below are being recycled at this construction site.)*	Recycled by contracted Commercial Hauler	Collected by Independent Recycler or Demolition Co.	Self-hauled to recycler or recycling depot	Not generated at this site
	(Place a check mark in at least one column of every line, except Other)			
Rubble (concrete/asphalt)	✓			
Land Clearing Debris				✓
Corrugated Cardboard*				✓
Metals *	✓			
Wood				✓
Other (specify):				

* All Portland garbage haulers offer collection for at least corrugated cardboard and metals.

Anticipated Completion Date (month and year) of Job: 10/99 (If necessary, estimate the Month and Year of anticipated completion.)

I understand that as the general contractor (or property owner where no general contractor has been named), I am legally required to set up a recycling system, including containers, separate from garbage, for all of the above materials that are generated at this site.

Signature of General Contractor or Property Owner

ENGINEERING MANAGER
Title

GRAY JOHNSON
Print Name

241-2410
Phone Number

Responsible Party
☑ General Contractor
☐ Property Owner

The City of Portland requires all general contractors (property owner where no general contractor has been named) to recycle the above materials on the job site (City code 17.102.180). Failure to comply with the ordinance is ultimately subject to a penalty of up to $500.

If you have any questions, contact the City of Portland, Solid Waste & Recycling Division at (503) 823-7202.

Return completed form to BES Solid Waste & Recycling, 1211 SW Fifth, Room 800
Portland OR 97204-3713, or fax to (503) 823-4562. (Be sure to retain a copy for your files.)

S:\Cmcf\Data\Constru\Report Plan Form

Please post copy of completed form at job site.

MAY 20 '99 13:57 503 232 7658 J. CAMERON MCKERNAN P.1/2

nationally recognized standards and the requirements of this section.

While the work is in progress, th ector shall determine that the requirements for s and paint; bolted parts; and installation ar dards are met. Such inspections may b is in accordance with the require cial inspector shall observe th pro- cedures are required by moni- tor the installation of onnected materials have been ted procedure is properly us

Post-it® Fax Note 7671 Date 5/21/99 # of pages ▶ 2
To Charles Morris From C. McKernan
Co./Dept. Koppers Co. Phone # 232-7611
Phone # 289-3160 Fax #
Fax #

7. **Structura'**

7.1 For u open-end hollow- and taking of any ens, placing of all nforcement, inspection prior to closing of clean- operations.

masonry where the f'_m is no more ncrete units or 2,600 psi (17.93 MPa) may be performed as required for fully masonry specified in Item 7.2.

pen-end hollow-unit masonry during taking of any required prisms or test spe- he start of laying units, after the placement o. forcing steel, grout space prior to each grouting operation, and during all grouting operations.

EXCEPTION: Special inspection as required in Items 7.1 and 7.2 need not be provided when design stresses have been adjusted as specified in Chapter 21 to permit noncontinuous inspection.

8. **Reinforced gypsum concrete.** When cast-in-place Class B gypsum concrete is being mixed and placed.

9. **Insulating concrete fill.** During the application of insulating concrete fill when used as part of a structural system.

EXCEPTION: The special inspections may be limited to an initial inspection to check the deck surface and placement of reinforcing. The special inspector shall supervise the preparation of compression test specimens during this initial inspection.

10. **Spray-applied fire-resistive materials.** As required by UBC Standard 7-6.

11. **Piling, drilled piers and caissons.** During driving and testing of piles and construction of cast-in-place drilled piles or caissons. See Items 1 and 4 for concrete and reinforcing steel inspection.

12. **Shotcrete.** During the taking of test specimens and placing of all shotcrete and as required by Sections 1924.10 and 1924.11.

EXCEPTION: Shotcrete work fully supported on earth, minor repairs and when, in the opinion of the building official, no special hazard exists.

13. **Special grading, excavation and filling.** During earth-work excavations, grading and filling operations inspection to satisfy requirements of Chapter 18 and Appendix Chapter 33.

14. **Smoke-control system.**

14.1 During erection of ductwork and prior to concealment for the purposes of leakage testing and recording of device location.

14.2 Prior to occupancy and after sufficient completion for the purposes of pressure difference testing, flow measurements, and detection and control verification.

15. **Special cases.** Work that, in the opinion of the building official, involves unusual hazards or conditions.

1701.6 Continuous and Periodic Special Inspection.

1701.6.1 Continuous special inspection. Continuous special inspection means that the special inspector is on the site at all times observing the work requiring special inspection.

1701.6.2 Periodic special inspection. Some inspections may be made on a periodic basis and satisfy the requirements of continuous inspection, provided this periodic scheduled inspection is performed as outlined in the project plans and specifications and approved by the building official.

1701.7 Approved Fabricators. Special inspections required by this section and elsewhere in this code are not required where the work is done on the premises of a fabricator registered and approved by the building official to perform such work without special inspection. The certificate of registration shall be subject to revocation by the building official if it is found that any work done pursuant to the approval is in violation of this code. The approved fabricator shall submit a certificate of compliance that the work was performed in accordance with the approved plans and specifications to the building official and to the engineer or architect of record. The approved fabricator's qualifications shall be contingent on compliance with the following:

1. The fabricator has developed and submitted a detailed fabrication procedural manual reflecting key quality control procedures that will provide a basis for inspection control of workmanship and the fabricator plant.

2. Verification of the fabricator's quality control capabilities, plant and personnel as outlined in the fabrication procedural manual shall be by an approved inspection or quality control agency.

3. Periodic plant inspections shall be conducted by an approved inspection or quality control agency to monitor the effectiveness of the quality control program.

4. It shall be the responsibility of the inspection or quality control agency to notify the approving authority in writing of any change to the procedural manual. Any fabricator approval may be revoked for just cause. Reapproval of the fabricator shall be contingent on compliance with quality control procedures during the past year.

SECTION 1702 — STRUCTURAL OBSERVATION

Structural observation shall be provided in Seismic Zone 3 or 4 when one of the following conditions exists:

1. The structure is defined in Table 16-K as Occupancy Category 1, 2 or 3.

2. The structure is required to comply with Section 403.

3. The structure is in Seismic Zone 4, N_a as set forth in Table 16-S is greater than one, and a lateral design is required for the entire structure.

EXCEPTION: One- and two-story Group R, Division 3 and Group U Occupancies and one- and two-story Groups B, F, M and S Occupancies.

4. When so designated by the architect or engineer of record, or

5. When such observation is specifically required by the building official.

The owner shall employ the engineer or architect responsible for the structural design, or another engineer or architect desig-

Koppers016853

nated by the engineer or architect responsible for the structural design, to perform structural observation as defined in Section 220. Observed deficiencies shall be reported in writing to the owner's representative, special inspector, contractor and the building official. The structural observer shall submit to the building official a written statement that the site visits have been made and identifying any reported deficiencies that, to the best of the structural observer's knowledge, have not been resolved.

SECTION 1703 — NONDESTRUCTIVE TESTING

In Seismic Zones 3 and 4, welded connections between the primary members of ordinary moment frames and special moment-resisting frames shall be tested by nondestructive methods for compliance with approved standards and job specifications. This testing shall be a part of the special inspection requirements of Section 1701.5. A program for this testing shall be established by the person responsible for structural design and as shown on plans and specifications.

As a minimum, this program shall include the following:

1. All complete penetration groove welds contained in joints and splices shall be tested 100 percent either by ultrasonic testing or by radiography.

EXCEPTIONS: 1. When approved, the nondestructive testing rate for an individual welder or welding operator may be reduced to 25 percent, provided the reject rate is demonstrated to be 5 percent or less of the welds tested for the welder or welding operator. A sampling of at least 40 completed welds for a job shall be made for such reduction evaluation. Reject rate is defined as the number of welds containing rejectable defects divided by the number of welds completed. For evaluating the reject rate of continuous welds over 3 feet (914 mm) in length where the effective throat thickness is 1 inch (25 mm) or less, each 12-inch increment (305 mm) or fraction thereof shall be considered as one weld. For evaluating the reject rate on continuous welds over 3 feet (914 mm) in length where the effective throat thickness is greater than 1 inch (25 mm), each 6 inches (152 mm) of length or fraction thereof shall be considered one weld.

2. All complete penetration groove welds shall be tested for defects by ultrasonic testing.

3. For complete penetration groove welds on materials less than $^5/_{16}$ inch (7.9 mm) thick, nondestructive testing is not required; for this welding, continuous inspection is required.

4. When approved by the building official and outlined in the project plans and specifications, this nondestructive ultrasonic testing may be performed in the shop of an approved fabricator utilizing qualified test techniques in the employment of the fabricator.

2. Partial penetration groove welds when used in column splices shall be tested either by ultrasonic testing or radiography when required by the plans and specifications. For partial penetration groove welds when used in column splices, with an effective throat less than $^3/_4$ inch (19.1 mm) thick, nondestructive testing is not required; for this welding, continuous special inspection is required.

3. Base metal thicker than $1^1/_2$ inches (38 mm), when subjected to through-thickness weld shrinkage strains, shall be ultrasonically inspected for discontinuities directly behind such welds after joint completion.

4. All columns shall be tested by ultrasonic methods for lamellar discontinuities in the heat-affected zones.

Any material discontinuities shall be accepted or rejected on the basis of the defect rating in accordance with the (larger reflector) criteria of approved national standards.

SECTION 1704 — PREFABRICATED CONSTRUCTION

1704.1 General. See Building Codes Division Oregon Administrative Rules Chapter 918, Division 674 for prefabricated structures requirements.

1704.1.1 Purpose. (Not adopted by the State of Oregon.)

1704.1.2 Scope. (Not adopted by the State of Oregon.)

1704.1.3 Definitions. See Building Codes Division Oregon Administrative Rules Chapter 918, Division 674 for definitions.

1704.2 Tests of Materials. (Not adopted by the State of Oregon.)

1704.3 Tests of Assemblies. (Not adopted by the State of Oregon.)

1704.4 Connections. (Not adopted by the State of Oregon.)

1704.5 Pipes and Conduits. (Not adopted by the State of Oregon.)

1704.6 Certificate and Inspection. (Not adopted by the State of Oregon.)

1704.6.1 Materials. (Not adopted by the State of Oregon.)

1704.6.2 Certificate. (Not adopted by the State of Oregon.)

1704.6.3 Certifying agency. (Not adopted by the State of Oregon.)

1704.6.4 Field erection. (Not adopted by the State of Oregon.)

1704.6.5 Continuous inspection. (Not adopted by the State of Oregon.)

Koppers016854

CITY OF
PORTLAND, OREGON
BUREAU OF BUILDINGS

1120 S.W. 5th Avenue
Portland, Oregon 97204-1992
Mailing Address: P.O. Box 8120
Portland, Oregon 97207-8120
(503) 823-7300
FAX: (503) 823-6983
TDD: (503) 823-6868

ELECTRICAL PLAN REVIEW CORRECTIONS

JUNE 18, 1999 **Permit #: ELE99-03402**

Chandler Electric
P.O. Box 80696
Portland, Oregon
97280-1696

RE: KOPPERS INDUSTRIES
Letter Dated June 16, 1999

David Chandler,

I appreciate your response to my concerns in my letter dated June 09,1999. With the understanding that no Code Classification Areas exist on the electrical construction that encompass this permit and our future attention to required listing and labeling requirements I am approving the Electrical Plans associated with Koppers Industries.

Looking forward to working with you and your employees in the near future. Please feel free to contact me with your concerns.

Send required information to:Gene E. Cielo: P.O. Box 8120 Portland, Or. 97208-8120.
If you have any questions, please phone me at 503-.823-7296 Fax 503-823-5433

cc:

The City of Portland policy regarding emergency lighting requires the path of egress to be approved by the building plan's examiner. The path of egress must have one foot candle of lighting. Bug-eyes will not work. For more information call your architect or the building plan's examiner. Installations must meet seismic zone three. ADA requirements, and the Oregon Energy Code. *The electrical Plans will be approved subject to you complying with these codes.*

232-7658

CCB # 126132

May 10, 1999

Mr. Tom Howell
Harder Mechanical
2148 NE MLK Jr. Blvd.
Portland, Oregon 97212

Re: **Out of Scope Work – Change Order # 7**
Remove Concrete below MCC Building Ext. Pad
Koppers Industries, Portland, Oregon

Dear Mr. Howell;

Harder Mechanical has requested that RMCAT Environmental (RMCAT) remove a concrete pad and foundation from the area below the MCC Building Extension area. This work was not included in the original scope of work.

To remove this concrete, it will require the following:

- Backhoe with hydro hammer; and
- Transportation and disposal of additional concrete.

The cost to perform this work is **$ 2,592.00.** This is in addition to the current contract amount of $46,427.00.

It has been determined that the work in Change Order # 6 was within our scope of work and is canceled.

The new contract amount is $49,019.00.

Please call at (503) 408-7404 if you have any questions.

Sincerely,

Bob Janak
RMCAT Environmental

Harder-Koppers-7

Approved by _____ Date _____
Harder Mechanical

Koppers016856

RMCAT
ENVIRONMENTAL SERVICES, INC.
CCB # 126132

INVOICE

REMIT TO: **RMCAT ENVIRONMENTAL**
5762 Lamar Street
Arvada, CO 80002
Phone Number: (800) 930-0011

BILL TO:

Koppers Industries
7540 NW St. Helens Road
Portland, Oregon 97210-3663
Attn: Amos Kamerer

INVOICE DATE: **April 28, 1999**

INVOICE NUMBER **90133-2**
CLIENT PO NUMBER **14-9-50977**

PAYMENT DUE: May 28, 1999

JOB NUMBER; **420-9-90133**

Progress Invoice

Description of Cost and Work Performed:

Transport and treat Petroleum Contaminated Soil excavated at the Koppers Industries, Inc. Portland, Oregon facility.

Transport and Treated 932.34 tons @ $35.00 per ton	$ 32,631.90
Amount Due:	**$ 32,631.90**

If you have any questions concerning this invoice, please contact Bob Janak at 503-408-8880.

Bob Janak
General Manager

TPST SOIL RECYCLERS OF OREGON

9333 N. Harborgate Street Portland, OR 97203

OR 011935

WEIGHMASTER CERTIFICATE – LICENSE #68636

THIS IS TO CERTIFY that the following described soil commodity was weighed, measured, or counted by a weighmaster, whose signature is on this certificate, as prescribed by the Division of Measurement Standards of the Oregon Department of Agriculture.

Manifest # A09 -03693 -055 04/22/99

Generator Site Information

KOPPERS TANK FOUNDATION EXCAVATION
7540 NW ST HELENS ROAD

PORTLAND, OR 97210 USA

Facility Information

TPS TECHNOLOGIES INC.
9333 N HARBORGATE STREET

PORTLAND, OR 97203 USA

				LBS	TONS	
0	IN --->	03:27:59pm	Gross Wt:	78,960	39.48	Manual Wt
0	OUT -->	03:33:21pm	Tare Wt:	31,860	15.93	Manual Wt
			NET WT:	47,100	23.55	

TRANSPORTER/DRIVER: LAUREN ADAMS

Weighmaster _____

Koppers016858

Manifest

TPS Technologies Soil Recycling
Non-Hazardous Soils

↓ Manifest # ↓

Date of Shipment:	Responsible for Payment:	Transporter Truck #:	Facility #:	Given by TPS:	Load #
	CONTRACTOR	[illegible]	[illegible]	[illegible]	055

Generator and/or Consultant

Generator's Name and Billing Address: KOPPERS INDUSTRIES, INC 2540 NW ST HELENS ROAD PORTLAND, OR 97210 USA	Generator's Phone #: [illegible]	Generator's US EPA ID No.	
	Person to Contact: AMOS KAMEKEE		
	FAX #: (503) 285-2851	Customer Account Number with TPS: KOPPERS	
Consultant's Name and Billing Address: RM CAT ENVIRONMENTAL -- CONTRACTOR 12823 NE AIRPORT WAY PORTLAND, OR 97230 USA	Consultant's Phone #: [illegible]		
	Person to Contact: BOB [illegible]		
	FAX #: [illegible]	Customer Account Number with TPS: [illegible]	
Generation Site (Transport from): *(name & address)* KOPPERS TANK FOUNDATION EXCAVATION 2540 NW ST HELENS ROAD PORTLAND, OR 97210 USA	Site Phone #:	BTEX Levels	
	Person to Contact:	TPH Levels	
	FAX #:	AVG. Levels	
Designated Facility (Transport to): *(name & address)* TPST SOIL RECYCLERS OF OREGON 9363 N HARBORGATE STREET PORTLAND, OR 97203 USA	Facility Phone #: 503-[illegible]	Facility Permit Numbers	
	Person to Contact: GLENNA MULLAN		
	FAX #: 503-240-[illegible]		
Transporter Name and Mailing Address:	Transporter's Phone #:	Transporter's US EPA ID No.:	
	Person to Contact:	Transporter's DOT No.:	
	FAX #:	Customer Account Number with TPS:	

Description of Soil	Moisture Content	Contaminated by:	Approx. Qty:	Description of Delivery	Gross Weight	Tare Weight	Net Weight
Sand ☐ Organic ☐ Clay ☐ Other ☐	0 - 10% ☐ 10 - 20% ☐ 20% - over ☐	Gas ☐ Diesel ☐ Other ☐			47960	31860	47100
Sand ☐ Organic ☐ Clay ☐ Other ☐	0 - 10% ☐ 10 - 20% ☐ 20% - over ☐	Gas ☐ Diesel ☐ Other ☐				23.55	

List any exception to items listed above:

Generator's and/or consultant's certification: I/We certify that the soil referenced herein is taken entirely from those soils described in the Soil Data Sheet completed and certified by me/us for the Generation Site shown above and nothing has been added or done to such soil that would alter it in any way.

Print or Type Name: Generator ☐ Consultant ☐	Signature and date:	Month	Day	Year
SIGNATURE ON FILE				

Transporter

Transporter's certification: I/We acknowledge receipt of the soil described above and certify that such soil is being delivered in exactly the same condition as when received. I/We further certify that this soil is being directly transported from the Generation Site to the Designated Facility without off-loading, adding to, subtracting from or in any way delaying delivery to such site.

Print or Type Name:	Signature and date:	Month	Day	Year
X Lauren Adams	[signature]	4	22	99

Recycling Facility

Discrepancies:

Recycling Facility certifies the receipt of the soil covered by this manifest except as noted above:

Print or Type Name:	Signature and date:
GLENNA MULLAN	[signature]

Please print or type.

TPST SOIL RECYCLERS OF OREGON

9333 N. Harborgate Street Portland, OR 97203

OR 011936

WEIGHMASTER CERTIFICATE – LICENSE #68636

THIS IS TO CERTIFY that the following described soil commodity was weighed, measured, or counted by a weighmaster, whose signature is on this certificate, as prescribed by the Division of Measurement Standards of the Oregon Department of Agriculture.

Manifest # A09 -03693 -056 04/22/99

Generator Site Information
KOPPERS TANK FOUNDATION EXCAVATION
7540 NW ST HELENS ROAD

PORTLAND, OR 97210 USA

Facility Information
TPS TECHNOLOGIES INC.
9333 N HARBORGATE STREET

PORTLAND, OR 97203 USA

				LBS	TONS	
0	IN --->	04:14:04pm	Gross Wt:	79,540	39.77	Manual Wt
0	OUT -->	04:18:08pm	Tare Wt:	31,800	15.90	Manual Wt
			NET WT:	47,740	23.87	

TRANSPORTER/DRIVER: LAUREN ADAMS

Weighmaster

Koppers016860

Manifest

TPS Technologies Soil Recycling
Non-Hazardous Soils

↓ Manifest # ↓

Date of Shipment:	Responsible for Payment:	Transporter Truck #:	Facility #:	Given by TPS:	Load #
	CONTRACTOR	Adams	[illegible]	[illegible]	[illegible]

Generator and/or Consultant

Generator's Name and Billing Address: KOPPERS INDUSTRIES, INC 7540 NW ST HELENS ROAD PORTLAND, OR 97210 USA	Generator's Phone #: (503) [illegible] Person to Contact: [illegible] FAX #: (503) [illegible]	Generator's US EPA ID No. Customer Account Number with TPS: [illegible]
Consultant's Name and Billing Address: RM CAT ENVIRONMENTAL -- CONTRACTOR -- 12823 NE AIRPORT WAY PORTLAND, OR 97230 USA	Consultant's Phone #: (503) [illegible] Person to Contact: BOB JANAF FAX #: (503) [illegible]	 Customer Account Number with TPS: [illegible]
Generation Site (Transport from): *(name & address)* KOPPERS TANK FOUNDATION EXCAVATION 7540 NW ST HELENS ROAD PORTLAND, OR 97210 USA	Site Phone #: Person to Contact: FAX #:	BTEX Levels TPH Levels AVG. Levels
Designated Facility (Transport to): *(name & address)* TPST SOIL RECYCLERS OF OREGON 9333 N HARBORGATE STREET PORTLAND, OR 97203 USA	Facility Phone #: 503-[illegible] Person to Contact: GLENNA MULLAN FAX #: 503 [illegible]	Facility Permit Numbers
Transporter Name and Mailing Address: TSCL [illegible]	Transporter's Phone #: [illegible] Person to Contact: FAX #:	Transporter's US EPA ID No.: [illegible] Transporter's DOT No.: Customer Account Number with TPS:

Description of Soil	Moisture Content	Contaminated by:	Approx. Qty:	Description of Delivery	Gross Weight	Tare Weight	Net Weight
Sand ☐ Organic ☐ Clay ☐ Other ☐	0 - 10% ☐ 10 - 20% ☐ 20% - over ☐	Gas ☐ Diesel ☐ Other ☐			79540	21800	47740
Sand ☐ Organic ☐ Clay ☐ Other ☐	0 - 10% ☐ 10 - 20% ☐ 20% - over ☐	Gas ☐ Diesel ☐ Other ☐				23580	

List any exception to items listed above:

Generator's and/or consultant's certification: I/We certify that the soil referenced herein is taken entirely from those soils described in the Soil Data Sheet completed and certified by me/us for the Generation Site shown above and nothing has been added or done to such soil that would alter it in any way.

Print or Type Name: Generator ☐ Consultant ☐	Signature and date:	Month	Day	Year
SIGNATURE ON FILE				

Transporter

Transporter's certification: I/We acknowledge receipt of the soil described above and certify that such soil is being delivered in exactly the same condition as when received. I/We further certify that this soil is being directly transported from the Generation Site to the Designated Facility without off-loading, adding to, subtracting from or in any way delaying delivery to such site.

Print or Type Name:	Signature and date:	Month	Day	Year
X Lauren Adams	X [signature]	4	22	99

Recycling Facility

Discrepancies:

Recycling Facility certifies the receipt of the soil covered by this manifest except as noted above:

Print or Type Name:	Signature and date:
GLENNA MULLAN	[signature] 4/22/99

Please print or type.

TPST SOIL RECYCLERS OF OREGON

9333 N. Harborgate Street Portland, OR 97203

OR 011937

WEIGHMASTER CERTIFICATE – LICENSE #68636

THIS IS TO CERTIFY that the following described soil commodity was weighed, measured, or counted by a weighmaster, whose signature is on this certificate, as prescribed by the Division of Measurement Standards of the Oregon Department of Agriculture.

Manifest # A09 -03693 -057 04/23/99

Generator Site Information

KOPPERS TANK FOUNDATION EXCAVATION
7540 NW ST HELENS ROAD

PORTLAND, OR 97210 USA

Facility Information

TPS TECHNOLOGIES INC.
9333 N HARBORGATE STREET

PORTLAND, OR 97203 USA

				LBS	TONS	
0	IN --->	07:29:20am	Gross Wt:	85,000	42.50	Manual Wt
0	OUT -->	07:33:40am	Tare Wt:	32,140	16.07	Manual Wt
			NET WT:	52,860	26.43	

TRANSPORTER/DRIVER: LAUREN ADAMS

Weighmaster _____

Koppers016862

Manifest

TPS Technologies Soil Recycling

Non-Hazardous Soils

↓ Manifest # ↓

Date of Shipment:	Responsible for Payment:	Transporter Truck #:	Facility #:	Given by TPS:	Load #
	Contractor	Adams	A09	03693	057

Generator and/or Consultant

Generator's Name and Billing Address: KOPPERS INDUSTRIES, INC 7540 NW ST HELENS ROAD PORTLAND, OR 97210 USA	Generator's Phone #: (503) 286-3681 Person to Contact: AMOS KAMPFER FAX #: (503) 286-2831	Generator's US EPA ID No. Customer Account Number with TPS: 9KOPPER
Consultant's Name and Billing Address: RM CAT ENVIRONMENTAL -- CONTRACTOR -- 12823 NE AIRPORT WAY PORTLAND, OR 97230 USA	Consultant's Phone #: (503) 408-8880 Person to Contact: BOB JANAK FAX #: (503) 408-8716	 Customer Account Number with TPS: 1003511
Generation Site (Transport from): *(name & address)* KOPPERS TANK FOUNDATION EXCAVATION 7540 NW ST HELENS ROAD PORTLAND, OR 97210 USA	Site Phone #: Person to Contact: FAX #:	BTEX Levels TPH Levels AVG. Levels
Designated Facility (Transport to): *(name & address)* TPST SOIL RECYCLERS OF OREGON 9333 N HARBORGATE STREET PORTLAND, OR 97203 USA	Facility Phone #: 503-735-9525 Person to Contact: GLENNA MULLAN FAX #: 503-240-1712	Facility Permit Numbers
Transporter Name and Mailing Address:	Transporter's Phone #: Person to Contact: FAX #:	Transporter's US EPA ID No.: Transporter's DOT No.: Customer Account Number with TPS:

Description of Soil	Moisture Content	Contaminated by:	Approx. Qty:	Description of Delivery	Gross Weight	Tare Weight	Net Weight
Sand ☐ Organic ☐ Clay ☐ Other ☐	0 - 10% ☐ 10 - 20% ☐ 20% - over ☐	Gas ☐ Diesel ☐ Other ☐			85000	32140	52860
Sand ☐ Organic ☐ Clay ☐ Other ☐	0 - 10% ☐ 10 - 20% ☐ 20% - over ☐	Gas ☐ Diesel ☐ Other ☐				26.43	

List any exception to items listed above:

Generator's and/or consultant's certification: I/We certify that the soil referenced herein is taken entirely from those soils described in the Soil Data Sheet completed and certified by me/us for the Generation Site shown above and nothing has been added or done to such soil that would alter it in any way.

Print or Type Name: Generator ☐ Consultant ☐	Signature and date:	Month	Day	Year
SIGNATURE ON FILE				

Transporter

Transporter's certification: I/We acknowledge receipt of the soil described above and certify that such soil is being delivered in exactly the same condition as when received. I/We further certify that this soil is being directly transported from the Generation Site to the Designated Facility without off-loading, adding to, subtracting from or in any way delaying delivery to such site.

Print or Type Name:	Signature and date:	Month	Day	Year
Xlavien Adams	[signature]	4	23	99

Recycling Facility

Discrepancies:

Recycling Facility certifies the receipt of the soil covered by this manifest except as noted above:

Print or Type Name:	Signature and date:
GLENNA MULLAN	[signature] 4-23-99

Please print or type.

TPST SOIL RECYCLERS OF OREGON

9333 N. Harborgate Street Portland, OR 97203

OR 011938

WEIGHMASTER CERTIFICATE – LICENSE #68636

THIS IS TO CERTIFY that the following described soil commodity was weighed, measured, or counted by a weighmaster, whose signature is on this certificate, as prescribed by the Division of Measurement Standards of the Oregon Department of Agriculture.

Manifest # A09 -03693 -058 04/23/99

Generator Site Information
KOPPERS TANK FOUNDATION EXCAVATION
7540 NW ST HELENS ROAD

PORTLAND, OR 97210 USA

Facility Information
TPS TECHNOLOGIES INC.
9333 N HARBORGATE STREET

PORTLAND, OR 97203 USA

				LBS	TONS	
0	IN --->	08:06:37am	Gross Wt:	75,800	37.90	Manual Wt
0	OUT -->	08:10:38am	Tare Wt:	32,080	16.04	Manual Wt
			NET WT:	43,720	21.86	

TRANSPORTER/DRIVER: LAUREN ADAMS

Weighmaster

Koppers016864

Manifest

TPS Technologies Soil Recycling

Non-Hazardous Soils

↓ Manifest # ↓

Date of Shipment:	Responsible for Payment:	Transporter Truck #:	Facility #:	Given by TPS:	Load #
	Contractor	Adams	A09	03893	058

Generator and/or Consultant

Generator's Name and Billing Address: KOPPERS INDUSTRIES, INC 7540 NW ST HELENS ROAD PORTLAND, OR 97210 USA	Generator's Phone #: (503) 285-3681 Person to Contact: AMOS KAMERER FAX #: (503) 285-2831	Generator's US EPA ID No. Customer Account Number with TPS: KOPPER
Consultant's Name and Billing Address: RM CAT ENVIRONMENTAL -- CONTRACTOR -- 12823 NE AIRPORT WAY PORTLAND, OR 97230 USA	Consultant's Phone #: (503) 404-8880 Person to Contact: BOB JANAK FAX #: (503) 404-8716	 Customer Account Number with TPS: 1803613
Generation Site (Transport from): *(name & address)* KOPPERS TANK FOUNDATION EXCAVATION 7540 NW ST HELENS ROAD PORTLAND, OR 97210 USA	Site Phone #: Person to Contact: FAX #:	BTEX Levels TPH Levels AVG. Levels
Designated Facility (Transport to): *(name & address)* TPST SOIL RECYCLERS OF OREGON 9333 N HARBORGATE STREET PORTLAND, OR 97203 USA	Facility Phone #: 503-735-9525 Person to Contact: GLENNA MULLAN FAX #: 503-240-1712	Facility Permit Numbers
Transporter Name and Mailing Address:	Transporter's Phone #: Person to Contact: FAX #:	Transporter's US EPA ID No.: Transporter's DOT No.: Customer Account Number with TPS:

Description of Soil	Moisture Content	Contaminated by:	Approx. Qty:	Description of Delivery	Gross Weight	Tare Weight	Net Weight
Sand ☐ Organic ☐ Clay ☐ Other ☐	0 - 10% ☐ 10 - 20% ☐ 20% - over ☐	Gas ☐ Diesel ☐ Other ☐			75800	32080	43720
Sand ☐ Organic ☐ Clay ☐ Other ☐	0 - 10% ☐ 10 - 20% ☐ 20% - over ☐	Gas ☐ Diesel ☐ Other ☐				21.86	

List any exception to items listed above:

Generator's and/or consultant's certification: I/We certify that the soil referenced herein is taken entirely from those soils described in the Soil Data Sheet completed and certified by me/us for the Generation Site shown above and nothing has been added or done to such soil that would alter it in any way.

Print or Type Name: Generator ☐ Consultant ☐	Signature and date:	Month	Day	Year
SIGNATURE ON FILE				

Transporter

Transporter's certification: I/We acknowledge receipt of the soil described above and certify that such soil is being delivered in exactly the same condition as when received. I/We further certify that this soil is being directly transported from the Generation Site to the Designated Facility without off-loading, adding to, subtracting from or in any way delaying delivery to such site.

Print or Type Name:	Signature and date:	Month	Day	Year
Lauren Adams	[signature]	4	23	99

Recycling Facility

Discrepancies:

Recycling Facility certifies the receipt of the soil covered by this manifest except as noted above:

Print or Type Name:	Signature and date:
GLENNA MULLAN	[signature] 4/23/99

Please print or type.

TPST SOIL RECYCLERS OF OREGON

9333 N. Harborgate Street Portland, OR 97203

OR 011939

WEIGHMASTER CERTIFICATE – LICENSE #68636

THIS IS TO CERTIFY that the following described soil commodity was weighed, measured, or counted by a weighmaster, whose signature is on this certificate, as prescribed by the Division of Measurement Standards of the Oregon Department of Agriculture.

Manifest # A09 -03693 -059 04/23/99

Generator Site Information	Facility Information
KOPPERS TANK FOUNDATION EXCAVATION	TPS TECHNOLOGIES INC.
7540 NW ST HELENS ROAD	9333 N HARBORGATE STREET
PORTLAND, OR 97210 USA	PORTLAND, OR 97203 USA

				LBS	TONS	
0	IN --->	08:44:45am	Gross Wt:	86,040	43.02	Manual Wt
0	OUT -->	08:52:44am	Tare Wt:	37,080	18.54	Manual Wt
			NET WT:	48,960	24.48	

TRANSPORTER/DRIVER: HECKMAN/JAMES WOLFE

Weighmaster _____

Koppers016866

Manifest

TPS Technologies Soil Recycling

Non-Hazardous Soils

↓ Manifest # ↓

Date of Shipment:	Responsible for Payment:	Transporter Truck #:	Facility #:	Given by TPS:	Load #
	Contractor	Heckman	A09	03693	059

Generator and/or Consultant

Generator's Name and Billing Address: KOPPERS INDUSTRIES, INC. 7540 NW ST HELENS ROAD PORTLAND, OR 97210 USA	Generator's Phone #: (503) 286-3581 Person to Contact: AMOS KAMERER FAX #: (503) 285-2831	Generator's US EPA ID No. Customer Account Number with TPS: 9KOPPER
Consultant's Name and Billing Address: RM CAT ENVIRONMENTAL -- CONTRACTOR -- 12823 NE AIRPORT WAY PORTLAND, OR 97230 USA	Consultant's Phone #: (503) 408-8880 Person to Contact: BOB JANAK FAX #: (503) 408-8716	Customer Account Number with TPS: 1003511
Generation Site (Transport from): *(name & address)* KOPPERS TANK FOUNDATION EXCAVATION 7540 NW ST HELENS ROAD PORTLAND, OR 97210 USA	Site Phone #: Person to Contact: FAX #:	BTEX Levels TPH Levels AVG. Levels
Designated Facility (Transport to): *(name & address)* TPST SOIL RECYCLERS OF OREGON 9333 N HARBORGATE STREET PORTLAND, OR 97203 USA	Facility Phone #: 503-735-9525 Person to Contact: GLENNA MULLAN FAX #: 503-240-1712	Facility Permit Numbers
Transporter Name and Mailing Address:	Transporter's Phone #: Person to Contact: FAX #:	Transporter's US EPA ID No.: Transporter's DOT No.: Customer Account Number with TPS:

Description of Soil	Moisture Content	Contaminated by:	Approx. Qty:	Description of Delivery	Gross Weight	Tare Weight	Net Weight
Sand ☐ Organic ☐ Clay ☐ Other ☐	0 - 10% ☐ 10 - 20% ☐ 20% - over ☐	Gas ☐ Diesel ☐ Other ☐			86040	37080	47960
Sand ☐ Organic ☐ Clay ☐ Other ☐	0 - 10% ☐ 10 - 20% ☐ 20% - over ☐	Gas ☐ Diesel ☐ Other ☐				24.48	

List any exception to items listed above:

Generator's and/or consultant's certification: I/We certify that the soil referenced herein is taken entirely from those soils described in the Soil Data Sheet completed and certified by me/us for the Generation Site shown above and nothing has been added or done to such soil that would alter it in any way.

Print or Type Name: Generator ☐ Consultant ☐	Signature and date:	Month	Day	Year
SIGNATURE ON FILE				

Transporter

Transporter's certification: I/We acknowledge receipt of the soil described above and certify that such soil is being delivered in exactly the same condition as when received. I/We further certify that this soil is being directly transported from the Generation Site to the Designated Facility without off-loading, adding to, subtracting from or in any way delaying delivery to such site.

Print or Type Name:	Signature and date:	Month	Day	Year
X James Wolfe	X James Wolfe			

Recycling Facility

Discrepancies:

Recycling Facility certifies the receipt of the soil covered by this manifest except as noted above:

Print or Type Name:	Signature and date:
GLENNA MULLAN	Glenna Mullan 4/23/99

Please print or type.

Koppers016867

TPST SOIL RECYCLERS OF OREGON

9333 N. Harborgate Street Portland, OR 97203

OR 011940

WEIGHMASTER CERTIFICATE – LICENSE #68636

THIS IS TO CERTIFY that the following described soil commodity was weighed, measured, or counted by a weighmaster, whose signature is on this certificate, as prescribed by the Division of Measurement Standards of the Oregon Department of Agriculture.

Manifest # A09 -03693 -060 04/23/99

Generator Site Information

KOPPERS TANK FOUNDATION EXCAVATION
7540 NW ST HELENS ROAD

PORTLAND, OR 97210 USA

Facility Information

TPS TECHNOLOGIES INC.
9333 N HARBORGATE STREET

PORTLAND, OR 97203 USA

				LBS	TONS	
0	IN --->	08:46:37am	Gross Wt:	78,020	39.01	Manual Wt
0	OUT -->	08:55:18am	Tare Wt:	32,060	16.03	Manual Wt
			NET WT:	45,960	22.98	

TRANSPORTER/DRIVER: LAUREN ADAMS

Weighmaster _____

Koppers016868

Manifest

TPS Technologies Soil Recycling
Non-Hazardous Soils

↓ Manifest # ↓

Date of Shipment:	Responsible for Payment:	Transporter Truck #:	Facility #:	Given by TPS:	Load #
	Contractor	Adams	A09	03693	060

Generator and/or Consultant

Generator's Name and Billing Address: KOPPERS INDUSTRIES, INC 7540 NW ST HELENS ROAD PORTLAND, OR 97210 USA	Generator's Phone #: (503) 285-3681 Person to Contact: AMOS KAMLER FAX #: (503) 285-2831	Generator's US EPA ID No. Customer Account Number with TPS: 9KOPPER
Consultant's Name and Billing Address: RM CAT ENVIRONMENTAL -- CONTRACTOR - 12823 NE AIRPORT WAY PORTLAND, OR 97230 USA	Consultant's Phone #: (503) 408-8880 Person to Contact: BOB JANAK FAX #: (503) 408-8716	 Customer Account Number with TPS: 1003513
Generation Site (Transport from): *(name & address)* KOPPERS TANK FOUNDATION EXCAVATION 7540 NW ST HELENS ROAD PORTLAND, OR 97210 USA	Site Phone #: Person to Contact: FAX #:	BTEX Levels TPH Levels AVG. Levels
Designated Facility (Transport to): *(name & address)* TPST SOIL RECYCLERS OF OREGON 9333 N HARBORGATE STREET PORTLAND, OR 97203 USA	Facility Phone #: 503-735-9525 Person to Contact: GLENNA MULLAN FAX #: 503-240-1712	Facility Permit Numbers
Transporter Name and Mailing Address:	Transporter's Phone #: Person to Contact: FAX #:	Transporter's US EPA ID No.: Transporter's DOT No.: Customer Account Number with TPS:

Description of Soil	Moisture Content	Contaminated by:	Approx. Qty:	Description of Delivery	Gross Weight	Tare Weight	Net Weight
Sand ☐ Organic ☐ Clay ☐ Other ☐	0 - 10% ☐ 10 - 20% ☐ 20% - over ☐	Gas ☐ Diesel ☐ Other ☐			78020	32060	45960
Sand ☐ Organic ☐ Clay ☐ Other ☐	0 - 10% ☐ 10 - 20% ☐ 20% - over ☐	Gas ☐ Diesel ☐ Other ☐				22.98	

List any exception to items listed above:

Generator's and/or consultant's certification: I/We certify that the soil referenced herein is taken entirely from those soils described in the Soil Data Sheet completed and certified by me/us for the Generation Site shown above and nothing has been added or done to such soil that would alter it in any way.

Print or Type Name: Generator ☐ Consultant ☐	Signature and date:	Month	Day	Year
SIGNATURE ON FILE				

Transporter

Transporter's certification: I/We acknowledge receipt of the soil described above and certify that such soil is being delivered in exactly the same condition as when received. I/We further certify that this soil is being directly transported from the Generation Site to the Designated Facility without off-loading, adding to, subtracting from or in any way delaying delivery to such site.

Print or Type Name:	Signature and date:	Month	Day	Year
X Lauren Adams	X Lauren Adams	4	23	99

Recycling Facility

Discrepancies:

Recycling Facility certifies the receipt of the soil covered by this manifest except as noted above:

Print or Type Name:	Signature and date:
GLENNA MULLAN	Glenna Mullan 4/23/99

Please print or type.

Koppers016869

TPST SOIL RECYCLERS OF OREGON

9333 N. Harborgate Street Portland, OR 97203

OR 011942

WEIGHMASTER CERTIFICATE – LICENSE #68636

THIS IS TO CERTIFY that the following described soil commodity was weighed, measured, or counted by a weighmaster, whose signature is on this certificate, as prescribed by the Division of Measurement Standards of the Oregon Department of Agriculture.

Manifest # A09 -03693 -061 04/23/99

Generator Site Information
KOPPERS TANK FOUNDATION EXCAVATION
7540 NW ST HELENS ROAD

PORTLAND, OR 97210 USA

Facility Information
TPS TECHNOLOGIES INC.
9333 N HARBORGATE STREET

PORTLAND, OR 97203 USA

				LBS	TONS	
0	IN --->	09:54:04am	Gross Wt:	80,140	40.07	Manual Wt
0	OUT -->	09:57:21am	Tare Wt:	32,060	16.03	Manual Wt
			NET WT:	48,080	24.04	

TRANSPORTER/DRIVER LAUREN ADAMS

Weighmaster

Koppers016870

Manifest

TPS Technologies Soil Recycling
Non-Hazardous Soils

Manifest #

Date of Shipment:	Responsible for Payment:	Transporter Truck #:	Facility #:	Given by TPS:	Load #
	Contractor	Adams			

Generator and/or Consultant

Generator's Name and Billing Address:	Generator's Phone #:	Generator's US EPA ID No.
KOPPERS INDUSTRIES, INC 7540 NW ST HELENS ROAD PORTLAND, OR 97210 USA	(503) [illegible] Person to Contact: AMOS KAMEIER FAX #: (503) 285-7851	Customer Account Number with TPS: 9KOPPER
Consultant's Name and Billing Address:	**Consultant's Phone #:**	
RM CAT ENVIRONMENTAL -- CONTRACTOR -- 12823 NE AIRPORT WAY PORTLAND, OR 97230 USA	(503) 408-8880 Person to Contact: BOB JANAK FAX #: (503) 408-8[illegible]	Customer Account Number with TPS: 10035L3
Generation Site (Transport from): *(name & address)*	**Site Phone #:**	BTEX Levels
KOPPERS TANK FOUNDATION EXCAVATION 7540 NW ST HELENS ROAD PORTLAND, OR 97210 USA	Person to Contact:	TPH Levels
	FAX #:	AVG. Levels
Designated Facility (Transport to): *(name & address)*	**Facility Phone #:** 503-735-9535	Facility Permit Numbers
TPS TECHNOLOGIES INC. 9333 N HARBORGATE STREET PORTLAND, OR 97203 USA	Person to Contact: GLENNA MULLAN FAX #: 503-240-[illegible]	
Transporter Name and Mailing Address:	**Transporter's Phone #:**	Transporter's US EPA ID No.:
	Person to Contact:	Transporter's DOT No.:
	FAX #:	Customer Account Number with TPS:

Description of Soil	Moisture Content	Contaminated by:	Approx. Qty:	Description of Delivery	Gross Weight	Tare Weight	Net Weight
Sand ☐ Organic ☐ Clay ☐ Other ☐	0 - 10% ☐ 10 - 20% ☐ 20% - over ☐	Gas ☐ Diesel ☐ Other ☐			76140	32000	48080
Sand ☐ Organic ☐ Clay ☐ Other ☐	0 - 10% ☐ 10 - 20% ☐ 20% - over ☐	Gas ☐ Diesel ☐ Other ☐				24.04	

List any exception to items listed above:

Generator's and/or consultant's certification: I/We certify that the soil referenced herein is taken entirely from those soils described in the Soil Data Sheet completed and certified by me/us for the Generation Site shown above and nothing has been added or done to such soil that would alter it in any way.

Print or Type Name: Generator ☐ Consultant ☐	Signature and date:	Month	Day	Year
SIGNATURE ON FILE				

Transporter

Transporter's certification: I/We acknowledge receipt of the soil described above and certify that such soil is being delivered in exactly the same condition as when received. I/We further certify that this soil is being directly transported from the Generation Site to the Designated Facility without off-loading, adding to, subtracting from or in any way delaying delivery to such site.

Print or Type Name:	Signature and date:	Month	Day	Year
X Lauren Adams	X Lauren Adams	4	23	99

Recycling Facility

Discrepancies:

Recycling Facility certifies the receipt of the soil covered by this manifest except as noted above:

Print or Type Name:	Signature and date:
GLENNA MULLAN	[signature] 4/23/99

Please print or type.

TPST SOIL RECYCLERS OF OREGON

9333 N. Harborgate Street Portland, OR 97203

OR 011943

WEIGHMASTER CERTIFICATE – LICENSE #68636

THIS IS TO CERTIFY that the following described soil commodity was weighed, measured, or counted by a weighmaster, whose signature is on this certificate, as prescribed by the Division of Measurement Standards of the Oregon Department of Agriculture.

Manifest # A09 -03693 -062 04/23/99

Generator Site Information	Facility Information
KOPPERS TANK FOUNDATION EXCAVATION	TPS TECHNOLOGIES INC.
7540 NW ST HELENS ROAD	9333 N HARBORGATE STREET
PORTLAND, OR 97210 USA	PORTLAND, OR 97203 USA

				LBS	TONS	
0	IN --->	09:54:48am	Gross Wt:	107,720	53.86	Manual Wt
0	OUT -->	10:00:55am	Tare Wt:	41,580	20.79	Manual Wt
			NET WT:	66,140	33.07	

TRANSPORTER/DRIVER: HECKMAN/CHARLES HECKMAN

Weighmaster

Koppers016872

Manifest

TPS Technologies Soil Recycling
Non-Hazardous Soils

Manifest #

Date of Shipment:	Responsible for Payment:	Transporter Truck #:	Facility #:	Given by TPS:	Load #
	Contractor	Hackman	A09	03693	062

Generator and/or Consultant

Generator's Name and Billing Address: KOPPERS INDUSTRIES, INC 7540 NW ST HELENS ROAD PORTLAND, OR 97210 USA	Generator's Phone #: (503) 286 3581 Person to Contact: AMOS KAMERER FAX #: (503) 285-2831	Generator's US EPA ID No. Customer Account Number with TPS: 9KOPPER
Consultant's Name and Billing Address: RM CAT ENVIRONMENTAL -- CONTRACTOR -- 12823 NE AIRPORT WAY PORTLAND, OR 97230 USA	Consultant's Phone #: (503) 408-8880 Person to Contact: [illegible] FAX #: (503) 408-8[illegible]	 Customer Account Number with TPS: [illegible]
Generation Site (Transport from): *(name & address)* KOPPERS TANK FOUNDATION EXCAVATION 7540 NW ST HELENS ROAD PORTLAND, OR 97210 USA	Site Phone #: Person to Contact: FAX #:	BTEX Levels TPH Levels AVG. Levels
Designated Facility (Transport to): *(name & address)* TPS TECHNOLOGIES INC. 9333 N HARBORGATE STREET PORTLAND, OR 97203 USA	Facility Phone #: 503-735-9525 Person to Contact: GLENNA MULLAN FAX #: 503-240-1712	Facility Permit Numbers
Transporter Name and Mailing Address:	Transporter's Phone #: Person to Contact: FAX #:	Transporter's US EPA ID No.: Transporter's DOT No.: Customer Account Number with TPS:

Description of Soil	Moisture Content	Contaminated by:	Approx. Qty:	Description of Delivery	Gross Weight	Tare Weight	Net Weight
Sand ☐ Organic ☐ Clay ☐ Other ☐	0 - 10% ☐ 10 - 20% ☐ 20% - over ☐	Gas ☐ Diesel ☐ Other ☐			107720	41580	66140
Sand ☐ Organic ☐ Clay ☐ Other ☐	0 - 10% ☐ 10 - 20% ☐ 20% - over ☐	Gas ☐ Diesel ☐ Other ☐				33.07	

List any exception to items listed above:

Generator's and/or consultant's certification: I/We certify that the soil referenced herein is taken entirely from those soils described in the Soil Data Sheet completed and certified by me/us for the Generation Site shown above and nothing has been added or done to such soil that would alter it in any way.

Print or Type Name: Generator ☐ Consultant ☐	Signature and date:	Month	Day	Year
SIGNATURE ON FILE				

Transporter

Transporter's certification: I/We acknowledge receipt of the soil described above and certify that such soil is being delivered in exactly the same condition as when received. I/We further certify that this soil is being directly transported from the Generation Site to the Designated Facility without off-loading, adding to, subtracting from or in any way delaying delivery to such site.

Print or Type Name:	Signature and date:	Month	Day	Year
X Charles Hackman	X			

Recycling Facility

Discrepancies:

Recycling Facility certifies the receipt of the soil covered by this manifest except as noted above:

Print or Type Name:	Signature and date:
GLENNA MULLAN	[signature] 11-23-09

Please print or type.

TPST SOIL RECYCLERS OF OREGON

9333 N. Harborgate Street Portland, OR 97203

OR 011944

WEIGHMASTER CERTIFICATE – LICENSE #68636

THIS IS TO CERTIFY that the following described soil commodity was weighed, measured, or counted by a weighmaster, whose signature is on this certificate, as prescribed by the Division of Measurement Standards of the Oregon Department of Agriculture.

Manifest # A09 -03693 -063 04/23/99

Generator Site Information	Facility Information
KOPPERS TANK FOUNDATION EXCAVATION	TPS TECHNOLOGIES INC.
7540 NW ST HELENS ROAD	9333 N HARBORGATE STREET
PORTLAND, OR 97210 USA	PORTLAND, OR 97203 USA

				LBS	TONS	
0	IN --->	10:33:57am	Gross Wt:	88,840	44.42	Manual Wt
0	OUT -->	10:42:52am	Tare Wt:	37,040	18.52	Manual Wt
			NET WT:	51,800	25.90	

TRANSPORTER/DRIVER: HECKMAN/JAMES WOLFE

Weighmaster _____

Koppers016874

Manifest

TPS Technologies Soil Recycling
Non-Hazardous Soils

Manifest #

Date of Shipment:	Responsible for Payment:	Transporter Truck #:	Facility #:	Given by TPS:	Load #
	Contractor	[illegible]	A09	03693	063

Generator and/or Consultant

Generator's Name and Billing Address: KOPPERS INDUSTRIES, INC 7540 NW ST HELENS ROAD PORTLAND, OR 97210 USA	Generator's Phone #: (503) 286-3681 Person to Contact: AMOS KAMEBER FAX #: (503) 285-2831	Generator's US EPA ID No. Customer Account Number with TPS: 9KOPPER
Consultant's Name and Billing Address: RM CAT ENVIRONMENTAL -- CONTRACTOR -- 12823 NE AIRPORT WAY PORTLAND, OR 97230 USA	Consultant's Phone #: (503) 408-8880 Person to Contact: BOB JANAK FAX #: (503) 408-8716	 Customer Account Number with TPS: 1003513
Generation Site (Transport from): *(name & address)* KOPPERS TANK FOUNDATION EXCAVATION 7540 NW ST HELENS ROAD PORTLAND, OR 97210 USA	Site Phone #: Person to Contact: FAX #:	BTEX Levels TPH Levels AVG. Levels
Designated Facility (Transport to): *(name & address)* TPS TECHNOLOGIES INC. 9333 N HARBORGATE STREET PORTLAND, OR 97203 USA	Facility Phone #: 503-735-9525 Person to Contact: GLENNA MULLAN FAX #: 503-240-1712	Facility Permit Numbers
Transporter Name and Mailing Address:	Transporter's Phone #: Person to Contact: FAX #:	Transporter's US EPA ID No.: Transporter's DOT No.: Customer Account Number with TPS:

Description of Soil	Moisture Content	Contaminated by:	Approx. Qty:	Description of Delivery	Gross Weight	Tare Weight	Net Weight
Sand ☐ Organic ☐ Clay ☐ Other ☐	0 - 10% ☐ 10 - 20% ☐ 20% - over ☐	Gas ☐ Diesel ☐ Other ☐			88840	37040	51800
Sand ☐ Organic ☐ Clay ☐ Other ☐	0 - 10% ☐ 10 - 20% ☐ 20% - over ☐	Gas ☐ Diesel ☐ Other ☐				25.90	

List any exception to items listed above:

Generator's and/or consultant's certification: I/We certify that the soil referenced herein is taken entirely from those soils described in the Soil Data Sheet completed and certified by me/us for the Generation Site shown above and nothing has been added or done to such soil that would alter it in any way.

Print or Type Name: Generator ☐ Consultant ☐ SIGNATURE ON FILE | Signature and date: | Month | Day | Year

Transporter

Transporter's certification: I/We acknowledge receipt of the soil described above and certify that such soil is being delivered in exactly the same condition as when received. I/We further certify that this soil is being directly transported from the Generation Site to the Designated Facility without off-loading, adding to, subtracting from or in any way delaying delivery to such site.

Print or Type Name: X James Wolfe | Signature and date: X James Wolfe | Month | Day | Year

Recycling Facility

Discrepancies:

Recycling Facility certifies the receipt of the soil covered by this manifest except as noted above:

Print or Type Name: GLENNA MULLAN | Signature and date: [signature] 4/27/99

Please print or type.

Koppers016875

TPST SOIL RECYCLERS OF OREGON

9333 N. Harborgate Street Portland, OR 97203

OR 011945

WEIGHMASTER CERTIFICATE – LICENSE #68636

THIS IS TO CERTIFY that the following described soil commodity was weighed, measured, or counted by a weighmaster, whose signature is on this certificate, as prescribed by the Division of Measurement Standards of the Oregon Department of Agriculture.

Manifest # A09 -03693 -064 04/23/99

Generator Site Information

KOPPERS TANK FOUNDATION EXCAVATION
7540 NW ST HELENS ROAD

PORTLAND, OR 97210 USA

Facility Information

TPS TECHNOLOGIES INC.
9333 N HARBORGATE STREET

PORTLAND, OR 97203 USA

				LBS	TONS	
0	IN --->	10:39:26am	Gross Wt:	79,300	39.65	Manual Wt
0	OUT -->	10:45:12am	Tare Wt:	32,080	16.04	Manual Wt
			NET WT:	47,220	23.61	

TRANSPORTER/DRIVER: LAUREN ADAMS

Weighmaster

Koppers016876

Manifest

TPS Technologies Soil Recycling

Non-Hazardous Soils

↓ Manifest # ↓

Date of Shipment:	Responsible for Payment:	Transporter Truck #:	Facility #:	Given by TPS:	Load #
	Contractor	Adams	A09	03693	064

Generator and/or Consultant

Generator's Name and Billing Address: KOPPERS INDUSTRIES, INC 7540 NW ST HELENS ROAD PORTLAND, OR 97210 USA	Generator's Phone #: (503) 285-3681 Person to Contact: AMOS KAMERER FAX #: (503) 285-2831	Generator's US EPA ID No.: Customer Account Number with TPS: 9KOPPER
Consultant's Name and Billing Address: RM CAT ENVIRONMENTAL -- CONTRACTOR -- 12823 NE AIRPORT WAY PORTLAND, OR 97230 USA	Consultant's Phone #: (503) 408-8880 Person to Contact: BOB JANAK FAX #: (503) 408-8716	 Customer Account Number with TPS: 1003513
Generation Site (Transport from): *(name & address)* KOPPERS TANK FOUNDATION EXCAVATION 7540 NW ST HELENS ROAD PORTLAND, OR 97210 USA	Site Phone #: Person to Contact: FAX #:	BTEX Levels TPH Levels AVG. Levels
Designated Facility (Transport to): *(name & address)* TPS TECHNOLOGIES INC. 9333 N HARBORGATE STREET PORTLAND, OR 97203 USA	Facility Phone #: 503-735-9525 Person to Contact: GLENNA MULLAN FAX #: 503-240-1712	Facility Permit Numbers
Transporter Name and Mailing Address:	Transporter's Phone #: Person to Contact: FAX #:	Transporter's US EPA ID No.: Transporter's DOT No.: Customer Account Number with TPS:

Description of Soil	Moisture Content	Contaminated by:	Approx. Qty:	Description of Delivery	Gross Weight	Tare Weight	Net Weight
Sand ☐ Organic ☐ Clay ☐ Other ☐	0 - 10% ☐ 10 - 20% ☐ 20% - over ☐	Gas ☐ Diesel ☐ Other ☐			79300	32080	47220
Sand ☐ Organic ☐ Clay ☐ Other ☐	0 - 10% ☐ 10 - 20% ☐ 20% - over ☐	Gas ☐ Diesel ☐ Other ☐				23.61	

List any exception to items listed above:

Generator's and/or consultant's certification: I/We certify that the soil referenced herein is taken entirely from those soils described in the Soil Data Sheet completed and certified by me/us for the Generation Site shown above and nothing has been added or done to such soil that would alter it in any way.

Print or Type Name: Generator ☐ Consultant ☐	Signature and date:	Month	Day	Year
SIGNATURE ON FILE				

Transporter

Transporter's certification: I/We acknowledge receipt of the soil described above and certify that such soil is being delivered in exactly the same condition as when received. I/We further certify that this soil is being directly transported from the Generation Site to the Designated Facility without off-loading, adding to, subtracting from or in any way delaying delivery to such site.

Print or Type Name:	Signature and date:	Month	Day	Year
Lauren Adams	Lauren Adams	4	23	99

Recycling Facility

Discrepancies:

Recycling Facility certifies the receipt of the soil covered by this manifest except as noted above:

Print or Type Name:	Signature and date:
GLENNA MULLAN	Glenna Mullan 4/23/99

Please print or type.

TPST SOIL RECYCLERS OF OREGON

9333 N. Harborgate Street Portland, OR 97203

OR 011946

WEIGHMASTER CERTIFICATE – LICENSE #68636

THIS IS TO CERTIFY that the following described soil commodity was weighed, measured, or counted by a weighmaster, whose signature is on this certificate, as prescribed by the Division of Measurement Standards of the Oregon Department of Agriculture.

Manifest # A09 -03693 -065 04/23/99

Generator Site Information	Facility Information
KOPPERS TANK FOUNDATION EXCAVATION	TPS TECHNOLOGIES INC.
7540 NW ST HELENS ROAD	9333 N HARBORGATE STREET
PORTLAND, OR 97210 USA	PORTLAND, OR 97203 USA

				LBS	TONS	
0	IN --->	10:49:55am	Gross Wt:	108,880	54.44	Manual Wt
0	OUT -->	10:53:59am	Tare Wt:	39,080	19.54	Manual Wt
			NET WT:	69,800	34.90	

TRANSPORTER/DRIVER: HECKMAN, CHARLES

Weighmaster

Koppers016878

Manifest

TPS Technologies Soil Recycling
Non-Hazardous Soils

Manifest #

Generator and/or Consultant

Date of Shipment:	Responsible for Payment:	Transporter Truck #:	Facility #:	Given by TPS:	Load #
	Contractor	Hackman	A09	93693	055

Generator's Name and Billing Address: KOPPERS INDUSTRIES, INC. 7540 NW ST HELENS ROAD PORTLAND, OR 97210 USA	Generator's Phone #: (503) 285-2651 Person to Contact: AMOS KAMERER FAX #: (503) 285-2821	Generator's US EPA ID No. Customer Account Number with TPS: 9KOPPER
Consultant's Name and Billing Address: RM CAT ENVIRONMENTAL -- CONTRACTOR -- 12823 NE AIRPORT WAY PORTLAND, OR 97230 USA	Consultant's Phone #: (503) 408-8880 Person to Contact: BOB JANAK FAX #: (503) 408-8716	 Customer Account Number with TPS: 100351
Generation Site (Transport from): *(name & address)* KOPPERS TANK FOUNDATION EXCAVATION 7540 NW ST HELENS ROAD PORTLAND, OR 97210 USA	Site Phone #: Person to Contact: FAX #:	BTEX Levels TPH Levels AVG. Levels
Designated Facility (Transport to): *(name & address)* TPS TECHNOLOGIES INC. 9330 N HARBORGATE STREET PORTLAND, OR 97203 USA	Facility Phone #: 503-735-9515 Person to Contact: GLENNA MULLAN FAX #: 503-240-1712	Facility Permit Numbers
Transporter Name and Mailing Address:	Transporter's Phone #: Person to Contact: FAX #:	Transporter's US EPA ID No.: Transporter's DOT No.: Customer Account Number with TPS:

Description of Soil	Moisture Content	Contaminated by:	Approx. Qty:	Description of Delivery	Gross Weight	Tare Weight	Net Weight
Sand ☐ Organic ☐ Clay ☐ Other ☐	0 - 10% ☐ 10 - 20% ☐ 20% - over ☐	Gas ☐ Diesel ☐ Other ☐			108880	39080	69800
Sand ☐ Organic ☐ Clay ☐ Other ☐	0 - 10% ☐ 10 - 20% ☐ 20% - over ☐	Gas ☐ Diesel ☐ Other ☐				34.90	

List any exception to items listed above:

Generator's and/or consultant's certification: I/We certify that the soil referenced herein is taken entirely from those soils described in the Soil Data Sheet completed and certified by me/us for the Generation Site shown above and nothing has been added or done to such soil that would alter it in any way.

Print or Type Name:	Generator ☐ Consultant ☐	Signature and date:	Month	Day	Year
SIGNATURE ON FILE					

Transporter

Transporter's certification: I/We acknowledge receipt of the soil described above and certify that such soil is being delivered in exactly the same condition as when received. I/We further certify that this soil is being directly transported from the Generation Site to the Designated Facility without off-loading, adding to, subtracting from or in any way delaying delivery to such site.

Print or Type Name:	Signature and date:	Month	Day	Year
Charles Hackman				

Recycling Facility

Discrepancies:

Recycling Facility certifies the receipt of the soil covered by this manifest except as noted above:

Print or Type Name:	Signature and date:
GLENNA MULLAN	Glenna Mullan 4/25/99

Please print or type.

TPST SOIL RECYCLERS OF OREGON

9333 N. Harborgate Street Portland, OR 97203

OR 011947

WEIGHMASTER CERTIFICATE – LICENSE #68636

THIS IS TO CERTIFY that the following described soil commodity was weighed, measured, or counted by a weighmaster, whose signature is on this certificate, as prescribed by the Division of Measurement Standards of the Oregon Department of Agriculture.

Manifest # A09 -03693 -066 04/23/99

Generator Site Information	Facility Information
KOPPERS TANK FOUNDATION EXCAVATION	TPS TECHNOLOGIES INC.
7540 NW ST HELENS ROAD	9333 N HARBORGATE STREET
PORTLAND, OR 97210 USA	PORTLAND, OR 97203 USA

				LBS	TONS	
0	IN --->	11:22:40am	Gross Wt:	80,900	40.45	Manual Wt
0	OUT -->	11:30:20am	Tare Wt:	37,040	18.52	Manual Wt
			NET WT:	43,860	21.93	

TRANSPORTER/DRIVER: HECKMAN/JAMES WOLFE

Weighmaster: _____

Koppers016880

Manifest

TPS Technologies Soil Recycling
Non-Hazardous Soils

Manifest #

Date of Shipment:	Responsible for Payment:	Transporter Truck #:	Facility #:	Given by TPS:	Load #
	CONTRACTOR	Wolfe	003	03693	056

Generator and/or Consultant

Generator's Name and Billing Address: KOPPERS INDUSTRIES, INC 7540 NE ST HELENS ROAD PORTLAND, OR 97210 USA	Generator's Phone #: (503) 285-2881 Person to Contact: AMOS KAMERER FAX #: (503) 285-2883	Generator's US EPA ID No. Customer Account Number with TPS: KOPPER
Consultant's Name and Billing Address: RM CAT ENVIRONMENTAL -- CONTRACTOR -- 12823 NE AIRPORT WAY PORTLAND, OR 97230 USA	Consultant's Phone #: (503) 408-0880 Person to Contact: BOB JANAK FAX #: (503) 408-0210	 Customer Account Number with TPS: KOPPER3
Generation Site (Transport from): *(name & address)* KOPPERS TANK FOUNDATION EXCAVATION 7540 NE ST HELENS ROAD PORTLAND, OR 97210 USA	Site Phone #: Person to Contact: FAX #:	BTEX Levels TPH Levels AVG. Levels
Designated Facility (Transport to): *(name & address)* TPS TECHNOLOGIES INC. 9333 N HARBORGATE STREET PORTLAND, OR 97203 USA	Facility Phone #: 503-735-9625 Person to Contact: GLENNA MULLAN FAX #: 503-289-1727	Facility Permit Numbers
Transporter Name and Mailing Address:	Transporter's Phone #: Person to Contact: FAX #:	Transporter's US EPA ID No.: Transporter's DOT No.: Customer Account Number with TPS:

Description of Soil	Moisture Content	Contaminated by:	Approx. Qty:	Description of Delivery	Gross Weight	Tare Weight	Net Weight
Sand ☐ Organic ☐ Clay ☐ Other ☐	0 - 10% ☐ 10 - 20% ☐ 20% - over ☐	Gas ☐ Diesel ☐ Other ☐			40900	37640	43260
Sand ☐ Organic ☐ Clay ☐ Other ☐	0 - 10% ☐ 10 - 20% ☐ 20% - over ☐	Gas ☐ Diesel ☐ Other ☐				21.93	

List any exception to items listed above:

Generator's and/or consultant's certification: I/We certify that the soil referenced herein is taken entirely from those soils described in the Soil Data Sheet completed and certified by me/us for the Generation Site shown above and nothing has been added or done to such soil that would alter it in any way.

Print or Type Name:	Generator ☐ Consultant ☐	Signature and date:	Month	Day	Year
SIGNATURE ON FILE					

Transporter

Transporter's certification: I/We acknowledge receipt of the soil described above and certify that such soil is being delivered in exactly the same condition as when received. I/We further certify that this soil is being directly transported from the Generation Site to the Designated Facility without off-loading, adding to, subtracting from or in any way delaying delivery to such site.

Print or Type Name:	Signature and date:	Month	Day	Year
James Wolfe	James Wolfe			

Recycling Facility

Discrepancies:

Recycling Facility certifies the receipt of the soil covered by this manifest except as noted above:

Print or Type Name:	Signature and date:
GLENNA MULLAN	7/23/99

Please print or type.

TPST SOIL RECYCLERS OF OREGON

9333 N. Harborgate Street Portland, OR 97203

OR 011948

WEIGHMASTER CERTIFICATE – LICENSE #68636

THIS IS TO CERTIFY that the following described soil commodity was weighed, measured, or counted by a weighmaster, whose signature is on this certificate, as prescribed by the Division of Measurement Standards of the Oregon Department of Agriculture.

Manifest # A09 -03693 -067 04/23/99

Generator Site Information

KOPPERS TANK FOUNDATION EXCAVATION

7540 NW ST HELENS ROAD

PORTLAND, OR 97210 USA

Facility Information

TPS TECHNOLOGIES INC.

9333 N HARBORGATE STREET

PORTLAND, OR 97203 USA

				LBS	TONS	
0	IN --->	11:26:36am	Gross Wt:	79,620	39.81	Manual Wt
0	OUT -->	11:32:26am	Tare Wt:	32,080	16.04	Manual Wt
			NET WT:	47,540	23.77	

TRANSPORTER/DRIVER: LAUREN ADAMS

Weighmaster

Koppers016882

Manifest

TPS Technologies Soil Recycling
Non-Hazardous Soils

↓ Manifest # ↓

Date of Shipment:	Responsible for Payment:	Transporter Truck #:	Facility #:	Given by TPS:	Load #
	Contractor	Adams	A09	03693	067

Generator and/or Consultant

Generator's Name and Billing Address: KOPPERS INDUSTRIES, INC 7540 NW ST HELENS ROAD PORTLAND, OR 97210 USA	Generator's Phone #: (503) 286-3681 Person to Contact: AMOS KAMERER FAX #: (503) 285-2831	Generator's US EPA ID No. Customer Account Number with TPS: 9KOPPER
Consultant's Name and Billing Address: RM CAT ENVIRONMENTAL -- CONTRACTOR -- 12823 NE AIRPORT WAY PORTLAND, OR 97230 USA	Consultant's Phone #: (503) 408-9880 Person to Contact: BOB JANAK FAX #: (503) 408-8216	 Customer Account Number with TPS: 1003513
Generation Site (Transport from): *(name & address)* KOPPERS TANK FOUNDATION EXCAVATION 7540 NW ST HELENS ROAD PORTLAND, OR 97210 USA	Site Phone #: Person to Contact: FAX #:	BTEX Levels TPH Levels AVG. Levels
Designated Facility (Transport to): *(name & address)* TPS TECHNOLOGIES INC. 9333 N HARBORGATE STREET PORTLAND, OR 97203 USA	Facility Phone #: 503-735-9525 Person to Contact: GLENNA MULLAN FAX #: 503-240-1712	Facility Permit Numbers
Transporter Name and Mailing Address:	Transporter's Phone #: Person to Contact: FAX #:	Transporter's US EPA ID No.: Transporter's DOT No.: Customer Account Number with TPS:

Description of Soil	Moisture Content	Contaminated by:	Approx. Qty:	Description of Delivery	Gross Weight	Tare Weight	Net Weight
Sand ☐ Organic ☐ Clay ☐ Other ☐	0 - 10% ☐ 10 - 20% ☐ 20% - over ☐	Gas ☐ Diesel ☐ Other ☐			79620	32080	47540
Sand ☐ Organic ☐ Clay ☐ Other ☐	0 - 10% ☐ 10 - 20% ☐ 20% - over ☐	Gas ☐ Diesel ☐ Other ☐				23.77	

List any exception to items listed above:

Generator's and/or consultant's certification: I/We certify that the soil referenced herein is taken entirely from those soils described in the Soil Data Sheet completed and certified by me/us for the Generation Site shown above and nothing has been added or done to such soil that would alter it in any way.

Print or Type Name: Generator ☐ Consultant ☐	Signature and date:	Month	Day	Year
SIGNATURE ON FILE				

Transporter

Transporter's certification: I/We acknowledge receipt of the soil described above and certify that such soil is being delivered in exactly the same condition as when received. I/We further certify that this soil is being directly transported from the Generation Site to the Designated Facility without off-loading, adding to, subtracting from or in any way delaying delivery to such site.

Print or Type Name:	Signature and date:	Month	Day	Year
X Lauren Adams	X [signature]	4	23	99

Recycling Facility

Discrepancies:

Recycling Facility certifies the receipt of the soil covered by this manifest except as noted above:

Print or Type Name:	Signature and date:
GLENNA MULLAN	[signature] 4/23/99

Please print or type.

Koppers016883

TPST SOIL RECYCLERS OF OREGON

9333 N. Harborgate Street Portland, OR 97203

OR 011949

WEIGHMASTER CERTIFICATE – LICENSE #68636

THIS IS TO CERTIFY that the following described soil commodity was weighed, measured, or counted by a weighmaster, whose signature is on this certificate, as prescribed by the Division of Measurement Standards of the Oregon Department of Agriculture.

Manifest # A09 -03693 -068 04/23/99

Generator Site Information	Facility Information
KOPPERS TANK FOUNDATION EXCAVATION	TPS TECHNOLOGIES INC.
7540 NW ST HELENS ROAD	9333 N HARBORGATE STREET
PORTLAND, OR 97210 USA	PORTLAND, OR 97203 USA

				LBS	TONS	
0	IN --->	11:37:47am	Gross Wt:	106,840	53.42	Manual Wt
0	OUT -->	11:42:02am	Tare Wt:	39,040	19.52	Manual Wt
			NET WT:	67,800	33.90	

TRANSPORTER/DRIVER: CHARLES HECKMAN

Weighmaster

Koppers016884

Manifest

TPS Technologies Soil Recycling

Non-Hazardous Soils

↓ Manifest # ↓

Date of Shipment:	Responsible for Payment:	Transporter Truck #:	Facility #:	Given by TPS:	Load #
	Contractor	Heckman	A09	03693	058

Generator and/or Consultant

Generator's Name and Billing Address: KOPPERS INDUSTRIES, INC. 7540 NW ST HELENS ROAD PORTLAND, OR 97210 USA	Generator's Phone #: (503) 286-3681 Person to Contact: AMOS KAMERER FAX #: (503) 286-2831	Generator's US EPA ID No. Customer Account Number with TPS: 9KOPPER
Consultant's Name and Billing Address: RM CAT ENVIRONMENTAL -- CONTRACTOR -- 12823 NE AIRPORT WAY PORTLAND, OR 97230 USA	Consultant's Phone #: (503) 408-8880 Person to Contact: BOB JANAK FAX #: (503) 408-8716	 Customer Account Number with TPS: 100[illegible]
Generation Site (Transport from): *(name & address)* KOPPERS TANK FOUNDATION EXCAVATION 7540 NW ST HELENS ROAD PORTLAND, OR 97210 USA	Site Phone #: Person to Contact: FAX #:	BTEX Levels TPH Levels AVG. Levels
Designated Facility (Transport to): *(name & address)* TPS TECHNOLOGIES INC 9333 N HARBORGATE STREET PORTLAND, OR 97203 USA	Facility Phone #: 503-735-9525 Person to Contact: GLENNA MULLAN FAX #: 503-240-1712	Facility Permit Numbers
Transporter Name and Mailing Address:	Transporter's Phone #: Person to Contact: FAX #:	Transporter's US EPA ID No.: Transporter's DOT No.: Customer Account Number with TPS:

Description of Soil	Moisture Content	Contaminated by:	Approx. Qty:	Description of Delivery	Gross Weight	Tare Weight	Net Weight
Sand ☐ Organic ☐ Clay ☐ Other ☐	0 - 10% ☐ 10 - 20% ☐ 20% - over ☐	Gas ☐ Diesel ☐ Other ☐			106840	39040	67800
Sand ☐ Organic ☐ Clay ☐ Other ☐	0 - 10% ☐ 10 - 20% ☐ 20% - over ☐	Gas ☐ Diesel ☐ Other ☐				33.90	

List any exception to items listed above:

Generator's and/or consultant's certification: I/We certify that the soil referenced herein is taken entirely from those soils described in the Soil Data Sheet completed and certified by me/us for the Generation Site shown above and nothing has been added or done to such soil that would alter it in any way.

Print or Type Name: Generator ☐ Consultant ☐ SIGNATURE ON FILE | Signature and date: | Month | Day | Year

Transporter

Transporter's certification: I/We acknowledge receipt of the soil described above and certify that such soil is being delivered in exactly the same condition as when received. I/We further certify that this soil is being directly transported from the Generation Site to the Designated Facility without off-loading, adding to, subtracting from or in any way delaying delivery to such site.

Print or Type Name: X Charles Heckman | Signature and date: X [signature] | Month | Day | Year

Recycling Facility

Discrepancies:

Recycling Facility certifies the receipt of the soil covered by this manifest except as noted above:

Print or Type Name: GLENNA MULLAN | Signature and date: [signature] 4/22/09

Please print or type.

Koppers016885

TPST SOIL RECYCLERS OF OREGON

9333 N. Harborgate Street Portland, OR 97203

OR 011951

WEIGHMASTER CERTIFICATE – LICENSE #68636

THIS IS TO CERTIFY that the following described soil commodity was weighed, measured, or counted by a weighmaster, whose signature is on this certificate, as prescribed by the Division of Measurement Standards of the Oregon Department of Agriculture.

Manifest # A09 -03693 -069 04/23/99

Generator Site Information	Facility Information
KOPPERS TANK FOUNDATION EXCAVATION	TPS TECHNOLOGIES INC.
7540 NW ST HELENS ROAD	9333 N HARBORGATE STREET
PORTLAND, OR 97210 USA	PORTLAND, OR 97203 USA

				LBS	TONS	
0	IN --->	12:07:14pm	Gross Wt:	87,400	43.70	Manual Wt
0	OUT -->	12:14:21pm	Tare Wt:	36,960	18.48	Manual Wt
			NET WT:	50,440	25.22	

TRANSPORTER/DRIVER: HECKMAN/JAMES WOLFE

Weighmaster _____

Koppers016886

Manifest

TPS Technologies Soil Recycling
Non-Hazardous Soils

Manifest #

Date of Shipment:	Responsible for Payment:	Transporter Truck #:	Facility #:	Given by TPS:	Load #
	Contractor	Heckman 02	A09	03693	069

Generator and/or Consultant

Generator's Name and Billing Address: KOPPERS INDUSTRIES, INC 7540 NW ST HELENS ROAD PORTLAND, OR 97210 USA	Generator's Phone #: (503) 286-3681 Person to Contact: AMOS KAMERER FAX #: (503) 285-2831	Generator's US EPA ID No. Customer Account Number with TPS: 9KOPPER
Consultant's Name and Billing Address: RM CAT ENVIRONMENTAL -- CONTRACTOR - 12823 NE AIRPORT WAY PORTLAND, OR 97230 USA	Consultant's Phone #: (503) 408-8880 Person to Contact: BOB JANAK FAX #: (503) 408-8716	 Customer Account Number with TPS: 100351
Generation Site (Transport from): *(name & address)* KOPPERS TANK FOUNDATION EXCAVATION 7540 NW ST HELENS ROAD PORTLAND, OR 97210 USA	Site Phone #: Person to Contact: FAX #:	BTEX Levels TPH Levels AVG. Levels
Designated Facility (Transport to): *(name & address)* TPS TECHNOLOGIES INC. 9333 N HARBORGATE STREET PORTLAND, OR 97203 USA	Facility Phone #: 503-735-9525 Person to Contact: GLENNA MULLAN FAX #: 503-240-1712	Facility Permit Numbers
Transporter Name and Mailing Address:	Transporter's Phone #: Person to Contact: FAX #:	Transporter's US EPA ID No.: Transporter's DOT No.: Customer Account Number with TPS:

Description of Soil	Moisture Content	Contaminated by:	Approx. Qty:	Description of Delivery	Gross Weight	Tare Weight	Net Weight
Sand ☐ Organic ☐ Clay ☐ Other ☐	0 - 10% ☐ 10 - 20% ☐ 20% - over ☐	Gas ☐ Diesel ☐ Other ☐			87400	36960	50440
Sand ☐ Organic ☐ Clay ☐ Other ☐	0 - 10% ☐ 10 - 20% ☐ 20% - over ☐	Gas ☐ Diesel ☐ Other ☐				25.22	

List any exception to items listed above:

Generator's and/or consultant's certification: I/We certify that the soil referenced herein is taken entirely from those soils described in the Soil Data Sheet completed and certified by me/us for the Generation Site shown above and nothing has been added or done to such soil that would alter it in any way.

Print or Type Name: Generator ☐ Consultant ☐	Signature and date:	Month	Day	Year
SIGNATURE ON FILE				

Transporter

Transporter's certification: I/We acknowledge receipt of the soil described above and certify that such soil is being delivered in exactly the same condition as when received. I/We further certify that this soil is being directly transported from the Generation Site to the Designated Facility without off-loading, adding to, subtracting from or in any way delaying delivery to such site.

Print or Type Name:	Signature and date:	Month	Day	Year
James Wolfe	James Wolfe			

Recycling Facility

Discrepancies:

Recycling Facility certifies the receipt of the soil covered by this manifest except as noted above:

Print or Type Name:	Signature and date:
GLENNA MULLAN	Glenna Mullan 4/23/99

Please print or type.

Koppers016887

TPST SOIL RECYCLERS OF OREGON

9333 N. Harborgate Street Portland, OR 97203

OR 011952

WEIGHMASTER CERTIFICATE – LICENSE #68636

THIS IS TO CERTIFY that the following described soil commodity was weighed, measured, or counted by a weighmaster, whose signature is on this certificate, as prescribed by the Division of Measurement Standards of the Oregon Department of Agriculture.

Manifest # A09 -03693 -070 04/23/99

Generator Site Information
KOPPERS TANK FOUNDATION EXCAVATION
7540 NW ST HELENS ROAD

PORTLAND, OR 97210 USA

Facility Information
TPS TECHNOLOGIES INC.
9333 N HARBORGATE STREET

PORTLAND, OR 97203 USA

				LBS	TONS	
0	IN --->	12:14:58pm	Gross Wt:	80,160	40.08	Manual Wt
0	OUT -->	12:18:46pm	Tare Wt:	32,020	16.01	Manual Wt
			NET WT:	48,140	24.07	

TRANSPORTER/DRIVER: LAUREN ADAMS

Weighmaster _____

Koppers016888

Manifest

TPS Technologies Soil Recycling

Non-Hazardous Soils

Manifest #

Date of Shipment:	Responsible for Payment:	Transporter Truck #:	Facility #:	Given by TPS:	Load #
	Contractor	Adams	A09	03693	9/9

Generator and/or Consultant

Generator's Name and Billing Address: KOPPERS INDUSTRIES, INC 7540 NW ST HELENS ROAD PORTLAND, OR 97210 USA	Generator's Phone #: (503) 286-2681 Person to Contact: AMOS KAMERER FAX #: (503) 285-2831	Generator's US EPA ID No. Customer Account Number with TPS: 9KOPPER
Consultant's Name and Billing Address: RM CAT ENVIRONMENTAL -- CONTRACTOR -- 12823 NE AIRPORT WAY PORTLAND, OR 97230 USA	Consultant's Phone #: (503) 408-8880 Person to Contact: BOB JANAK FAX #: (503) 408 8716	 Customer Account Number with TPS: 1003513
Generation Site (Transport from): *(name & address)* KOPPERS TANK FOUNDATION EXCAVATION 7540 NW ST HELENS ROAD PORTLAND, OR 97210 USA	Site Phone #: Person to Contact: FAX #:	BTEX Levels TPH Levels AVG. Levels
Designated Facility (Transport to): *(name & address)* TPS TECHNOLOGIES INC. 9333 N HARBORGATE STREET PORTLAND, OR 97203 USA	Facility Phone #: 503-735-9525 Person to Contact: GLENNA MULLAN FAX #: 503-240-1712	Facility Permit Numbers
Transporter Name and Mailing Address:	Transporter's Phone #: Person to Contact: FAX #:	Transporter's US EPA ID No.: Transporter's DOT No.: Customer Account Number with TPS:

Description of Soil	Moisture Content	Contaminated by:	Approx. Qty:	Description of Delivery	Gross Weight	Tare Weight	Net Weight
Sand ☐ Organic ☐ Clay ☐ Other ☐	0 - 10% ☐ 10 - 20% ☐ 20% - over ☐	Gas ☐ Diesel ☐ Other ☐			80160	32020	48140
Sand ☐ Organic ☐ Clay ☐ Other ☐	0 - 10% ☐ 10 - 20% ☐ 20% - over ☐	Gas ☐ Diesel ☐ Other ☐				24.07	

List any exception to items listed above:

Generator's and/or consultant's certification: I/We certify that the soil referenced herein is taken entirely from those soils described in the Soil Data Sheet completed and certified by me/us for the Generation Site shown above and nothing has been added or done to such soil that would alter it in any way.

Print or Type Name: Generator ☐ Consultant ☐	Signature and date:	Month	Day	Year
SIGNATURE ON FILE				

Transporter

Transporter's certification: I/We acknowledge receipt of the soil described above and certify that such soil is being delivered in exactly the same condition as when received. I/We further certify that this soil is being directly transported from the Generation Site to the Designated Facility without off-loading, adding to, subtracting from or in any way delaying delivery to such site.

Print or Type Name:	Signature and date:	Month	Day	Year
Lavien Adams	[signature]	9	23	99

Recycling Facility

Discrepancies:

Recycling Facility certifies the receipt of the soil covered by this manifest except as noted above:

Print or Type Name:	Signature and date:
GLENNA MULLAN	[signature] 4/23/99

Please print or type.

Koppers016889

TPST SOIL RECYCLERS OF OREGON

9333 N. Harborgate Street Portland, OR 97203

OR 011954

WEIGHMASTER CERTIFICATE – LICENSE #68636

THIS IS TO CERTIFY that the following described soil commodity was weighed, measured, or counted by a weighmaster, whose signature is on this certificate, as prescribed by the Division of Measurement Standards of the Oregon Department of Agriculture.

Manifest # A09 -03693 -071 04/23/99

Generator Site Information
KOPPERS TANK FOUNDATION EXCAVATION
7540 NW ST HELENS ROAD

PORTLAND, OR 97210 USA

Facility Information
TPS TECHNOLOGIES INC.
9333 N HARBORGATE STREET

PORTLAND, OR 97203 USA

				LBS	TONS	
0	IN --->	12:48:35pm	Gross Wt:	108,160	54.08	Manual Wt
0	OUT -->	12:52:35pm	Tare Wt:	38,960	19.48	Manual Wt
			NET WT:	69,200	34.60	

TRANSPORTER/DRIVER: CHARLES HECKMAN

Weighmaster _____

Koppers016890

Manifest

TPS Technologies Soil Recycling

Non-Hazardous Soils

Manifest #

Date of Shipment:	Responsible for Payment:	Transporter Truck #:	Facility #:	Given by TPS:	Load #
	Contractor	Heckman	A09	03693	9/4

Generator and/or Consultant

Generator's Name and Billing Address: KOPPERS INDUSTRIES, INC. 7540 NW ST HELENS ROAD PORTLAND, OR 97210 USA	Generator's Phone #: (503) 286-3681 Person to Contact: AMOS KAMERER FAX #: (503) 285-2831	Generator's US EPA ID No. Customer Account Number with TPS: 9KOPPER
Consultant's Name and Billing Address: RM CAT ENVIRONMENTAL -- CONTRACTOR -- 12823 NE AIRPORT WAY PORTLAND, OR 97230 USA	Consultant's Phone #: (503) 408-8880 Person to Contact: BOB JANAK FAX #: (503) 408-8716	 Customer Account Number with TPS: 1003513
Generation Site (Transport from): *(name & address)* KOPPERS TANK FOUNDATION EXCAVATION 7540 NW ST HELENS ROAD PORTLAND, OR 97210 USA	Site Phone #: Person to Contact: FAX #:	BTEX Levels TPH Levels AVG. Levels
Designated Facility (Transport to): *(name & address)* TPS TECHNOLOGIES INC. 9333 N HARBORGATE STREET PORTLAND, OR 97203 USA	Facility Phone #: 503-735-9525 Person to Contact: GLENNA MULLAN FAX #: 503-240-1712	Facility Permit Numbers
Transporter Name and Mailing Address:	Transporter's Phone #: Person to Contact: FAX #:	Transporter's US EPA ID No.: Transporter's DOT No.: Customer Account Number with TPS:

Description of Soil	Moisture Content	Contaminated by:	Approx. Qty:	Description of Delivery	Gross Weight	Tare Weight	Net Weight
Sand ☐ Organic ☐ Clay ☐ Other ☐	0 - 10% ☐ 10 - 20% ☐ 20% - over ☐	Gas ☐ Diesel ☐ Other ☐			108160	38960	69200
Sand ☐ Organic ☐ Clay ☐ Other ☐	0 - 10% ☐ 10 - 20% ☐ 20% - over ☐	Gas ☐ Diesel ☐ Other ☐				34.60	

List any exception to items listed above:

Generator's and/or consultant's certification: I/We certify that the soil referenced herein is taken entirely from those soils described in the Soil Data Sheet completed and certified by me/us for the Generation Site shown above and nothing has been added or done to such soil that would alter it in any way.

Print or Type Name: Generator ☐ Consultant ☐ SIGNATURE ON FILE

Signature and date: Month Day Year

Transporter

Transporter's certification: I/We acknowledge receipt of the soil described above and certify that such soil is being delivered in exactly the same condition as when received. I/We further certify that this soil is being directly transported from the Generation Site to the Designated Facility without off-loading, adding to, subtracting from or in any way delaying delivery to such site.

Print or Type Name: X Charles Heckman

Signature and date: X [signature]

Month Day Year

Recycling Facility

Discrepancies:

Recycling Facility certifies the receipt of the soil covered by this manifest except as noted above:

Print or Type Name: GLENNA MULLAN

Signature and date: [signature] 4/23/99

Please print or type.

Koppers016891

TPST SOIL RECYCLERS OF OREGON

9333 N. Harborgate Street Portland, OR 97203

OR 011955

WEIGHMASTER CERTIFICATE – LICENSE #68636

THIS IS TO CERTIFY that the following described soil commodity was weighed, measured, or counted by a weighmaster, whose signature is on this certificate, as prescribed by the Division of Measurement Standards of the Oregon Department of Agriculture.

Manifest # A09 -03693 -072 04/23/99

Generator Site Information	Facility Information
KOPPERS TANK FOUNDATION EXCAVATION	TPS TECHNOLOGIES INC.
7540 NW ST HELENS ROAD	9333 N HARBORGATE STREET
PORTLAND, OR 97210 USA	PORTLAND, OR 97203 USA

				LBS	TONS	
0	IN --->	12:54:28pm	Gross Wt:	76,760	38.38	Manual Wt
0	OUT -->	01:01:23pm	Tare Wt:	36,900	18.45	Manual Wt
			NET WT:	39,860	19.93	

TRANSPORTER/DRIVER: HECKMAN/JAMES WOLFE

Weighmaster

Koppers016892

Manifest

TPS Technologies Soil Recycling

Non-Hazardous Soils

↓ Manifest # ↓

Date of Shipment:	Responsible for Payment:	Transporter Truck #:	Facility #:	Given by TPS:	Load #
	Contractor	Heck Mak	A09	03693	9/4

Generator and/or Consultant

Generator's Name and Billing Address: KOPPERS INDUSTRIES, INC 7540 NW ST HELENS ROAD PORTLAND, OR 97210 USA	Generator's Phone #: (503) 286-3881 Person to Contact: AMOS KAMERER FAX #: (503) 285-2831	Generator's US EPA ID No. Customer Account Number with TPS: 9KOPPER
Consultant's Name and Billing Address: RM CAT ENVIRONMENTAL -- CONTRACTOR -- 12823 NE AIRPORT WAY PORTLAND, OR 97230 USA	Consultant's Phone #: (503) 408-8880 Person to Contact: BOB JANAK FAX #: (503) 408-8-16	 Customer Account Number with TPS: 1003513
Generation Site (Transport from): *(name & address)* KOPPERS TANK FOUNDATION EXCAVATION 7540 NW ST HELENS ROAD PORTLAND, OR 97210 USA	Site Phone #: Person to Contact: FAX #:	BTEX Levels TPH Levels AVG. Levels
Designated Facility (Transport to): *(name & address)* TPS TECHNOLOGIES INC 9333 N HARBORGATE STREET PORTLAND, OR 97203 USA	Facility Phone #: 503-735-9525 Person to Contact: GLENNA MULLAN FAX #: 503-240-1712	Facility Permit Numbers
Transporter Name and Mailing Address:	Transporter's Phone #: Person to Contact: FAX #:	Transporter's US EPA ID No.: Transporter's DOT No.: Customer Account Number with TPS:

Description of Soil	Moisture Content	Contaminated by:	Approx. Qty:	Description of Delivery	Gross Weight	Tare Weight	Net Weight
Sand ☐ Organic ☐ Clay ☐ Other ☐	0 - 10% ☐ 10 - 20% ☐ 20% - over ☐	Gas ☐ Diesel ☐ Other ☐			76760	36900	39860
Sand ☐ Organic ☐ Clay ☐ Other ☐	0 - 10% ☐ 10 - 20% ☐ 20% - over ☐	Gas ☐ Diesel ☐ Other ☐				19.93	

List any exception to items listed above:

Generator's and/or consultant's certification: I/We certify that the soil referenced herein is taken entirely from those soils described in the Soil Data Sheet completed and certified by me/us for the Generation Site shown above and nothing has been added or done to such soil that would alter it in any way.

Print or Type Name: Generator ☐ Consultant ☐	Signature and date:	Month	Day	Year
SIGNATURE ON FILE				

Transporter

Transporter's certification: I/We acknowledge receipt of the soil described above and certify that such soil is being delivered in exactly the same condition as when received. I/We further certify that this soil is being directly transported from the Generation Site to the Designated Facility without off-loading, adding to, subtracting from or in any way delaying delivery to such site.

Print or Type Name:	Signature and date:	Month	Day	Year
X James Wolfe	X James Wolfe			

Recycling Facility

Discrepancies:

Recycling Facility certifies the receipt of the soil covered by this manifest except as noted above:

Print or Type Name:	Signature and date:
GLENNA MULLAN	Glenna Mullan 4/23/99

Please print or type.

GENERATOR'S COPY

Koppers016893

TPST SOIL RECYCLERS OF OREGON

9333 N. Harborgate Street Portland, OR 97203

OR 011956

WEIGHMASTER CERTIFICATE – LICENSE #68636

THIS IS TO CERTIFY that the following described soil commodity was weighed, measured, or counted by a weighmaster, whose signature is on this certificate, as prescribed by the Division of Measurement Standards of the Oregon Department of Agriculture.

Manifest # A09 -03693 -073 04/23/99

Generator Site Information
KOPPERS TANK FOUNDATION EXCAVATION
7540 NW ST HELENS ROAD

PORTLAND, OR 97210 USA

Facility Information
TPS TECHNOLOGIES INC.
9333 N HARBORGATE STREET

PORTLAND, OR 97203 USA

0 IN ---> 01:02:14pm

0 OUT --> 01:04:56pm

	LBS	TONS	
Gross Wt:	78,240	39.12	Manual Wt
Tare Wt:	32,000	16.00	Manual Wt
NET WT:	46,240	23.12	

TRANSPORTER/DRIVER: LAUREN ADAMS

Weighmaster _____

Koppers016894

Manifest

TPS Technologies Soil Recycling

Non-Hazardous Soils

Manifest #

Date of Shipment:	Responsible for Payment:	Transporter Truck #:	Facility #:	Given by TPS:	Load #
	CONTRACTOR	ADAMS	A09	03693	9/3

Generator and/or Consultant

Generator's Name and Billing Address:	Generator's Phone #:	Generator's US EPA ID No.
KOPPERS INDUSTRIES, INC 7540 NW ST HELENS ROAD PORTLAND, OR 97210 USA	(503) 285-7281	
	Person to Contact: AMOS KAMERER	
	FAX #: (503) 285-7851	Customer Account Number with TPS: KOPPER

Consultant's Name and Billing Address:	Consultant's Phone #:	
RM CAT ENVIRONMENTAL -- CONTRACTOR -- 12823 NE AIRPORT WAY PORTLAND, OR 97230 USA	(503) 493-8880	
	Person to Contact: BOB JANAK	
	FAX #: (503) 493-8710	Customer Account Number with TPS: 100151

Generation Site (Transport from): *(name & address)*	Site Phone #:	BTEX Levels
KOPPERS TANK FOUNDATION EXCAVATION 7540 NW ST HELENS ROAD PORTLAND, OR 97219 USA	Person to Contact:	TPH Levels
	FAX #:	AVG. Levels

Designated Facility (Transport to): *(name & address)*	Facility Phone #:	Facility Permit Numbers
TPS TECHNOLOGIES INC. 9333 N HARBORGATE STREET PORTLAND, OR 97203 USA	503-735-9575	
	Person to Contact: GLENNA MULLAN	
	FAX #: 503-240-1717	

Transporter Name and Mailing Address:	Transporter's Phone #:	Transporter's US EPA ID No.:
	Person to Contact:	Transporter's DOT No.:
	FAX #:	Customer Account Number with TPS:

Description of Soil	Moisture Content	Contaminated by:	Approx. Qty:	Description of Delivery	Gross Weight	Tare Weight	Net Weight
Sand ☐ Organic ☐ Clay ☐ Other ☐	0 - 10% ☐ 10 - 20% ☐ 20% - over ☐	Gas ☐ Diesel ☐ Other ☐			75340	32000	43340
Sand ☐ Organic ☐ Clay ☐ Other ☐	0 - 10% ☐ 10 - 20% ☐ 20% - over ☐	Gas ☐ Diesel ☐ Other ☐				23.17	

List any exception to items listed above:

Generator's and/or consultant's certification: I/We certify that the soil referenced herein is taken entirely from those soils described in the Soil Data Sheet completed and certified by me/us for the Generation Site shown above and nothing has been added or done to such soil that would alter it in any way.

Print or Type Name: Generator ☐ Consultant ☐	Signature and date:	Month	Day	Year
SIGNATURE ON FILE				

Transporter

Transporter's certification: I/We acknowledge receipt of the soil described above and certify that such soil is being delivered in exactly the same condition as when received. I/We further certify that this soil is being directly transported from the Generation Site to the Designated Facility without off-loading, adding to, subtracting from or in any way delaying delivery to such site.

Print or Type Name:	Signature and date:	Month	Day	Year
X Lauren Adams	X Lauren Adams	9	23	99

Recycling Facility

Discrepancies:

Recycling Facility certifies the receipt of the soil covered by this manifest except as noted above:

Print or Type Name:	Signature and date:
GLENNA MULLAN	9/23/99

Please print or type.

TPST SOIL RECYCLERS OF OREGON

9333 N. Harborgate Street Portland, OR 97203

OR 011957

WEIGHMASTER CERTIFICATE – LICENSE #68636

THIS IS TO CERTIFY that the following described soil commodity was weighed, measured, or counted by a weighmaster, whose signature is on this certificate, as prescribed by the Division of Measurement Standards of the Oregon Department of Agriculture.

Manifest # A09 -03693 -074 04/23/99

Generator Site Information

KOPPERS TANK FOUNDATION EXCAVATION
7540 NW ST HELENS ROAD

PORTLAND, OR 97210 USA

Facility Information

TPS TECHNOLOGIES INC.
9333 N HARBORGATE STREET

PORTLAND, OR 97203 USA

				LBS	TONS	
0	IN --->	01:43:56pm	Gross Wt:	105,120	52.56	Manual Wt
0	OUT -->	01:47:34pm	Tare Wt:	38,740	19.37	Manual Wt
			NET WT:	66,380	33.19	

TRANSPORTER/DRIVER: CHARLES HECKMAN

Weighmaster

Koppers016896

Manifest

TPS Technologies Soil Recycling
Non-Hazardous Soils

Manifest #

Date of Shipment:	Responsible for Payment:	Transporter Truck #:	Facility #:	Given by TPS:	Load #
	Contractor	Heckman	A09	03693	0/4

Generator and/or Consultant

Generator's Name and Billing Address: KOPPERS INDUSTRIES INC 7540 NW ST HELENS ROAD PORTLAND, OR 97210 USA	Generator's Phone #: (503) 286-3681 Person to Contact: AMOS KAMEREE FAX #: (503) 285-2831	Generator's US EPA ID No. Customer Account Number with TPS: 9KOPPER
Consultant's Name and Billing Address: RM CAT ENVIRONMENTAL -- CONTRACTOR -- 12823 NE AIRPORT WAY PORTLAND, OR 97230 USA	Consultant's Phone #: (503) 408-8880 Person to Contact: BOB JANAK FAX #: (503) 408-8716	Customer Account Number with TPS: 1003513
Generation Site (Transport from): *(name & address)* KOPPERS TANK FOUNDATION EXCAVATION 7540 NW ST HELENS ROAD PORTLAND, OR 97210 USA	Site Phone #: Person to Contact: FAX #:	BTEX Levels TPH Levels AVG. Levels
Designated Facility (Transport to): *(name & address)* TPS TECHNOLOGIES INC 9333 N HARBORGATE STREET PORTLAND, OR 97203 USA	Facility Phone #: 503-735-9525 Person to Contact: GLENNA MULLAN FAX #: 503-240-1712	Facility Permit Numbers
Transporter Name and Mailing Address:	Transporter's Phone #: Person to Contact: FAX #:	Transporter's US EPA ID No.: Transporter's DOT No.: Customer Account Number with TPS:

Description of Soil	Moisture Content	Contaminated by:	Approx. Qty:	Description of Delivery	Gross Weight	Tare Weight	Net Weight
Sand ☐ Organic ☐ Clay ☐ Other ☐	0 - 10% ☐ 10 - 20% ☐ 20% - over ☐	Gas ☐ Diesel ☐ Other ☐			105120	38740	66380
Sand ☐ Organic ☐ Clay ☐ Other ☐	0 - 10% ☐ 10 - 20% ☐ 20% - over ☐	Gas ☐ Diesel ☐ Other ☐				33.19	

List any exception to items listed above:

Generator's and/or consultant's certification: I/We certify that the soil referenced herein is taken entirely from those soils described in the Soil Data Sheet completed and certified by me/us for the Generation Site shown above and nothing has been added or done to such soil that would alter it in any way.

Print or Type Name: Generator ☐ Consultant ☐ SIGNATURE ON FILE | Signature and date: | Month | Day | Year

Transporter

Transporter's certification: I/We acknowledge receipt of the soil described above and certify that such soil is being delivered in exactly the same condition as when received. I/We further certify that this soil is being directly transported from the Generation Site to the Designated Facility without off-loading, adding to, subtracting from or in any way delaying delivery to such site.

Print or Type Name: Charles Heckman | Signature and date: [signature] | Month | Day | Year

Recycling Facility

Discrepancies:

Recycling Facility certifies the receipt of the soil covered by this manifest except as noted above:

Print or Type Name: GLENNA MULLAN | Signature and date: [signature] 4/23/99

Please print or type.

Koppers016897

TPST SOIL RECYCLERS OF OREGON

9333 N. Harborgate Street Portland, OR 97203

OR 011958

WEIGHMASTER CERTIFICATE – LICENSE #68636

THIS IS TO CERTIFY that the following described soil commodity was weighed, measured, or counted by a weighmaster, whose signature is on this certificate, as prescribed by the Division of Measurement Standards of the Oregon Department of Agriculture.

Manifest # A09 -03693 -075 04/23/99

Generator Site Information	Facility Information
KOPPERS TANK FOUNDATION EXCAVATION	TPS TECHNOLOGIES INC.
7540 NW ST HELENS ROAD	9333 N HARBORGATE STREET
PORTLAND, OR 97210 USA	PORTLAND, OR 97203 USA

				LBS	TONS	
0	IN --->	01:45:32pm	Gross Wt:	82,620	41.31	Manual Wt
0	OUT -->	01:51:36pm	Tare Wt:	36,940	18.47	Manual Wt
			NET WT:	45,680	22.84	

TRANSPORTER/DRIVER: HECKMAN/JAMES WOLFE

Weighmaster

Koppers016898

Manifest

TPS Technologies Soil Recycling

Non-Hazardous Soils

↓ Manifest # ↓

Generator and/or Consultant

Date or Shipment:	Responsible for Payment:	Transporter Truck #:	Facility #:	Given by TPS:	Load #
	Contractor	Heckman	A09	03693	975

Generator's Name and Billing Address: KOPPERS INDUSTRIES INC 7540 NW ST HELENS ROAD PORTLAND, OR 97210 USA	Generator's Phone #: (503) 286-3681 Person to Contact: AMOS KAMERER FAX #: (503) 285-2831	Generator's US EPA ID No. Customer Account Number with TPS: 0KOPPER
Consultant's Name and Billing Address: RM CAT ENVIRONMENTAL -- CONTRACTOR -- 12823 NE AIRPORT WAY PORTLAND, OR 97230 USA	Consultant's Phone #: (503) 408-8880 Person to Contact: BOB JANAK FAX #: (503) 408-8[illegible]	 Customer Account Number with TPS: 1003513
Generation Site (Transport from): *(name & address)* KOPPERS TANK FOUNDATION EXCAVATION 7540 NW ST HELENS ROAD PORTLAND, OR 97210 USA	Site Phone #: Person to Contact: FAX #:	BTEX Levels TPH Levels AVG. Levels
Designated Facility (Transport to): *(name & address)* TPS TECHNOLOGIES INC 9333 N HARBORGATE STREET PORTLAND, OR 97203 USA	Facility Phone #: 503-735-9525 Person to Contact: GLENNA MULLAN FAX #: 503-240-1712	Facility Permit Numbers
Transporter Name and Mailing Address:	Transporter's Phone #: Person to Contact: FAX #:	Transporter's US EPA ID No.: Transporter's DOT No.: Customer Account Number with TPS:

Description of Soil	Moisture Content	Contaminated by:	Approx. Qty:	Description of Delivery	Gross Weight	Tare Weight	Net Weight
Sand ☐ Organic ☐ Clay ☐ Other ☐	0 - 10% ☐ 10 - 20% ☐ 20% - over ☐	Gas ☐ Diesel ☐ Other ☐			82620	36940	45680
Sand ☐ Organic ☐ Clay ☐ Other ☐	0 - 10% ☐ 10 - 20% ☐ 20% - over ☐	Gas ☐ Diesel ☐ Other ☐				22.54	

List any exception to items listed above:

Generator's and/or consultant's certification: I/We certify that the soil referenced herein is taken entirely from those soils described in the Soil Data Sheet completed and certified by me/us for the Generation Site shown above and nothing has been added or done to such soil that would alter it in any way.

Print or Type Name: Generator ☐ Consultant ☐	Signature and date:	Month	Day	Year
SIGNATURE ON FILE				

Transporter

Transporter's certification: I/We acknowledge receipt of the soil described above and certify that such soil is being delivered in exactly the same condition as when received. I/We further certify that this soil is being directly transported from the Generation Site to the Designated Facility without off-loading, adding to, subtracting from or in any way delaying delivery to such site.

Print or Type Name:	Signature and date:	Month	Day	Year
X James Wolde	X James Wolde			

Recycling Facility

Discrepancies:

Recycling Facility certifies the receipt of the soil covered by this manifest except as noted above:

Print or Type Name:	Signature and date:
GLENNA MULLAN	[signature] 4/23/99

Please print or type.

Koppers016899

TPST SOIL RECYCLERS OF OREGON

9333 N. Harborgate Street Portland, OR 97203

OR 011959

WEIGHMASTER CERTIFICATE – LICENSE #68636

THIS IS TO CERTIFY that the following described soil commodity was weighed, measured, or counted by a weighmaster, whose signature is on this certificate, as prescribed by the Division of Measurement Standards of the Oregon Department of Agriculture.

Manifest # A09 -03693 -076 04/23/99

Generator Site Information

KOPPERS TANK FOUNDATION EXCAVATION
7540 NW ST HELENS ROAD

PORTLAND, OR 97210 USA

Facility Information

TPS TECHNOLOGIES INC.
9333 N HARBORGATE STREET

PORTLAND, OR 97203 USA

				LBS	TONS	
0	IN --->	01:46:43pm	Gross Wt:	78,800	39.40	Manual Wt
0	OUT -->	01:53:49pm	Tare Wt:	31,960	15.98	Manual Wt
			NET WT:	46,840	23.42	

TRANSPORTER/DRIVER: LAUREN ADAMS

Weighmaster

Koppers016900

Manifest

TPS Technologies Soil Recycling
Non-Hazardous Soils

Manifest #

Date of Shipment:	Responsible for Payment:	Transporter Truck #:	Facility #:	Given by TPS:	Load #
	Contractor	Adams	A09	03693	9/9

Generator and/or Consultant

Generator's Name and Billing Address: KOPPERS INDUSTRIES, INC 7540 NW ST HELENS ROAD PORTLAND, OR 97210 USA	Generator's Phone #: (503) 285-2831 Person to Contact: AMOS KAMERER FAX #: (503) 285-2831	Generator's US EPA ID No. Customer Account Number with TPS: 9KOPPER
Consultant's Name and Billing Address: RM CAT ENVIRONMENTAL -- CONTRACTOR -- 12823 NE AIRPORT WAY PORTLAND, OR 97230 USA	Consultant's Phone #: (503) 408-8880 Person to Contact: BOB JANAK FAX #: (503) 408-8716	 Customer Account Number with TPS: 1003513
Generation Site (Transport from): *(name & address)* KOPPERS TANK FOUNDATION EXCAVATION 7540 NW ST HELENS ROAD PORTLAND, OR 97210 USA	Site Phone #: Person to Contact: FAX #:	BTEX Levels TPH Levels AVG. Levels
Designated Facility (Transport to): *(name & address)* TPS TECHNOLOGIES INC. 9333 N HARBORGATE STREET PORTLAND, OR 97203 USA	Facility Phone #: 503-735-9575 Person to Contact: GLENNA MULLAN FAX #: 503-240-1712	Facility Permit Numbers
Transporter Name and Mailing Address:	Transporter's Phone #: Person to Contact: FAX #:	Transporter's US EPA ID No.: Transporter's DOT No.: Customer Account Number with TPS:

Description of Soil	Moisture Content	Contaminated by:	Approx. Qty:	Description of Delivery	Gross Weight	Tare Weight	Net Weight
Sand ☐ Organic ☐ Clay ☐ Other ☐	0 - 10% ☐ 10 - 20% ☐ 20% - over ☐	Gas ☐ Diesel ☐ Other ☐			78800	31960	46840
Sand ☐ Organic ☐ Clay ☐ Other ☐	0 - 10% ☐ 10 - 20% ☐ 20% - over ☐	Gas ☐ Diesel ☐ Other ☐				23.42	

List any exception to items listed above:

Generator's and/or consultant's certification: I/We certify that the soil referenced herein is taken entirely from those soils described in the Soil Data Sheet completed and certified by me/us for the Generation Site shown above and nothing has been added or done to such soil that would alter it in any way.

Print or Type Name: Generator ☐ Consultant ☐	Signature and date:	Month	Day	Year
SIGNATURE ON FILE				

Transporter

Transporter's certification: I/We acknowledge receipt of the soil described above and certify that such soil is being delivered in exactly the same condition as when received. I/We further certify that this soil is being directly transported from the Generation Site to the Designated Facility without off-loading, adding to, subtracting from or in any way delaying delivery to such site.

Print or Type Name:	Signature and date:	Month	Day	Year
Lauren Adams	[signature]	4	23	99

Recycling Facility

Discrepancies:

Recycling Facility certifies the receipt of the soil covered by this manifest except as noted above:

Print or Type Name:	Signature and date:
GLENNA MULLAN	[signature] 4/23/99

Please print or type:

TPST SOIL RECYCLERS OF OREGON

9333 N. Harborgate Street Portland, OR 97203

OR 011961

WEIGHMASTER CERTIFICATE – LICENSE #68636

THIS IS TO CERTIFY that the following described soil commodity was weighed, measured, or counted by a weighmaster, whose signature is on this certificate, as prescribed by the Division of Measurement Standards of the Oregon Department of Agriculture.

Manifest # A09 -03693 -077 04/23/99

Generator Site Information

KOPPERS TANK FOUNDATION EXCAVATION
7540 NW ST HELENS ROAD

PORTLAND, OR 97210 USA

Facility Information

TPS TECHNOLOGIES INC.
9333 N HARBORGATE STREET

PORTLAND, OR 97203 USA

				LBS	TONS	
0	IN --->	02:37:47pm	Gross Wt:	97,640	48.82	Manual Wt
0	OUT -->	02:41:09pm	Tare Wt:	38,900	19.45	Manual Wt
			NET WT:	58,740	29.37	

TRANSPORTER/DRIVER: CHARLES HECKMAN

Weighmaster

Koppers016902

Manifest

TPS Technologies Soil Recycling
Non-Hazardous Soils

Manifest #

Date of Shipment:	Responsible for Payment:	Transporter Truck #:	Facility #:	Given by TPS:	Load #
	Contractor	[illegible]	099	03693	077

Generator and/or Consultant

Generator's Name and Billing Address: KOPPERS INDUSTRIES, INC 7540 NW ST HELENS ROAD PORTLAND, OR 97210 USA	Generator's Phone #: (503) 280-1601 Person to Contact: AMOS KAMPSEN FAX #: (503) 285-2821	Generator's US EPA ID No. Customer Account Number with TPS: 9KOPPER
Consultant's Name and Billing Address: RM CAT ENVIRONMENTAL -- CONTRACTOR -- 12823 NE AIRPORT WAY PORTLAND, OR 97230 USA	Consultant's Phone #: (503) 408-8880 Person to Contact: BOB JANAK FAX #: (503) 408-8715	 Customer Account Number with TPS: L09351
Generation Site (Transport from): *(name & address)* KOPPERS TANK FOUNDATION EXCAVATION 7540 NW ST HELENS ROAD PORTLAND, OR 97210 USA	Site Phone #: Person to Contact: FAX #:	BTEX Levels TPH Levels AVG. Levels
Designated Facility (Transport to): *(name & address)* TPS TECHNOLOGIES INC. 9333 N HARBORGATE STREET PORTLAND, OR 97203 USA	Facility Phone #: 503-735-9525 Person to Contact: GLENNA MULLAN FAX #: 503-240-1712	Facility Permit Numbers
Transporter Name and Mailing Address:	Transporter's Phone #: Person to Contact: FAX #:	Transporter's US EPA ID No.: Transporter's DOT No.: Customer Account Number with TPS:

Description of Soil	Moisture Content	Contaminated by:	Approx. Qty:	Description of Delivery	Gross Weight	Tare Weight	Net Weight
Sand ☐ Organic ☐ Clay ☐ Other ☐	0 - 10% ☐ 10 - 20% ☐ 20% - over ☐	Gas ☐ Diesel ☐ Other ☐			47640	23960	23740
Sand ☐ Organic ☐ Clay ☐ Other ☐	0 - 10% ☐ 10 - 20% ☐ 20% - over ☐	Gas ☐ Diesel ☐ Other ☐				29.37	

List any exception to items listed above:

Generator's and/or consultant's certification: I/We certify that the soil referenced herein is taken entirely from those soils described in the Soil Data Sheet completed and certified by me/us for the Generation Site shown above and nothing has been added or done to such soil that would alter it in any way.

Print or Type Name: Generator ☐ Consultant ☐	Signature and date:	Month	Day	Year
SIGNATURE ON FILE				

Transporter

Transporter's certification: I/We acknowledge receipt of the soil described above and certify that such soil is being delivered in exactly the same condition as when received. I/We further certify that this soil is being directly transported from the Generation Site to the Designated Facility without off-loading, adding to, subtracting from or in any way delaying delivery to such site.

Print or Type Name:	Signature and date:	Month	Day	Year
X [illegible]	X [illegible]			

Recycling Facility

Discrepancies:

Recycling Facility certifies the receipt of the soil covered by this manifest except as noted above:

Print or Type Name:	Signature and date:
GLENNA MULLAN	[illegible] 4-22-99

Please print or type.

Koppers016903

TPST SOIL RECYCLERS OF OREGON

9333 N. Harborgate Street Portland, OR 97203

OR 011962

WEIGHMASTER CERTIFICATE – LICENSE #68636

THIS IS TO CERTIFY that the following described soil commodity was weighed, measured, or counted by a weighmaster, whose signature is on this certificate, as prescribed by the Division of Measurement Standards of the Oregon Department of Agriculture.

Manifest # A09 -03693 -078 04/23/99

Generator Site Information	Facility Information
KOPPERS TANK FOUNDATION EXCAVATION	TPS TECHNOLOGIES INC.
7540 NW ST HELENS ROAD	9333 N HARBORGATE STREET
PORTLAND, OR 97210 USA	PORTLAND, OR 97203 USA

				LBS	TONS	
0	IN --->	03:07:39pm	Gross Wt:	82,540	41.27	Manual Wt
0	OUT -->	03:11:27pm	Tare Wt:	31,940	15.97	Manual Wt
			NET WT:	50,600	25.30	

TRANSPORTER/DRIVER: LAUREN ADAMS

Weighmaster

Koppers016904

Manifest

TPS Technologies Soil Recycling
Non-Hazardous Soils

Manifest #

Generator and/or Consultant

Date of Shipment:	Responsible for Payment:	Transporter Truck #:	Facility #:	Given by TPS:	Load #
	CONTRACTOR	1 WAMM	A03	03543	6 / 8

Generator's Name and Billing Address:	Generator's Phone #:	Generator's US EPA ID No.
KOPPERS INDUSTRIES INC 7540 NW ST HELENS ROAD PORTLAND, OR 97210 USA	(503) 286-3861	
	Person to Contact: AMOS FAMEREE	
	FAX #: (503) 285-2831	Customer Account Number with TPS: KOPPER

Consultant's Name and Billing Address:	Consultant's Phone #:	
RM CAT ENVIRONMENTAL - CONTRACTOR - 12823 NE AIRPORT WAY PORTLAND, OR 97230 USA	(503) 408-8800	
	Person to Contact: BOB JANAE	
	FAX #: (503) 408-8810	Customer Account Number with TPS: 100 0513

Generation Site (Transport from): *(name & address)*	Site Phone #:	BTEX Levels
KOPPERS TANK FOUNDATION EXCAVATION 7540 NW ST HELENS ROAD PORTLAND, OR 97210 USA	Person to Contact:	TPH Levels
	FAX #:	AVG. Levels

Designated Facility (Transport to): *(name & address)*	Facility Phone #:	Facility Permit Numbers
TPS TECHNOLOGIES INC 9333 N HARBORGATE STREET PORTLAND, OR 97203 USA	503-735-9525	
	Person to Contact: GLENNA MULLAN	
	FAX #: 503-240-1212	

Transporter Name and Mailing Address:	Transporter's Phone #:	Transporter's US EPA ID No.:
	Person to Contact:	Transporter's DOT No.:
	FAX #:	Customer Account Number with TPS:

Description of Soil	Moisture Content	Contaminated by:	Approx. Qty:	Description of Delivery	Gross Weight	Tare Weight	Net Weight
Sand ☐ Organic ☐ Clay ☐ Other ☐	0 - 10% ☐ 10 - 20% ☐ 20% - over ☐	Gas ☐ Diesel ☐ Other ☐			72540	39405	33135
Sand ☐ Organic ☐ Clay ☐ Other ☐	0 - 10% ☐ 10 - 20% ☐ 20% - over ☐	Gas ☐ Diesel ☐ Other ☐				35.30	

List any exception to items listed above:

Generator's and/or consultant's certification: I/We certify that the soil referenced herein is taken entirely from those soils described in the Soil Data Sheet completed and certified by me/us for the Generation Site shown above and nothing has been added or done to such soil that would alter it in any way.

Print or Type Name: Generator ☐ Consultant ☐	Signature and date:	Month	Day	Year
SIGNATURE ON FILE				

Transporter

Transporter's certification: I/We acknowledge receipt of the soil described above and certify that such soil is being delivered in exactly the same condition as when received. I/We further certify that this soil is being directly transported from the Generation Site to the Designated Facility without off-loading, adding to, subtracting from or in any way delaying delivery to such site.

Print or Type Name:	Signature and date:	Month	Day	Year
X Lawrence Adams	X Lawrence Adams			

Recycling Facility

Discrepancies:

Recycling Facility certifies the receipt of the soil covered by this manifest except as noted above:

Print or Type Name:	Signature and date:
GLENNA MULLAN	Glenna Mullan 4/22/99

Please print or type.

GENERATOR'S COPY

TPST SOIL RECYCLERS OF OREGON

9333 N. Harborgate Street Portland, OR 97203

OR 011963

WEIGHMASTER CERTIFICATE – LICENSE #68636

THIS IS TO CERTIFY that the following described soil commodity was weighed, measured, or counted by a weighmaster, whose signature is on this certificate, as prescribed by the Division of Measurement Standards of the Oregon Department of Agriculture.

Manifest # A09 -03693 -079 04/23/99

Generator Site Information

KOPPERS TANK FOUNDATION EXCAVATION
7540 NW ST HELENS ROAD

PORTLAND, OR 97210 USA

Facility Information

TPS TECHNOLOGIES INC.
9333 N HARBORGATE STREET

PORTLAND, OR 97203 USA

				LBS	TONS	
0	IN --->	03:35:20pm	Gross Wt:	107,340	53.67	Manual Wt
0	OUT -->	03:38:41pm	Tare Wt:	38,840	19.42	Manual Wt
			NET WT:	68,500	34.25	

TRANSPORTER/DRIVER: CHARLES HECKMAN

Weighmaster

Koppers016906

TPS Technologies Soil Recycling

Non-Hazardous Soils

Manifest | **Manifest #**

Date of Shipment:	Responsible for Payment:	Transporter Truck #:	Facility #:	Given by TPS:	Load #
	Contractor	Heckman	A09	03693	079

Generator and/or Consultant

Generator's Name and Billing Address: KOPPERS INDUSTRIES, INC. 7540 NW ST HELENS ROAD PORTLAND, OR 97210 USA	Generator's Phone #: (503) 286-3681 Person to Contact: AMOS KAMERER FAX #: (503) 285-2831	Generator's US EPA ID No. Customer Account Number with TPS: 9KOPPER
Consultant's Name and Billing Address: RM CAT ENVIRONMENTAL -- CONTRACTOR -- 12823 NE AIRPORT WAY PORTLAND, OR 97230 USA	Consultant's Phone #: (503) 408-8880 Person to Contact: BOB JANAK FAX #: (503) 408-8716	 Customer Account Number with TPS: 1003513
Generation Site (Transport from): *(name & address)* KOPPERS TANK FOUNDATION EXCAVATION 7540 NW ST HELENS ROAD PORTLAND, OR 97210 USA	Site Phone #: Person to Contact: FAX #:	BTEX Levels TPH Levels AVG. Levels
Designated Facility (Transport to): *(name & address)* TPS TECHNOLOGIES INC. 9333 N HARBORGATE STREET PORTLAND, OR 97203 USA	Facility Phone #: 503-735-9525 Person to Contact: GLENNA MULLAN FAX #: 503-240-1712	Facility Permit Numbers
Transporter Name and Mailing Address:	Transporter's Phone #: Person to Contact: FAX #:	Transporter's US EPA ID No.: Transporter's DOT No.: Customer Account Number with TPS:

Description of Soil	Moisture Content	Contaminated by:	Approx. Qty:	Description of Delivery	Gross Weight	Tare Weight	Net Weight
Sand ☐ Organic ☐ Clay ☐ Other ☐	0 - 10% ☐ 10 - 20% ☐ 20% - over ☐	Gas ☐ Diesel ☐ Other ☐			107340	38840	68500
Sand ☐ Organic ☐ Clay ☐ Other ☐	0 - 10% ☐ 10 - 20% ☐ 20% - over ☐	Gas ☐ Diesel ☐ Other ☐				34.25	

List any exception to items listed above:

Generator's and/or consultant's certification: I/We certify that the soil referenced herein is taken entirely from those soils described in the Soil Data Sheet completed and certified by me/us for the Generation Site shown above and nothing has been added or done to such soil that would alter it in any way.

Print or Type Name: Generator ☐ Consultant ☐ SIGNATURE ON FILE | Signature and date: | Month | Day | Year

Transporter

Transporter's certification: I/We acknowledge receipt of the soil described above and certify that such soil is being delivered in exactly the same condition as when received. I/We further certify that this soil is being directly transported from the Generation Site to the Designated Facility without off-loading, adding to, subtracting from or in any way delaying delivery to such site.

Print or Type Name: X Charles Heckman | Signature and date: X [signature] | Month | Day | Year

Recycling Facility

Discrepancies:

Recycling Facility certifies the receipt of the soil covered by this manifest except as noted above:

Print or Type Name: GLENNA MULLAN | Signature and date: Glenna Mullan 4/23/99

Please print or type.

GENERATOR'S FILE COPY

TPST SOIL RECYCLERS OF OREGON

9333 N. Harborgate Street Portland, OR 97203

OR 011964

WEIGHMASTER CERTIFICATE – LICENSE #68636

THIS IS TO CERTIFY that the following described soil commodity was weighed, measured, or counted by a weighmaster, whose signature is on this certificate, as prescribed by the Division of Measurement Standards of the Oregon Department of Agriculture.

Manifest # A09 -03693 -080 04/23/99

Generator Site Information	Facility Information
KOPPERS TANK FOUNDATION EXCAVATION	TPS TECHNOLOGIES INC.
7540 NW ST HELENS ROAD	9333 N HARBORGATE STREET
PORTLAND, OR 97210 USA	PORTLAND, OR 97203 USA

				LBS	TONS	
0	IN --->	03:50:00pm	Gross Wt:	75,300	37.65	Manual Wt
0	OUT -->	03:53:20pm	Tare Wt:	31,900	15.95	Manual Wt
			NET WT:	43,400	21.70	

TRANSPORTER/DRIVER: LAUREN ADAMS

Weighmaster _____

Koppers016908

Manifest

TPS Technologies Soil Recycling
Non-Hazardous Soils

Manifest #

Date of Shipment:	Responsible for Payment:	Transporter Truck #:	Facility #:	Given by TPS:	Load #
	Contractor	Adams	009	03693	004

Generator and/or Consultant

Generator's Name and Billing Address:	Generator's Phone #:	Generator's US EPA ID No.
KOPPERS INDUSTRIES, INC. 7540 NW ST HELENS ROAD PORTLAND, OR 97210 USA	(503) 285-2631 Person to Contact: AMOS KAMERER FAX #: (503) 285-2811	Customer Account Number with TPS: KOPPER
Consultant's Name and Billing Address:	**Consultant's Phone #:**	
RM-CAT ENVIRONMENTAL -- CONTRACTOR -- 12823 NE AIRPORT WAY PORTLAND, OR 97230 USA	(503) 408-8888 Person to Contact: BOB JANAK FAX #: (503) 408-8716	Customer Account Number with TPS: 100165L3
Generation Site (Transport from): *(name & address)*	**Site Phone #:**	BTEX Levels
KOPPERS TANK FOUNDATION EXCAVATION 7540 NW ST HELENS ROAD PORTLAND, OR 97210 USA	Person to Contact: FAX #:	TPH Levels AVG. Levels
Designated Facility (Transport to): *(name & address)*	**Facility Phone #:** 503-735-9575	Facility Permit Numbers
TPS TECHNOLOGIES INC. 9333 N HARBORGATE STREET PORTLAND, OR 97203 USA	Person to Contact: GLENNA MULLAN FAX #: 503-240-1717	
Transporter Name and Mailing Address:	**Transporter's Phone #:**	Transporter's US EPA ID No.:
	Person to Contact: FAX #:	Transporter's DOT No.: Customer Account Number with TPS:

Description of Soil	Moisture Content	Contaminated by:	Approx. Qty:	Description of Delivery	Gross Weight	Tare Weight	Net Weight
Sand ☐ Organic ☐ Clay ☐ Other ☐	0 - 10% ☐ 10 - 20% ☐ 20% - over ☐	Gas ☐ Diesel ☐ Other ☐			75300	33900	42400
Sand ☐ Organic ☐ Clay ☐ Other ☐	0 - 10% ☐ 10 - 20% ☐ 20% - over ☐	Gas ☐ Diesel ☐ Other ☐				21.70	

List any exception to items listed above:

Generator's and/or consultant's certification: I/We certify that the soil referenced herein is taken entirely from those soils described in the Soil Data Sheet completed and certified by me/us for the Generation Site shown above and nothing has been added or done to such soil that would alter it in any way.

Print or Type Name: Generator ☐ Consultant ☐	Signature and date:	Month	Day	Year
SIGNATURE ON FILE				

Transporter

Transporter's certification: I/We acknowledge receipt of the soil described above and certify that such soil is being delivered in exactly the same condition as when received. I/We further certify that this soil is being directly transported from the Generation Site to the Designated Facility without off-loading, adding to, subtracting from or in any way delaying delivery to such site.

Print or Type Name:	Signature and date:	Month	Day	Year
Laurence Adams	Laurence Adams	4	23	99

Recycling Facility

Discrepancies:

Recycling Facility certifies the receipt of the soil covered by this manifest except as noted above:

Print or Type Name:	Signature and date:
GLENNA MULLAN	Glenna Mullan 4/23/99

Please print or type.

Koppers016909

TPST SOIL RECYCLERS OF OREGON

9333 N. Harborgate Street Portland, OR 97203

OR 011965

WEIGHMASTER CERTIFICATE – LICENSE #68636

THIS IS TO CERTIFY that the following described soil commodity was weighed, measured, or counted by a weighmaster, whose signature is on this certificate, as prescribed by the Division of Measurement Standards of the Oregon Department of Agriculture.

Manifest # A09 -03693 -081 04/23/99

Generator Site Information	Facility Information
KOPPERS TANK FOUNDATION EXCAVATION	TPS TECHNOLOGIES INC.
7540 NW ST HELENS ROAD	9333 N HARBORGATE STREET
PORTLAND, OR 97210 USA	PORTLAND, OR 97203 USA

				LBS	TONS	
0	IN --->	04:22:05pm	Gross Wt:	106,020	53.01	Manual Wt
0	OUT -->	04:25:55pm	Tare Wt:	38,860	19.43	Manual Wt
			NET WT:	67,160	33.58	

TRANSPORTER/DRIVER: CHARLES HECKMAN

Weighmaster

Koppers016910

Manifest

TPS Technologies Soil Recycling
Non-Hazardous Soils

Manifest #

Date of Shipment:	Responsible for Payment:	Transporter Truck #:	Facility #:	Given by TPS:	Load #
	Contractor	[illegible]	A05	03693	961

Generator and/or Consultant

Generator's Name and Billing Address:	Generator's Phone #:	Generator's US EPA ID No.
KOPPERS INDUSTRIES, INC 7540 NW ST HELENS ROAD PORTLAND, OR 97210 USA	(503) 286-1681 Person to Contact: AMOS KAMPEEK FAX #: (503) 285-2831	Customer Account Number with TPS: 9KOPPER
Consultant's Name and Billing Address:	**Consultant's Phone #:**	
RM CAT ENVIRONMENTAL -- CONTRACTOR -- 12823 NE AIRPORT WAY PORTLAND, OR 97230 USA	(503) 408-8290 Person to Contact: BOB JANAK FAX #: (503) 408-8716	Customer Account Number with TPS: 100351.3
Generation Site (Transport from): *(name & address)*	**Site Phone #:**	BTEX Levels
KOPPERS TANK FOUNDATION EXCAVATION 7540 NW ST HELENS ROAD PORTLAND, OR 97210 USA	Person to Contact:	TPH Levels
	FAX #:	AVG. Levels
Designated Facility (Transport to): *(name & address)*	**Facility Phone #:**	Facility Permit Numbers
TPS TECHNOLOGIES INC 9333 N HARBORGATE STREET PORTLAND, OR 97203 USA	503-735-9525 Person to Contact: GLENNA MULLAN FAX #: 503-240-1712	
Transporter Name and Mailing Address:	**Transporter's Phone #:**	Transporter's US EPA ID No.:
	Person to Contact:	Transporter's DOT No.:
	FAX #:	Customer Account Number with TPS:

Description of Soil	Moisture Content	Contaminated by:	Approx. Qty:	Description of Delivery	Gross Weight	Tare Weight	Net Weight
Sand ☐ Organic ☐ Clay ☐ Other ☐	0 - 10% ☐ 10 - 20% ☐ 20% - over ☐	Gas ☐ Diesel ☐ Other ☐			100020	57160	67160
Sand ☐ Organic ☐ Clay ☐ Other ☐	0 - 10% ☐ 10 - 20% ☐ 20% - over ☐	Gas ☐ Diesel ☐ Other ☐				33.56	

List any exception to items listed above:

Generator's and/or consultant's certification: I/We certify that the soil referenced herein is taken entirely from those soils described in the Soil Data Sheet completed and certified by me/us for the Generation Site shown above and nothing has been added or done to such soil that would alter it in any way.

Print or Type Name:	Generator ☐ Consultant ☐	Signature and date:	Month	Day	Year
SIGNATURE ON FILE					

Transporter

Transporter's certification: I/We acknowledge receipt of the soil described above and certify that such soil is being delivered in exactly the same condition as when received. I/We further certify that this soil is being directly transported from the Generation Site to the Designated Facility without off-loading, adding to, subtracting from or in any way delaying delivery to such site.

Print or Type Name:	Signature and date:	Month	Day	Year
[illegible]	[illegible]			

Recycling Facility

Discrepancies:

Recycling Facility certifies the receipt of the soil covered by this manifest except as noted above:

Print or Type Name:	Signature and date:
GLENNA MULLAN	[illegible] 4/22/09

Please print or type.

TPST SOIL RECYCLERS OF OREGON

9333 N. Harborgate Street Portland, OR 97203

OR 011967

WEIGHMASTER CERTIFICATE – LICENSE #68636

THIS IS TO CERTIFY that the following described soil commodity was weighed, measured, or counted by a weighmaster, whose signature is on this certificate, as prescribed by the Division of Measurement Standards of the Oregon Department of Agriculture.

Manifest # A09 -03693 -082 04/23/99

Generator Site Information

KOPPERS TANK FOUNDATION EXCAVATION
7540 NW ST HELENS ROAD

PORTLAND, OR 97210 USA

Facility Information

TPS TECHNOLOGIES INC.
9333 N HARBORGATE STREET

PORTLAND, OR 97203 USA

				LBS	TONS	
0	IN --->	04:37:00pm	Gross Wt:	74,000	37.00	Manual Wt
0	OUT -->	04:40:18pm	Tare Wt:	31,900	15.95	Manual Wt
			NET WT:	42,100	21.05	

TRANSPORTER/DRIVER: LAUREN ADAMS

Weighmaster

Koppers016912

Manifest

TPS Technologies Soil Recycling

Non-Hazardous Soils

↓ Manifest # ↓

Date of Shipment:	Responsible for Payment:	Transporter Truck #:	Facility #:	Given by TPS:	Load #
	Contractor	Adams	A09	03693	082

Generator and/or Consultant

Generator's Name and Billing Address: KOPPERS INDUSTRIES, INC. 7540 NW ST HELENS ROAD PORTLAND, OR 97210 USA	Generator's Phone #: (503) 286-3681 Person to Contact: AMOS KAMERER FAX #: (503) 286-2831	Generator's US EPA ID No. Customer Account Number with TPS: 9KOPPER
Consultant's Name and Billing Address: RM CAT ENVIRONMENTAL -- CONTRACTOR -- 12823 NE AIRPORT WAY PORTLAND, OR 97230 USA	Consultant's Phone #: (503) 408-8880 Person to Contact: BOB JANAK FAX #: (503) 408-8716	 Customer Account Number with TPS: 1003513
Generation Site (Transport from): *(name & address)* KOPPERS TANK FOUNDATION EXCAVATION 7540 NW ST HELENS ROAD PORTLAND, OR 97210 USA	Site Phone #: Person to Contact: FAX #:	BTEX Levels TPH Levels AVG. Levels
Designated Facility (Transport to): *(name & address)* TPS TECHNOLOGIES INC. 9333 N HARBORGATE STREET PORTLAND, OR 97203 USA	Facility Phone #: 503-735-9525 Person to Contact: GLENNA MULLAN FAX #: 503-240-1712	Facility Permit Numbers
Transporter Name and Mailing Address:	Transporter's Phone #: Person to Contact: FAX #:	Transporter's US EPA ID No.: Transporter's DOT No.: Customer Account Number with TPS:

Description of Soil	Moisture Content	Contaminated by:	Approx. Qty:	Description of Delivery	Gross Weight	Tare Weight	Net Weight
Sand ☐ Organic ☐ Clay ☐ Other ☐	0 - 10% ☐ 10 - 20% ☐ 20% - over ☐	Gas ☐ Diesel ☐ Other ☐			74000	31900	42100
Sand ☐ Organic ☐ Clay ☐ Other ☐	0 - 10% ☐ 10 - 20% ☐ 20% - over ☐	Gas ☐ Diesel ☐ Other ☐				21.05	

List any exception to items listed above:

Generator's and/or consultant's certification: I/We certify that the soil referenced herein is taken entirely from those soils described in the Soil Data Sheet completed and certified by me/us for the Generation Site shown above and nothing has been added or done to such soil that would alter it in any way.

Print or Type Name: Generator ☐ Consultant ☐	Signature and date:	Month	Day	Year
SIGNATURE ON FILE				

Transporter

Transporter's certification: I/We acknowledge receipt of the soil described above and certify that such soil is being delivered in exactly the same condition as when received. I/We further certify that this soil is being directly transported from the Generation Site to the Designated Facility without off-loading, adding to, subtracting from or in any way delaying delivery to such site.

Print or Type Name:	Signature and date:	Month	Day	Year
X Lauren Adams	Lauren Adams	4	23	99

Recycling Facility

Discrepancies:

Recycling Facility certifies the receipt of the soil covered by this manifest except as noted above:

Print or Type Name:	Signature and date:
GLENNA MULLAN	Glenna Mullan 4/23/99

Please print or type:

GENERATOR/CONSULTANT COPY

Koppers016913

TPST SOIL RECYCLERS OF OREGON

9333 N. Harborgate Street Portland, OR 97203

OR 011970

WEIGHMASTER CERTIFICATE – LICENSE #68636

THIS IS TO CERTIFY that the following described soil commodity was weighed, measured, or counted by a weighmaster, whose signature is on this certificate, as prescribed by the Division of Measurement Standards of the Oregon Department of Agriculture.

Manifest # A09 -03693 -083 04/26/99

Generator Site Information
KOPPERS TANK FOUNDATION EXCAVATION
7540 NW ST HELENS ROAD

PORTLAND, OR 97210 USA

Facility Information
TPS TECHNOLOGIES INC.
9333 N HARBORGATE STREET

PORTLAND, OR 97203 USA

				LBS	TONS	
0	IN --->	08:41:19am	Gross Wt:	83,120	41.56	Manual Wt
0	OUT -->	08:44:43am	Tare Wt:	32,100	16.05	Manual Wt
			NET WT:	51,020	25.51	

TRANSPORTER/DRIVER: LAUREN ADAMS

Weighmaster

Koppers016914

Manifest

TPS Technologies Soil Recycling
Non-Hazardous Soils

Manifest #

Date of Shipment:	Responsible for Payment:	Transporter Truck #:	Facility #:	Given by TPS:	Load #
	Contractor	Adams	A09	03683	983

Generator and/or Consultant

Generator's Name and Billing Address:	Generator's Phone #:	Generator's US EPA ID No.
KOPPERS INDUSTRIES, INC 7540 NW ST HELENS ROAD PORTLAND, OR 97210 USA	(503) 286-5581 Person to Contact: AMOS KAMEKER FAX #: (503) 285-2851	Customer Account Number with TPS: 3KOPPER
Consultant's Name and Billing Address:	**Consultant's Phone #:**	
RM CAT ENVIRONMENTAL — CONTRACTOR — 12823 NE AIRPORT WAY PORTLAND, OR 97230 USA	(503) 408-8880 Person to Contact: BOB JANAK FAX #: (503) 408-8816	Customer Account Number with TPS: 100351B
Generation Site (Transport from): *(name & address)*	**Site Phone #:**	BTEX Levels
KOPPERS TANK FOUNDATION EXCAVATION 7540 NW ST HELEN, ROAD PORTLAND, OR 97210 USA	Person to Contact:	TPH Levels
	FAX #:	AVG. Levels
Designated Facility (Transport to): *(name & address)*	**Facility Phone #:** 503-735-9525	Facility Permit Numbers
TPS TECHNOLOGIES INC 9333 N HARBORGATE STREET PORTLAND, OR 97203 USA	Person to Contact: GLENNA MULLAN FAX #: 503-240-1712	
Transporter Name and Mailing Address:	**Transporter's Phone #:**	Transporter's US EPA ID No.:
	Person to Contact:	Transporter's DOT No.:
	FAX #:	Customer Account Number with TPS:

Description of Soil	Moisture Content	Contaminated by:	Approx. Qty:	Description of Delivery	Gross Weight	Tare Weight	Net Weight
Sand ☐ Organic ☐ Clay ☐ Other ☐	0 - 10% ☐ 10 - 20% ☐ 20% - over ☐	Gas ☐ Diesel ☐ Other ☐			53120	53100	51020
Sand ☐ Organic ☐ Clay ☐ Other ☐	0 - 10% ☐ 10 - 20% ☐ 20% - over ☐	Gas ☐ Diesel ☐ Other ☐				25.51	

List any exception to items listed above:

Generator's and/or consultant's certification: I/We certify that the soil referenced herein is taken entirely from those soils described in the Soil Data Sheet completed and certified by me/us for the Generation Site shown above and nothing has been added or done to such soil that would alter it in any way.

Print or Type Name: Generator ☐ Consultant ☐	Signature and date:	Month	Day	Year
SIGNATURE ON FILE				

Transporter

Transporter's certification: I/We acknowledge receipt of the soil described above and certify that such soil is being delivered in exactly the same condition as when received. I/We further certify that this soil is being directly transported from the Generation Site to the Designated Facility without off-loading, adding to, subtracting from or in any way delaying delivery to such site.

Print or Type Name:	Signature and date:	Month	Day	Year
X Lauren Adams	X	9	26	95

Recycling Facility

Discrepancies:

Recycling Facility certifies the receipt of the soil covered by this manifest except as noted above:

Print or Type Name:	Signature and date:
GLENNA MULLAN	

Please print or type.

TPST SOIL RECYCLERS OF OREGON

9333 N. Harborgate Street Portland, OR 97203

OR 011971

WEIGHMASTER CERTIFICATE – LICENSE #68636

THIS IS TO CERTIFY that the following described soil commodity was weighed, measured, or counted by a weighmaster, whose signature is on this certificate, as prescribed by the Division of Measurement Standards of the Oregon Department of Agriculture.

Manifest # A09 -03693 -084 04/26/99

Generator Site Information

KOPPERS TANK FOUNDATION EXCAVATION
7540 NW ST HELENS ROAD

PORTLAND, OR 97210 USA

Facility Information

TPS TECHNOLOGIES INC.
9333 N HARBORGATE STREET

PORTLAND, OR 97203 USA

				LBS	TONS	
0	IN --->	09:23:20am	Gross Wt:	84,200	42.10	Manual Wt
0	OUT -->	09:27:12am	Tare Wt:	32,060	16.03	Manual Wt
			NET WT:	52,140	26.07	

TRANSPORTER/DRIVER: LAUREN ADAMS

Weighmaster

Koppers016916

Manifest

TPS Technologies Soil Recycling

Non-Hazardous Soils

↓ Manifest # ↓

Date of Shipment:	Responsible for Payment:	Transporter Truck #:	Facility #:	Given by TPS:	Load #
	Contractor	Adams	A09	03693	484

Generator and/or Consultant

Generator's Name and Billing Address: KOPPERS INDUSTRIES, INC 7540 NW ST HELENS ROAD PORTLAND, OR 97210 USA	Generator's Phone #: (503) 286-3681 Person to Contact: AMOS KAMERER FAX #: (503) 285-2831	Generator's US EPA ID No. Customer Account Number with TPS: 9KOPPER
Consultant's Name and Billing Address: RM CAT ENVIRONMENTAL - CONTRACTOR - 12823 NE AIRPORT WAY PORTLAND, OR 97230 USA	Consultant's Phone #: (503) 408-8880 Person to Contact: BOB JANAK FAX #: (503) 408-8715	 Customer Account Number with TPS: 1003513
Generation Site (Transport from): *(name & address)* KOPPERS TANK FOUNDATION EXCAVATION 7540 NW ST HELENS ROAD PORTLAND, OR 97210 USA	Site Phone #: Person to Contact: FAX #:	BTEX Levels TPH Levels AVG. Levels
Designated Facility (Transport to): *(name & address)* TPS TECHNOLOGIES INC 9333 N HARBORGATE STREET PORTLAND, OR 97203 USA	Facility Phone #: 503-735-9525 Person to Contact: GLENNA MULLAN FAX #: 503-240-1712	Facility Permit Numbers
Transporter Name and Mailing Address:	Transporter's Phone #: Person to Contact: FAX #:	Transporter's US EPA ID No.: Transporter's DOT No.: Customer Account Number with TPS:

Description of Soil	Moisture Content	Contaminated by:	Approx. Qty:	Description of Delivery	Gross Weight	Tare Weight	Net Weight
Sand ☐ Organic ☐ Clay ☐ Other ☐	0 - 10% ☐ 10 - 20% ☐ 20% - over ☐	Gas ☐ Diesel ☐ Other ☐			84200	32060	52140
Sand ☐ Organic ☐ Clay ☐ Other ☐	0 - 10% ☐ 10 - 20% ☐ 20% - over ☐	Gas ☐ Diesel ☐ Other ☐				26.07	

List any exception to items listed above:

Generator's and/or consultant's certification: I/We certify that the soil referenced herein is taken entirely from those soils described in the Soil Data Sheet completed and certified by me/us for the Generation Site shown above and nothing has been added or done to such soil that would alter it in any way.

Print or Type Name: Generator ☐ Consultant ☐	Signature and date:	Month	Day	Year
SIGNATURE ON FILE				

Transporter

Transporter's certification: I/We acknowledge receipt of the soil described above and certify that such soil is being delivered in exactly the same condition as when received. I/We further certify that this soil is being directly transported from the Generation Site to the Designated Facility without off-loading, adding to, subtracting from or in any way delaying delivery to such site.

Print or Type Name:	Signature and date:	Month	Day	Year
X Lauren Adams	X [signature]	9	26	99

Recycling Facility

Discrepancies:

Recycling Facility certifies the receipt of the soil covered by this manifest except as noted above:

Print or Type Name:	Signature and date:
GLENNA MULLAN	[signature] 4/26/99

Please print or type.

TPST SOIL RECYCLERS OF OREGON

9333 N. Harborgate Street Portland, OR 97203

OR 011973

WEIGHMASTER CERTIFICATE – LICENSE #68636

THIS IS TO CERTIFY that the following described soil commodity was weighed, measured, or counted by a weighmaster, whose signature is on this certificate, as prescribed by the Division of Measurement Standards of the Oregon Department of Agriculture.

Manifest # A09 -03693 -085 04/26/99

Generator Site Information
KOPPERS TANK FOUNDATION EXCAVATION
7540 NW ST HELENS ROAD

PORTLAND, OR 97210 USA

Facility Information
TPS TECHNOLOGIES INC.
9333 N HARBORGATE STREET

PORTLAND, OR 97203 USA

				LBS	TONS	
0	IN --->	10:20:15am	Gross Wt:	79,620	39.81	Manual Wt
0	OUT -->	10:23:21am	Tare Wt:	32,020	16.01	Manual Wt
			NET WT:	47,600	23.80	

TRANSPORTER/DRIVER: LAUREN ADAMS

Weighmaster _____

Koppers016918

Manifest

TPS Technologies Soil Recycling

Non-Hazardous Soils

Manifest #

Date of Shipment:	Responsible for Payment:	Transporter Truck #:	Facility #:	Given by TPS:	Load #
	Contractor	[illegible]	A09	03693	085

Generator and/or Consultant

Generator's Name and Billing Address: KOPPERS INDUSTRIES, INC 7540 NW ST HELENS ROAD PORTLAND, OR 97210 USA	Generator's Phone #: (503) 285-3681 Person to Contact: AMOS KAMERER FAX #: (503) 285-2831	Generator's US EPA ID No. Customer Account Number with TPS: 9KOPPER
Consultant's Name and Billing Address: RM CAT ENVIRONMENTAL --- CONTRACTOR --- 12823 NE AIRPORT WAY PORTLAND, OR 97230 USA	Consultant's Phone #: (503) 408-8880 Person to Contact: BOB JANAK FAX #: (503) 408-8716	Customer Account Number with TPS: 1003513
Generation Site (Transport from): *(name & address)* KOPPERS TANK FOUNDATION EXCAVATION 7540 NW ST HELENS ROAD PORTLAND, OR 97210 USA	Site Phone #: Person to Contact: FAX #:	BTEX Levels TPH Levels AVG. Levels
Designated Facility (Transport to): *(name & address)* TPS TECHNOLOGIES INC. 9333 N HARBORGATE STREET PORTLAND, OR 97203 USA	Facility Phone #: 503-735-9525 Person to Contact: GLENNA MULLAN FAX #: 503-240-1712	Facility Permit Numbers
Transporter Name and Mailing Address:	Transporter's Phone #: Person to Contact: FAX #:	Transporter's US EPA ID No.: Transporter's DOT No.: Customer Account Number with TPS:

Description of Soil	Moisture Content	Contaminated by:	Approx. Qty:	Description of Delivery	Gross Weight	Tare Weight	Net Weight
Sand ☐ Organic ☐ Clay ☐ Other ☐	0 - 10% ☐ 10 - 20% ☐ 20% - over ☐	Gas ☐ Diesel ☐ Other ☐			79620	32020	47600
Sand ☐ Organic ☐ Clay ☐ Other ☐	0 - 10% ☐ 10 - 20% ☐ 20% - over ☐	Gas ☐ Diesel ☐ Other ☐				23.80	

List any exception to items listed above:

Generator's and/or consultant's certification: I/We certify that the soil referenced herein is taken entirely from those soils described in the Soil Data Sheet completed and certified by me/us for the Generation Site shown above and nothing has been added or done to such soil that would alter it in any way.

Print or Type Name: Generator ☐ Consultant ☐ SIGNATURE ON FILE

Signature and date: Month Day Year

Transporter

Transporter's certification: I/We acknowledge receipt of the soil described above and certify that such soil is being delivered in exactly the same condition as when received. I/We further certify that this soil is being directly transported from the Generation Site to the Designated Facility without off-loading, adding to, subtracting from or in any way delaying delivery to such site.

Print or Type Name: X Lauren Adams

Signature and date: X Lauren Adams Month 9 Day 26 Year 99

Recycling Facility

Discrepancies:

Recycling Facility certifies the receipt of the soil covered by this manifest except as noted above:

Print or Type Name: GLENNA MULLAN

Signature and date: [signature] 4/26/99

Please print or type.

GENERATOR [illegible]

Koppers016919

TPST SOIL RECYCLERS OF OREGON

9333 N. Harborgate Street Portland, OR 97203

OR 011984

WEIGHMASTER CERTIFICATE – LICENSE #68636

THIS IS TO CERTIFY that the following described soil commodity was weighed, measured, or counted by a weighmaster, whose signature is on this certificate, as prescribed by the Division of Measurement Standards of the Oregon Department of Agriculture.

Manifest # A09 -03693 -086 04/26/99

Generator Site Information
KOPPERS TANK FOUNDATION EXCAVATION
7540 NW ST HELENS ROAD
PORTLAND, OR 97210 USA

Facility Information
TPS TECHNOLOGIES INC.
9333 N HARBORGATE STREET
PORTLAND, OR 97203 USA

				LBS	TONS	
0	IN --->	11:04:05am	Gross Wt:	80,060	40.03	Manual Wt
0	OUT -->	11:19:33am	Tare Wt:	32,000	16.00	Manual Wt
			NET WT:	48,060	24.03	

TRANSPORTER/DRIVER: LAUREN ADAMS

Weighmaster

Koppers016920

Manifest

TPS Technologies Soil Recycling

Non-Hazardous Soils

Manifest #

Date of Shipment:	Responsible for Payment:	Transporter Truck #:	Facility #:	Given by TPS:	Load #
	CONTRACTOR	Adams	A09	03693	485

Generator and/or Consultant

Generator's Name and Billing Address:	Generator's Phone #:	Generator's US EPA ID No.
KOPPERS INDUSTRIES, INC 7540 NW ST HELENS ROAD PORTLAND, OR 97210 USA	(503) 285-3581 Person to Contact: AMOS KAMPFER FAX #: (503) 285-2811	Customer Account Number with TPS: KOPPER
Consultant's Name and Billing Address:	**Consultant's Phone #:**	
RM FAT ENVIRONMENTAL -- CONTRACTOR -- 12823 NE AIRPORT WAY PORTLAND, OR 97230 USA	(503) 408-8000 Person to Contact: BOB JANAK FAX #: (503) 408-8710	Customer Account Number with TPS: [illegible]
Generation Site (Transport from): *(name & address)*	**Site Phone #:**	BTEX Levels
KOPPERS TANK FOUNDATION EXCAVATION 7540 NW ST HELENS ROAD PORTLAND, OR 97210 USA	Person to Contact: FAX #:	TPH Levels AVG. Levels
Designated Facility (Transport to): *(name & address)*	**Facility Phone #:**	Facility Permit Numbers
TPS TECHNOLOGIES INC 9333 N HARBORGATE STREET PORTLAND, OR 97203 USA	503-735-9525 Person to Contact: GLENNA MULLAN FAX #: 503-240-1717	
Transporter Name and Mailing Address:	**Transporter's Phone #:**	Transporter's US EPA ID No.:
	Person to Contact:	Transporter's DOT No.:
	FAX #:	Customer Account Number with TPS:

Description of Soil	Moisture Content	Contaminated by:	Approx. Qty:	Description of Delivery	Gross Weight	Tare Weight	Net Weight
Sand ☐ Organic ☐ Clay ☐ Other ☐	0 - 10% ☐ 10 - 20% ☐ 20% - over ☐	Gas ☐ Diesel ☐ Other ☐			80060	32000	48060
Sand ☐ Organic ☐ Clay ☐ Other ☐	0 - 10% ☐ 10 - 20% ☐ 20% - over ☐	Gas ☐ Diesel ☐ Other ☐				24.03	

List any exception to items listed above:

Generator's and/or consultant's certification: I/We certify that the soil referenced herein is taken entirely from those soils described in the Soil Data Sheet completed and certified by me/us for the Generation Site shown above and nothing has been added or done to such soil that would alter it in any way.

Print or Type Name: Generator ☐ Consultant ☐	Signature and date:	Month	Day	Year
SIGNATURE ON FILE				

Transporter

Transporter's certification: I/We acknowledge receipt of the soil described above and certify that such soil is being delivered in exactly the same condition as when received. I/We further certify that this soil is being directly transported from the Generation Site to the Designated Facility without off-loading, adding to, subtracting from or in any way delaying delivery to such site.

Print or Type Name:	Signature and date:	Month	Day	Year
Lauren Adams	[signature]	4	26	99

Recycling Facility

Discrepancies:

Recycling Facility certifies the receipt of the soil covered by this manifest except as noted above:

Print or Type Name:	Signature and date:
GLENNA MULLAN	[signature] 4/26/99

Please print or type.

GENERATOR/CONSULTANT COPY

TPST SOIL RECYCLERS OF OREGON

9333 N. Harborgate Street Portland, OR 97203

OR 011987

WEIGHMASTER CERTIFICATE – LICENSE #68636

THIS IS TO CERTIFY that the following described soil commodity was weighed, measured, or counted by a weighmaster, whose signature is on this certificate, as prescribed by the Division of Measurement Standards of the Oregon Department of Agriculture.

Manifest # A09 -03693 -087 04/26/99

Generator Site Information

KOPPERS TANK FOUNDATION EXCAVATION
7540 NW ST HELENS ROAD

PORTLAND, OR 97210 USA

Facility Information

TPS TECHNOLOGIES INC.
9333 N HARBORGATE STREET

PORTLAND, OR 97203 USA

				LBS	TONS	
0	IN --->	12:13:33pm	Gross Wt:	79,720	39.86	Manual Wt
0	OUT -->	12:16:51pm	Tare Wt:	31,980	15.99	Manual Wt
			NET WT:	47,740	23.87	

TRANSPORTER/DRIVER: LAUREN ADAMS

Weighmaster

Koppers016922

Manifest

TPS Technologies Soil Recycling
Non-Hazardous Soils

Manifest #

Date of Shipment:	Responsible for Payment:	Transporter Truck #:	Facility #:	Given by TPS:	Load #
	Contractor	Adams	009	03595	987

Generator and/or Consultant

Generator's Name and Billing Address:	Generator's Phone #:	Generator's US EPA ID No.
KOPPERS INDUSTRIES, INC. 7540 NW ST HELENS ROAD PORTLAND, OR 97210 USA	(503) 286-3681 Person to Contact: ANGIE KAMENER FAX #: (503) 285-2831	Customer Account Number with TPS: 9KOPPER
Consultant's Name and Billing Address:	**Consultant's Phone #:**	
RM CAT ENVIRONMENTAL -- CONTRACTOR -- 12823 NE AIRPORT WAY PORTLAND, OR 97230 USA	(503) 408-8880 Person to Contact: BOB JANAK FAX #: (503) 408-8216	Customer Account Number with TPS: 100361.3
Generation Site (Transport from): *(name & address)*	**Site Phone #:**	**BTEX Levels**
KOPPERS TANK FOUNDATION EXCAVATION 7540 NW ST HELENS ROAD PORTLAND, OR 97210 USA	Person to Contact: FAX #:	TPH Levels AVG. Levels ✓
Designated Facility (Transport to): *(name & address)*	**Facility Phone #:** 503-735-9571	**Facility Permit Numbers**
TPS TECHNOLOGIES INC. 9330 N HARBORGATE STREET PORTLAND, OR 97203 USA	Person to Contact: GLENNA MULLAN FAX #: 503-240-1712	
Transporter Name and Mailing Address:	**Transporter's Phone #:**	**Transporter's US EPA ID No.:**
	Person to Contact:	Transporter's DOT No.:
	FAX #:	Customer Account Number with TPS:

Description of Soil	Moisture Content	Contaminated by:	Approx. Qty:	Description of Delivery	Gross Weight	Tare Weight	Net Weight
Sand ☐ Organic ☐ Clay ☐ Other ☐	0 - 10% ☐ 10 - 20% ☐ 20% - over ☐	Gas ☐ Diesel ☐ Other ☐			79720	31980	47740
Sand ☐ Organic ☐ Clay ☐ Other ☐	0 - 10% ☐ 10 - 20% ☐ 20% - over ☐	Gas ☐ Diesel ☐ Other ☐				23.87	

List any exception to items listed above:

Generator's and/or consultant's certification: I/We certify that the soil referenced herein is taken entirely from those soils described in the Soil Data Sheet completed and certified by me/us for the Generation Site shown above and nothing has been added or done to such soil that would alter it in any way.

Print or Type Name: Generator ☐ Consultant ☐	Signature and date:	Month	Day	Year
SIGNATURE ON FILE				

Transporter

Transporter's certification: I/We acknowledge receipt of the soil described above and certify that such soil is being delivered in exactly the same condition as when received. I/We further certify that this soil is being directly transported from the Generation Site to the Designated Facility without off-loading, adding to, subtracting from or in any way delaying delivery to such site.

Print or Type Name:	Signature and date:	Month	Day	Year
X Lauren Adams	X	1	26	99

Recycling Facility

Discrepancies:

Recycling Facility certifies the receipt of the soil covered by this manifest except as noted above:

Print or Type Name:	Signature and date:
GLENNA MULLAN	Glenna Mull 1-26-99

Please print or type.

TPST SOIL RECYCLERS OF OREGON

9333 N. Harborgate Street Portland, OR 97203

OR 011989

WEIGHMASTER CERTIFICATE – LICENSE #68636

THIS IS TO CERTIFY that the following described soil commodity was weighed, measured, or counted by a weighmaster, whose signature is on this certificate, as prescribed by the Division of Measurement Standards of the Oregon Department of Agriculture.

Manifest # A09 -03693 -088 04/26/99

Generator Site Information	Facility Information
KOPPERS TANK FOUNDATION EXCAVATION	TPS TECHNOLOGIES INC.
7540 NW ST HELENS ROAD	9333 N HARBORGATE STREET
PORTLAND, OR 97210 USA	PORTLAND, OR 97203 USA

				LBS	TONS	
0	IN --->	12:56:50pm	Gross Wt:	77,540	38.77	Manual Wt
0	OUT -->	01:00:27pm	Tare Wt:	31,980	15.99	Manual Wt
			NET WT:	45,560	22.78	

TRANSPORTER/DRIVER: LAUREN ADAMS

Weighmaster _____

Koppers016924

Manifest

TPS Technologies Soil Recycling

Non-Hazardous Soils

Manifest #

Date of Shipment:	Responsible for Payment:	Transporter Truck #:	Facility #:	Given by TPS:	Load #
	Contractor	Adams	A09	03693	088

Generator and/or Consultant

Generator's Name and Billing Address: KOPPERS INDUSTRIES, INC. 7540 NW ST HELENS ROAD PORTLAND, OR 97210 USA	Generator's Phone #: (503) 286-3681 Person to Contact: AMOS KAMERER FAX #: (503) 285-2831	Generator's US EPA ID No. Customer Account Number with TPS: 9KOPPER
Consultant's Name and Billing Address: RM CAT ENVIRONMENTAL -- CONTRACTOR -- 12823 NE AIRPORT WAY PORTLAND, OR 97230 USA	Consultant's Phone #: (503) 408-8880 Person to Contact: BOB JANAK FAX #: (503) 408-8716	Customer Account Number with TPS: 1003513
Generation Site (Transport from): *(name & address)* KOPPERS TANK FOUNDATION EXCAVATION 7540 NW ST HELENS ROAD PORTLAND, OR 97210 USA	Site Phone #: Person to Contact: FAX #:	BTEX Levels TPH Levels AVG. Levels
Designated Facility (Transport to): *(name & address)* TPS TECHNOLOGIES INC. 9333 N HARBORGATE STREET PORTLAND, OR 97203 USA	Facility Phone #: 503-735-9525 Person to Contact: GLENNA MULLAN FAX #: 503-240-1712	Facility Permit Numbers
Transporter Name and Mailing Address:	Transporter's Phone #: Person to Contact: FAX #:	Transporter's US EPA ID No.: Transporter's DOT No.: Customer Account Number with TPS:

Description of Soil	Moisture Content	Contaminated by:	Approx. Qty:	Description of Delivery	Gross Weight	Tare Weight	Net Weight
Sand ☐ Organic ☐ Clay ☐ Other ☐	0 - 10% ☐ 10 - 20% ☐ 20% - over ☐	Gas ☐ Diesel ☐ Other ☐			77540	31980	45560
Sand ☐ Organic ☐ Clay ☐ Other ☐	0 - 10% ☐ 10 - 20% ☐ 20% - over ☐	Gas ☐ Diesel ☐ Other ☐				22.78	

List any exception to items listed above:

Generator's and/or consultant's certification: I/We certify that the soil referenced herein is taken entirely from those soils described in the Soil Data Sheet completed and certified by me/us for the Generation Site shown above and nothing has been added or done to such soil that would alter it in any way.

Print or Type Name: Generator ☐ Consultant ☐ SIGNATURE ON FILE

Signature and date: Month Day Year

Transporter

Transporter's certification: I/We acknowledge receipt of the soil described above and certify that such soil is being delivered in exactly the same condition as when received. I/We further certify that this soil is being directly transported from the Generation Site to the Designated Facility without off-loading, adding to, subtracting from or in any way delaying delivery to such site.

Print or Type Name: X Lauren Adams

Signature and date: X [signature]

Month 4 Day 26 Year 99

Recycling Facility

Discrepancies:

Recycling Facility certifies the receipt of the soil covered by this manifest except as noted above:

Print or Type Name: GLENNA MULLAN

Signature and date: [signature] 4/26/99

Please print or type.

GENERATOR-CONSULTANT'S COPY

Koppers016925

TPST SOIL RECYCLERS OF OREGON

9333 N. Harborgate Street Portland, OR 97203

OR 011993

WEIGHMASTER CERTIFICATE – LICENSE #68636

THIS IS TO CERTIFY that the following described soil commodity was weighed, measured, or counted by a weighmaster, whose signature is on this certificate, as prescribed by the Division of Measurement Standards of the Oregon Department of Agriculture.

Manifest # A09 -03693 -089 04/26/99

Generator Site Information

KOPPERS TANK FOUNDATION EXCAVATION
7540 NW ST HELENS ROAD

PORTLAND, OR 97210 USA

Facility Information

TPS TECHNOLOGIES INC.
9333 N HARBORGATE STREET

PORTLAND, OR 97203 USA

				LBS	TONS	
0	IN --->	01:40:59pm	Gross Wt:	80,020	40.01	Manual Wt
0	OUT -->	01:44:54pm	Tare Wt:	31,700	15.85	Manual Wt
			NET WT:	48,320	24.16	

TRANSPORTER/DRIVER: LAUREN ADAMS

Weighmaster _____

Koppers016926

Manifest

TPS Technologies Soil Recycling
Non-Hazardous Soils

↓ Manifest # ↓

Date of Shipment:	Responsible for Payment:	Transporter Truck #:	Facility #:	Given by TPS:	Load #
	CONTRACTOR	Adams	A09	93[illegible]	009

Generator and/or Consultant

Generator's Name and Billing Address: KOPPERS INDUSTRIES, INC 7540 NW ST HELENS ROAD PORTLAND, OR 97210 USA	Generator's Phone #: (503) 286-3581 Person to Contact: AMOS KAMERER FAX #: (503) 285-2801	Generator's US EPA ID No. Customer Account Number with TPS: KOPPER
Consultant's Name and Billing Address: RM CAT ENVIRONMENTAL -- CONTRACTOR -- 12823 NE AIRPORT WAY PORTLAND, OR 97230 USA	Consultant's Phone #: (503) 408-0880 Person to Contact: BOB JANAK FAX #: (503) 408-8716	 Customer Account Number with TPS: [illegible]
Generation Site (Transport from): *(name & address)* KOPPERS TANK FOUNDATION EXCAVATION 7540 NW ST HELENS ROAD PORTLAND, OR 97210 USA	Site Phone #: Person to Contact: FAX #:	BTEX Levels TPH Levels AVG. Levels
Designated Facility (Transport to): *(name & address)* TPS TECHNOLOGIES INC. 9330 N HARBORGATE STREET PORTLAND, OR 97203 USA	Facility Phone #: 503-735-9525 Person to Contact: GLENNA MULLAN FAX #: 503 240-1712	Facility Permit Numbers
Transporter Name and Mailing Address:	Transporter's Phone #: Person to Contact: FAX #:	Transporter's US EPA ID No.: Transporter's DOT No.: Customer Account Number with TPS:

Description of Soil	Moisture Content	Contaminated by:	Approx. Qty:	Description of Delivery	Gross Weight	Tare Weight	Net Weight
Sand ☐ Organic ☐ Clay ☐ Other ☐	0 - 10% ☐ 10 - 20% ☐ 20% - over ☐	Gas ☐ Diesel ☐ Other ☐			60020	31700	45320
Sand ☐ Organic ☐ Clay ☐ Other ☐	0 - 10% ☐ 10 - 20% ☐ 20% - over ☐	Gas ☐ Diesel ☐ Other ☐				24.16	

List any exception to items listed above:

Generator's and/or consultant's certification: I/We certify that the soil referenced herein is taken entirely from those soils described in the Soil Data Sheet completed and certified by me/us for the Generation Site shown above and nothing has been added or done to such soil that would alter it in any way.

Print or Type Name: Generator ☐ Consultant ☐	Signature and date:	Month	Day	Year
SIGNATURE ON FILE				

Transporter

Transporter's certification: I/We acknowledge receipt of the soil described above and certify that such soil is being delivered in exactly the same condition as when received. I/We further certify that this soil is being directly transported from the Generation Site to the Designated Facility without off-loading, adding to, subtracting from or in any way delaying delivery to such site.

Print or Type Name:	Signature and date:	Month	Day	Year
Lauren Adams	Lauren Adams	4	26	99

Recycling Facility

Discrepancies:

Recycling Facility certifies the receipt of the soil covered by this manifest except as noted above:

Print or Type Name:	Signature and date:
GLENNA MULLAN	Glenna Mullan 4/26/99

Please print or type.

OPERATOR Consultant COPY

Koppers016927

TPST SOIL RECYCLERS OF OREGON

9333 N. Harborgate Street Portland, OR 97203

OR 011995

WEIGHMASTER CERTIFICATE – LICENSE #68636

THIS IS TO CERTIFY that the following described soil commodity was weighed, measured, or counted by a weighmaster, whose signature is on this certificate, as prescribed by the Division of Measurement Standards of the Oregon Department of Agriculture.

Manifest # A09 -03693 -090 04/26/99

Generator Site Information

KOPPERS TANK FOUNDATION EXCAVATION
7540 NW ST HELENS ROAD

PORTLAND, OR 97210 USA

Facility Information

TPS TECHNOLOGIES INC.
9333 N HARBORGATE STREET

PORTLAND, OR 97203 USA

				LBS	TONS	
0	IN --->	02:31:50pm	Gross Wt:	84,300	42.15	Manual Wt
0	OUT -->	02:34:58pm	Tare Wt:	31,920	15.96	Manual Wt
			NET WT:	52,380	26.19	

TRANSPORTER/DRIVER: LAUREN ADAMS

Weighmaster

Koppers016928

TPS Technologies Soil Recycling

Non-Hazardous Soils

Manifest ↓ **Manifest #** ↓

Date of Shipment:	Responsible for Payment:	Transporter Truck #:	Facility #:	Given by TPS:	Load #
	Contractor	Adams	A09	03697	090

Generator and/or Consultant

Generator's Name and Billing Address: KOPPERS INDUSTRIES, INC. 7540 NW ST HELENS ROAD PORTLAND, OR 97210 USA	Generator's Phone #: (503) 286-3681 Person to Contact: AMOS KAMERER FAX #: (503) 285-2831	Generator's US EPA ID No. Customer Account Number with TPS: 9KOPPER
Consultant's Name and Billing Address: RM LAT ENVIRONMENTAL --- CONTRACTOR --- 12823 NE AIRPORT WAY PORTLAND, OR 97230 USA	Consultant's Phone #: (503) 408-8880 Person to Contact: BOB JANAK FAX #: (503) 408-8716	Customer Account Number with TPS: 1003513
Generation Site (Transport from): *(name & address)* KOPPERS TANK FOUNDATION EXCAVATION 7540 NW ST HELENS ROAD PORTLAND, OR 97210 USA	Site Phone #: Person to Contact: FAX #:	BTEX Levels TPH Levels AVG. Levels
Designated Facility (Transport to): *(name & address)* TPS TECHNOLOGIES INC 9333 N HARBORGATE STREET PORTLAND, OR 97203 USA	Facility Phone #: 503-735-9525 Person to Contact: GLENNA MULLAN FAX #: 503-240-1712	Facility Permit Numbers
Transporter Name and Mailing Address:	Transporter's Phone #: Person to Contact: FAX #:	Transporter's US EPA ID No.: Transporter's DOT No.: Customer Account Number with TPS:

Description of Soil	Moisture Content	Contaminated by:	Approx. Qty:	Description of Delivery	Gross Weight	Tare Weight	Net Weight
Sand ☐ Organic ☐ Clay ☐ Other ☐	0 - 10% ☐ 10 - 20% ☐ 20% - over ☐	Gas ☐ Diesel ☐ Other ☐			84300	31920	52580
Sand ☐ Organic ☐ Clay ☐ Other ☐	0 - 10% ☐ 10 - 20% ☐ 20% - over ☐	Gas ☐ Diesel ☐ Other ☐				26.19	

List any exception to items listed above:

Generator's and/or consultant's certification: I/We certify that the soil referenced herein is taken entirely from those soils described in the Soil Data Sheet completed and certified by me/us for the Generation Site shown above and nothing has been added or done to such soil that would alter it in any way.

Print or Type Name: Generator ☐ Consultant ☐	Signature and date:	Month	Day	Year
SIGNATURE ON FILE				

Transporter

Transporter's certification: I/We acknowledge receipt of the soil described above and certify that such soil is being delivered in exactly the same condition as when received. I/We further certify that this soil is being directly transported from the Generation Site to the Designated Facility without off-loading, adding to, subtracting from or in any way delaying delivery to such site.

Print or Type Name:	Signature and date:	Month	Day	Year
Lavien Adams	[signature]	4	26	99

Recycling Facility

Discrepancies:

Recycling Facility certifies the receipt of the soil covered by this manifest except as noted above:

Print or Type Name:	Signature and date:
GLENNA MULLAN	[signature] 4/26/99

Please print or type.

GENERATOR/CONSULTANT'S COPY

Author: AMOS KAMERER at PITT
Date: 4/29/99 6:53 AM
Priority: Normal
TO: BILL MEISINGER at TECHCTR
CC: Jack Stephenson at PITT
CC: Jim Dietz at PITT
Subject: Siol Disposal

---------- Message Contents ----------

FYI,

RM Cat advises that the final count on the soil disposal to TPS was 2,297.63 tons, at $35.00 per ton, the total is $80.417.05.

Amos

TPS Technologies Inc.
A ThermoRetec Company
1964 S. Orange Blossom Trail
Apopka, FL 32703

ThermoRetec
Smart Solutions. Positive Outcomes.

(407) 886-2000 Phone
(407) 886-8300 Fax
www.thermoretec.com

April 21, 1999

Koppers Industries, Inc.
7540 Northwest St. Helens Road
Portland, OR 97210

Thank you for selecting TPS Technologies Inc. as your soil remediation company. We appreciate the opportunity to provide our services and value your business.

The purpose of this letter is to explain the reasons for sending the enclosed Notice to Owner/Contractor form. The Notice to Owner is a requirement of standard construction lien laws. It is not a lien, but rather, one of the many steps required by law to properly notify the site owner that TPS Technologies is performing service on the site. In the unlikely event of non-payment, TPS Technologies would have the right to file a claim of lien.

This notice is not intended to cast doubt on anyone's honesty, integrity or ability to pay for services provided. The language of the actual notice is mandated by state statute.

We sincerely appreciate your business and look forward to working with you again. If you have any questions, concerns or require additional information, please contact me, personally, at 1-800-940-2666.

Very truly yours,

Maureen Goede

Maureen Goede
Credit Manager

cc: RM Cat Environmental

cc: B. Meisinger
J. Stephenson

F.Y.I. Amos 4/26/99

NOTICE OF THE RIGHT TO A LIEN

WARNING: READ THIS NOTICE, PROTECT YOURSELF FROM PAYING ANY CONTRACTOR OR SUPPLIER TWICE FOR THE SAME SERVICE.

To: Koppers Industries, Inc.
7540 Northwest St. Helens Road
Portland, OR 97210

April 21, 1999

This is to inform you that TPST Soil Recyclers of Oregon Inc. has begun to provide labor and material to treat petroleum-contaminated soil ordered by RM Cat Environmental for improvement to property you own. The property is located at Koppers Tank Foundation Excavation, 7540 Northwest St. Helens Road, Portland, OR 97210.

A lien may be claimed for all materials, equipment, labor, and services furnished after a date that is eight days (not including Saturdays, Sundays and other holidays as defined in O.R.S. 187.010) before this notice was mailed to you.

Even if you or your mortgage lender have made full payment to the contractor who ordered these materials or services, your property may still be subject to a lien unless the supplier providing this notice is paid. **THIS IS NOT A LIEN.** It is a notice sent to you for your protection in compliance with the construction lien laws of the State of Oregon.

This notice has been sent to you by:

Maureen Goede, Credit Manager
ThermoRetec Inc.
dba TPS Technologies Inc.
1964 South Orange Blossom Trail
Apopka, FL 32703
(407) 886-2000

IF YOU HAVE ANY QUESTION ABOUT THIS NOTICE, PLEASE CALL US
IMPORTANT INFORMATION ON REVERSE SIDE

IMPORTANT INFORMATION FOR YOUR PROTECTION

Under Oregon's laws, those who work on your property or provide labor, equipment, services, or materials and are not paid have a right to enforce their claim for payment against your property. This claim is know as a construction lien.

If your contractor fails to pay subcontractors, material suppliers, rental equipment suppliers, service providers, or laborers or neglects to make other legally required payments, the people who are owed money can look to your property for payment, even if you have paid your contractor in full.

The law states that all people hired by a contractor to provide you with materials, equipment, labor, or services must give you a notice of right to a lien to let you know what they have provided.

WAYS TO PROTECT YOURSELF ARE:

-RECOGNIZE that this notice of right to a lien may result in a lien against your property unless all those supplying a notice of the right to lien have been paid.

-LEARN more about the lien laws and the meaning of this notice by contacting the Builders Board, an attorney, or the firm sending this notice. Ask for a statement of the labor, equipment, services, or materials provided to your property from each party that send you a notice of right to a lien.

-WHEN PAYING your contractor for materials, labor, equipment, or services, you may make checks payable jointly to the contractor and the firm furnishing materials, equipment, labor, or services for which you have received a notice of the right to a lien.

OR use one of the methods suggested in the "Information Notice to Owners." If you have not received such a notice, contact the Builders Board.

-GET EVIDENCE that all firms from whom you have received a notice of the right to a lien have been paid or have waived the right to claim a lien against your property.

-CONSULT an attorney, a professional escrow company, or your mortgage lender.

RECEIVED

APR 2 6 1999

KOPPERS INDS, INC.
PORTLAND OR

RMCAT
ENVIRONMENTAL SERVICES, INC.
CCB # 126132

INVOICE

REMIT TO: **RMCAT ENVIRONMENTAL**
5762 Lamar Street
Arvada, CO 80002
Phone Number: (800) 930-0011

BILL TO:

Koppers Industries
7540 NW St. Helens Road
Portland, Oregon 97210-3663
Attn: Amos Kamerer

INVOICE DATE: **April 22, 1999**

INVOICE NUMBER **90133-1**
CLIENT PO NUMBER **14-9-50977**

PAYMENT DUE: May 22, 1999

JOB NUMBER; **420-9-90133**

Progress Invoice

Description of Cost and Work Performed:

Transport and treat Petroleum Contaminated Soil excavated at the Koppers Industries, Inc. Portland, Oregon facility.

Transport and Treated 1,365.29 tons @ $35.00 per ton	$ 47,785.15
Amount Due:	**$ 47,785.15**

If you have any questions concerning this invoice, please contact Bob Janak at 503-408-8880.

Bob Janak
General Manager

TPST SOIL RECYCLERS OF OREGON

9333 N. Harborgate Street Portland, OR 97203

OR 011809

WEIGHMASTER CERTIFICATE – LICENSE #68636

THIS IS TO CERTIFY that the following described soil commodity was weighed, measured, or counted by a weighmaster, whose signature is on this certificate, as prescribed by the Division of Measurement Standards of the Oregon Department of Agriculture.

Manifest # A09 -03693 -001 04/19/99

Generator Site Information	Facility Information
KOPPERS TANK FOUNDATION EXCAVATION	TPST SOIL RECYCLERS OF OREGON
7540 NW ST HELENS ROAD	9333 N HARBORGATE STREET
PORTLAND, OR 97210 USA	PORTLAND, OR 97203 USA

				LBS	TONS	
0	IN --->	07:52:56am	Gross Wt:	92,040	46.02	Manual Wt
0	OUT -->	07:59:00am	Tare Wt:	34,800	17.40	Manual Wt
			NET WT:	57,240	28.62	

TRANSPORTER/DRIVER: CELORIE/RON DENNY

Weighmaster

Koppers016935

Manifest

TPS Technologies Soil Recycling
Non-Hazardous Soils

↓ Manifest # ↓

Date of Shipment:	Responsible for Payment:	Transporter Truck #:	Facility #:	Given by TPS:	Load #
	Contractor	Dorie 1	A09	03693	001

Generator and/or Consultant

Generator's Name and Billing Address:	Generator's Phone #:	Generator's US EPA ID No.
KOPPERS INDUSTRIES, INC. 7540 NW ST HELENS ROAD PORTLAND, OR 97210 USA	(503) 286-3681	
	Person to Contact: AMOS KAMERER	
	FAX #: (503) 285-2831	Customer Account Number with TPS: 9KOPPER
Consultant's Name and Billing Address:	**Consultant's Phone #:**	
RM CAT ENVIRONMENTAL -- CONTRACTOR -- 12823 NE AIRPORT WAY PORTLAND, OR 97230 USA	(503) 408-8880	
	Person to Contact: BOB JANAK	
	FAX #: (503) 408-8716	Customer Account Number with TPS: 10035 13
Generation Site (Transport from): *(name & address)*	**Site Phone #:**	BTEX Levels
KOPPERS TANK FOUNDATION EXCAVATION 7540 NW ST HELENS ROAD PORTLAND, OR 97210 USA	Person to Contact:	TPH Levels
	FAX #:	AVG. Levels
Designated Facility (Transport to): *(name & address)*	**Facility Phone #:** 503-735-9525	Facility Permit Numbers
TPST SOIL RECYCLERS OF OREGON 9333 N HARBORGATE STREET PORTLAND, OR 97203 USA	Person to Contact: GLENNA MULLAN	
	FAX #: 503-240-1412	
Transporter Name and Mailing Address:	**Transporter's Phone #:**	Transporter's US EPA ID No.:
	Person to Contact:	Transporter's DOT No.:
	FAX #:	Customer Account Number with TPS:

Description of Soil	Moisture Content	Contaminated by:	Approx. Qty:	Description of Delivery	Gross Weight	Tare Weight	Net Weight
Sand ☐ Organic ☐ Clay ☐ Other ☐	0 - 10% ☐ 10 - 20% ☐ 20% - over ☐	Gas ☐ Diesel ☐ Other ☐			92040	34800	57240
Sand ☐ Organic ☐ Clay ☐ Other ☐	0 - 10% ☐ 10 - 20% ☐ 20% - over ☐	Gas ☐ Diesel ☐ Other ☐				28.62	

List any exception to items listed above:

Generator's and/or consultant's certification: I/We certify that the soil referenced herein is taken entirely from those soils described in the Soil Data Sheet completed and certified by me/us for the Generation Site shown above and nothing has been added or done to such soil that would alter it in any way.

Print or Type Name: Generator ☐ Consultant ☐	Signature and date:	Month	Day	Year
SIGNATURE ON FILE				

Transporter

Transporter's certification: I/We acknowledge receipt of the soil described above and certify that such soil is being delivered in exactly the same condition as when received. I/We further certify that this soil is being directly transported from the Generation Site to the Designated Facility without off-loading, adding to, subtracting from or in any way delaying delivery to such site.

Print or Type Name:	Signature and date:	Month	Day	Year
X Ron Denny	X Ron Denny	4	19	99

Recycling Facility

Discrepancies:

Recycling Facility certifies the receipt of the soil covered by this manifest except as noted above:

Print or Type Name:	Signature and date:
GLENNA MULLAN	Glenna Mullan 4/19/99

Please print or type.

GENERATOR/CONSULTANT'S COPY

TPST SOIL RECYCLERS OF OREGON

9333 N. Harborgate Street Portland, OR 97203

OR 011810

WEIGHMASTER CERTIFICATE – LICENSE #68636

THIS IS TO CERTIFY that the following described soil commodity was weighed, measured, or counted by a weighmaster, whose signature is on this certificate, as prescribed by the Division of Measurement Standards of the Oregon Department of Agriculture.

Manifest # A09 -03693 -002 04/19/99

Generator Site Information	Facility Information
KOPPERS TANK FOUNDATION EXCAVATION	TPST SOIL RECYCLERS OF OREGON
7540 NW ST HELENS ROAD	9333 N HARBORGATE STREET
PORTLAND, OR 97210 USA	PORTLAND, OR 97203 USA

				LBS	TONS	
0	IN --->	08:02:41am	Gross Wt:	74,700	37.35	Manual Wt
0	OUT -->	08:09:08am	Tare Wt:	31,760	15.88	Manual Wt
			NET WT:	42,940	21.47	

TRANSPORTER/DRIVER: CELORIE/JAMES MAYO

Weighmaster _____

Koppers016937

Manifest

TPS Technologies Soil Recycling
Non-Hazardous Soils

↓ Manifest # ↓

Date of Shipment:	Responsible for Payment:	Transporter Truck #:	Facility #:	Given by TPS:	Load #
	Contractor	Clarke 15	A09	03693	002

Generator and/or Consultant

Generator's Name and Billing Address: KOPPERS INDUSTRIES, INC. 7540 NW ST HELENS ROAD PORTLAND, OR 97210 USA	Generator's Phone #: (503) 286-3681 Person to Contact: AMOS KAMERER FAX #: (503) 285-2851	Generator's US EPA ID No. Customer Account Number with TPS: 9KOPPER
Consultant's Name and Billing Address: RM CAT ENVIRONMENTAL -- CONTRACTOR -- 12823 NE AIRPORT WAY PORTLAND, OR 97230 USA	Consultant's Phone #: (503) 408-8880 Person to Contact: BOB JANAK FAX #: (503) 408-8716	 Customer Account Number with TPS: L00351.3
Generation Site (Transport from): *(name & address)* KOPPERS TANK FOUNDATION EXCAVATION 7540 NW ST HELENS ROAD PORTLAND, OR 97210 USA	Site Phone #: Person to Contact: FAX #:	BTEX Levels TPH Levels AVG. Levels
Designated Facility (Transport to): *(name & address)* TPST SOIL RECYCLERS OF OREGON 9333 N HARBORGATE STREET PORTLAND, OR 97203 USA	Facility Phone #: 503-735-9525 Person to Contact: GLENNA MULLAN FAX #: 503-249-1712	Facility Permit Numbers
Transporter Name and Mailing Address:	Transporter's Phone #: Person to Contact: FAX #:	Transporter's US EPA ID No.: Transporter's DOT No.: Customer Account Number with TPS:

Description of Soil	Moisture Content	Contaminated by:	Approx. Qty:	Description of Delivery	Gross Weight	Tare Weight	Net Weight
Sand ☐ Organic ☐ Clay ☐ Other ☐	0 - 10% ☐ 10 - 20% ☐ 20% - over ☐	Gas ☐ Diesel ☐ Other ☐			74700	31760	42940
Sand ☐ Organic ☐ Clay ☐ Other ☐	0 - 10% ☐ 10 - 20% ☐ 20% - over ☐	Gas ☐ Diesel ☐ Other ☐				21.47	

List any exception to items listed above:

Generator's and/or consultant's certification: I/We certify that the soil referenced herein is taken entirely from those soils described in the Soil Data Sheet completed and certified by me/us for the Generation Site shown above and nothing has been added or done to such soil that would alter it in any way.

Print or Type Name: Generator ☐ Consultant ☐	Signature and date:	Month	Day	Year
SIGNATURE ON FILE				

Transporter

Transporter's certification: I/We acknowledge receipt of the soil described above and certify that such soil is being delivered in exactly the same condition as when received. I/We further certify that this soil is being directly transported from the Generation Site to the Designated Facility without off-loading, adding to, subtracting from or in any way delaying delivery to such site.

Print or Type Name:	Signature and date:	Month	Day	Year
X James Mayo	X James Mayo	4	19	99

Recycling Facility

Discrepancies:

Recycling Facility certifies the receipt of the soil covered by this manifest except as noted above:

Print or Type Name:	Signature and date:
GLENNA MULLAN	Glenna Mullan 4/19/99

Please print or type.

GENERATOR/consultant's COPY

TPST SOIL RECYCLERS OF OREGON

9333 N. Harborgate Street Portland, OR 97203

OR 011811

WEIGHMASTER CERTIFICATE – LICENSE #68636

THIS IS TO CERTIFY that the following described soil commodity was weighed, measured, or counted by a weighmaster, whose signature is on this certificate, as prescribed by the Division of Measurement Standards of the Oregon Department of Agriculture.

Manifest # A09 -03693 -003 04/19/99

Generator Site Information	Facility Information
KOPPERS TANK FOUNDATION EXCAVATION	TPST SOIL RECYCLERS OF OREGON
7540 NW ST HELENS ROAD	9333 N HARBORGATE STREET
PORTLAND, OR 97210 USA	PORTLAND, OR 97203 USA

				LBS	TONS	
0	IN --->	08:10:25am	Gross Wt:	78,200	39.10	Manual Wt
0	OUT -->	08:18:38am	Tare Wt:	32,900	16.45	Manual Wt
			NET WT:	45,300	22.65	

TRANSPORTER/DRIVER: GLORIE/LONNIE NOLAN

Weighmaster _____

Koppers016939

Manifest

TPS Technologies Soil Recycling
Non-Hazardous Soils

↓ Manifest # ↓

Date of Shipment:	Responsible for Payment:	Transporter Truck #:	Facility #:	Given by TPS:	Load #
	Contractor	Celorie 3	AMS	03693	003

Generator and/or Consultant

Generator's Name and Billing Address: KOPPERS INDUSTRIES, INC. 7540 NW ST HELENS ROAD PORTLAND, OR 97210 USA	Generator's Phone #: (503) 286-3681 Person to Contact: AMOS KAMERER FAX #: (503) 285-2831	Generator's US EPA ID No. Customer Account Number with TPS: 9KOPPER
Consultant's Name and Billing Address: RM CAT ENVIRONMENTAL --- CONTRACTOR --- 12823 NE AIRPORT WAY PORTLAND, OR 97230 USA	Consultant's Phone #: (503) 408-8880 Person to Contact: BOB JANAK FAX #: (503) 408-8716	 Customer Account Number with TPS: L003513
Generation Site (Transport from): *(name & address)* KOPPERS TANK FOUNDATION EXCAVATION 7540 NW ST HELENS ROAD PORTLAND, OR 97210 USA	Site Phone #: Person to Contact: FAX #:	BTEX Levels TPH Levels AVG. Levels
Designated Facility (Transport to): *(name & address)* TPST SOIL RECYCLERS OF OREGON 9333 N HARBORGATE STREET PORTLAND, OR 97203 USA	Facility Phone #: 503-735-9525 Person to Contact: GLENNA MULLAN FAX #: 503-240-1712	Facility Permit Numbers
Transporter Name and Mailing Address:	Transporter's Phone #: Person to Contact: FAX #:	Transporter's US EPA ID No.: Transporter's DOT No.: Customer Account Number with TPS:

Description of Soil	Moisture Content	Contaminated by:	Approx. Qty:	Description of Delivery	Gross Weight	Tare Weight	Net Weight
Sand ☐ Organic ☐ Clay ☐ Other ☐	0 - 10% ☐ 10 - 20% ☐ 20% - over ☐	Gas ☐ Diesel ☐ Other ☐			78200	32900	45300
Sand ☐ Organic ☐ Clay ☐ Other ☐	0 - 10% ☐ 10 - 20% ☐ 20% - over ☐	Gas ☐ Diesel ☐ Other ☐				22.65	

List any exception to items listed above:

Generator's and/or consultant's certification: I/We certify that the soil referenced herein is taken entirely from those soils described in the Soil Data Sheet completed and certified by me/us for the Generation Site shown above and nothing has been added or done to such soil that would alter it in any way.

Print or Type Name: Generator ☐ Consultant ☐	Signature and date:	Month	Day	Year
SIGNATURE ON FILE				

Transporter

Transporter's certification: I/We acknowledge receipt of the soil described above and certify that such soil is being delivered in exactly the same condition as when received. I/We further certify that this soil is being directly transported from the Generation Site to the Designated Facility without off-loading, adding to, subtracting from or in any way delaying delivery to such site.

Print or Type Name:	Signature and date:	Month	Day	Year
X LONNIE NOLAN	Lonnie F. Nolan	4	19	99

Recycling Facility

Discrepancies:

Recycling Facility certifies the receipt of the soil covered by this manifest except as noted above:

Print or Type Name:	Signature and date:
GLENNA MULLAN	4/19/99

Please print or type.

GENERATOR/CONSULTANT'S COPY

TPST SOIL RECYCLERS OF OREGON

9333 N. Harborgate Street Portland, OR 97203

OR 011812

WEIGHMASTER CERTIFICATE – LICENSE #68636

THIS IS TO CERTIFY that the following described soil commodity was weighed, measured, or counted by a weighmaster, whose signature is on this certificate, as prescribed by the Division of Measurement Standards of the Oregon Department of Agriculture.

Manifest # A09 -03693 -004 04/19/99

Generator Site Information	Facility Information
KOPPERS TANK FOUNDATION EXCAVATION	TPST SOIL RECYCLERS OF OREGON
7540 NW ST HELENS ROAD	9333 N HARBORGATE STREET
PORTLAND, OR 97210 USA	PORTLAND, OR 97203 USA

				LBS	TONS	
0	IN --->	08:42:56am	Gross Wt:	88,960	44.48	Manual Wt
0	OUT -->	08:48:22am	Tare Wt:	34,780	17.39	Manual Wt
			NET WT:	54,180	27.09	

TRANSPORTER/DRIVER: CELORIE/RON DENNY

Weighmaster

Koppers016941

Manifest

TPS Technologies Soil Recycling
Non-Hazardous Soils

Manifest #

Date of Shipment:	Responsible for Payment:	Transporter Truck #:	Facility #:	Given by TPS:	Load #
	Contractor	Clause 1	A09	03693	004

Generator and/or Consultant

Generator's Name and Billing Address:	Generator's Phone #:	Generator's US EPA ID No.
KOPPERS INDUSTRIES, INC. 7540 NW ST HELENS ROAD PORTLAND, OR 97210 USA	(503) 286 3681 Person to Contact: AMOS KAMERER FAX #: (503) 285-2831	Customer Account Number with TPS: 9KOPPER
Consultant's Name and Billing Address:	**Consultant's Phone #:**	
RM CAT ENVIRONMENTAL -- CONTRACTOR -- 12823 NE AIRPORT WAY PORTLAND, OR 97230 USA	(503) 408-8880 Person to Contact: BOB JANAK FAX #: (503) 408-8716	Customer Account Number with TPS: 10035[illegible]3
Generation Site (Transport from): *(name & address)*	**Site Phone #:**	BTEX Levels
KOPPERS TANK FOUNDATION EXCAVATION 7540 NW ST HELENS ROAD PORTLAND, OR 97210 USA	Person to Contact: FAX #:	TPH Levels AVG. Levels
Designated Facility (Transport to): *(name & address)*	**Facility Phone #:** 503-735-9525	Facility Permit Numbers
TPST SOIL RECYCLERS OF OREGON 9333 N HARBORGATE STREET PORTLAND, OR 97203 USA	Person to Contact: GLENNA MULLAN FAX #: 503-240-1712	
Transporter Name and Mailing Address:	**Transporter's Phone #:**	Transporter's US EPA ID No.:
	Person to Contact:	Transporter's DOT No.:
	FAX #:	Customer Account Number with TPS:

Description of Soil	Moisture Content	Contaminated by:	Approx. Qty:	Description of Delivery	Gross Weight	Tare Weight	Net Weight
Sand ☐ Organic ☐ Clay ☐ Other ☐	0 - 10% ☐ 10 - 20% ☐ 20% - over ☐	Gas ☐ Diesel ☐ Other ☐			58960	34780	54180
Sand ☐ Organic ☐ Clay ☐ Other ☐	0 - 10% ☐ 10 - 20% ☐ 20% - over ☐	Gas ☐ Diesel ☐ Other ☐				27.09	

List any exception to items listed above:

Generator's and/or consultant's certification: I/We certify that the soil referenced herein is taken entirely from those soils described in the Soil Data Sheet completed and certified by me/us for the Generation Site shown above and nothing has been added or done to such soil that would alter it in any way.

Print or Type Name: Generator ☐ Consultant ☐	Signature and date:	Month	Day	Year
SIGNATURE ON FILE				

Transporter

Transporter's certification: I/We acknowledge receipt of the soil described above and certify that such soil is being delivered in exactly the same condition as when received. I/We further certify that this soil is being directly transported from the Generation Site to the Designated Facility without off-loading, adding to, subtracting from or in any way delaying delivery to such site.

Print or Type Name:	Signature and date:	Month	Day	Year
X Ron Dennis	X Ron Dennis	4	19	99

Recycling Facility

Discrepancies:

Recycling Facility certifies the receipt of the soil covered by this manifest except as noted above:

Print or Type Name:	Signature and date:
GLENNA MULLAN	Glenna Mullan 4/19/99

Please print or type.

GENERATOR/consultant's COPY

TPST SOIL RECYCLERS OF OREGON

9333 N. Harborgate Street Portland, OR 97203

OR 011813

WEIGHMASTER CERTIFICATE – LICENSE #68636

THIS IS TO CERTIFY that the following described soil commodity was weighed, measured, or counted by a weighmaster, whose signature is on this certificate, as prescribed by the Division of Measurement Standards of the Oregon Department of Agriculture.

Manifest # A09 -03693 -005 04/19/99

Generator Site Information	Facility Information
KOPPERS TANK FOUNDATION EXCAVATION	TPST SOIL RECYCLERS OF OREGON
7540 NW ST HELENS ROAD	9333 N HARBORGATE STREET
PORTLAND, OR 97210 USA	PORTLAND, OR 97203 USA

				LBS	TONS	
0	IN --->	09:02:30am	Gross Wt:	77,940	38.97	Manual Wt
0	OUT -->	09:09:22am	Tare Wt:	31,740	15.87	Manual Wt
			NET WT:	46,200	23.10	

TRANSPORTER/DRIVER: CELORIE/JAMES MAYO

Weighmaster

Koppers016943

Manifest

TPS Technologies Soil Recycling
Non-Hazardous Soils

↓ Manifest # ↓

Date of Shipment:	Responsible for Payment:	Transporter Truck #:	Facility #:	Given by TPS:	Load #
	Contractor	Volvo 15	A09	03693	005

Generator and/or Consultant

Generator's Name and Billing Address: KOPPERS INDUSTRIES, INC 7540 NW ST HELENS ROAD PORTLAND, OR 97210 USA	Generator's Phone #: (503) 286-3681 Person to Contact: AMOS KAMERER FAX #: (503) 285-2831	Generator's US EPA ID No. Customer Account Number with TPS: 9KOPPER
Consultant's Name and Billing Address: RM CAT ENVIRONMENTAL -- CONTRACTOR -- 12823 NE AIRPORT WAY PORTLAND, OR 97230 USA	Consultant's Phone #: (503) 408-8880 Person to Contact: BOB JANAK FAX #: (503) 408-8716	 Customer Account Number with TPS: 10035L3
Generation Site (Transport from): *(name & address)* KOPPERS TANK FOUNDATION EXCAVATION 7540 NW ST HELENS ROAD PORTLAND, OR 97210 USA	Site Phone #: Person to Contact: FAX #:	BTEX Levels TPH Levels AVG. Levels
Designated Facility (Transport to): *(name & address)* TPST SOIL RECYCLERS OF OREGON 9303 N HARBORGATE STREET PORTLAND, OR 97203 USA	Facility Phone #: 503-735-9525 Person to Contact: GLENNA MULLAN FAX #: 503-240-1712	Facility Permit Numbers
Transporter Name and Mailing Address:	Transporter's Phone #: Person to Contact: FAX #:	Transporter's US EPA ID No.: Transporter's DOT No.: Customer Account Number with TPS:

Description of Soil	Moisture Content	Contaminated by:	Approx. Qty:	Description of Delivery	Gross Weight	Tare Weight	Net Weight
Sand ☐ Organic ☐ Clay ☐ Other ☐	0 - 10% ☐ 10 - 20% ☐ 20% - over ☐	Gas ☐ Diesel ☐ Other ☐			77940	31740	46200
Sand ☐ Organic ☐ Clay ☐ Other ☐	0 - 10% ☐ 10 - 20% ☐ 20% - over ☐	Gas ☐ Diesel ☐ Other ☐				23.10	

List any exception to items listed above:

Generator's and/or consultant's certification: I/We certify that the soil referenced herein is taken entirely from those soils described in the Soil Data Sheet completed and certified by me/us for the Generation Site shown above and nothing has been added or done to such soil that would alter it in any way.

Print or Type Name: Generator ☐ Consultant ☐	Signature and date:	Month	Day	Year
SIGNATURE ON FILE				

Transporter

Transporter's certification: I/We acknowledge receipt of the soil described above and certify that such soil is being delivered in exactly the same condition as when received. I/We further certify that this soil is being directly transported from the Generation Site to the Designated Facility without off-loading, adding to, subtracting from or in any way delaying delivery to such site.

Print or Type Name:	Signature and date:	Month	Day	Year
X James Mayo	X James Mayo	4	19	99

Recycling Facility

Discrepancies:

Recycling Facility certifies the receipt of the soil covered by this manifest except as noted above:

Print or Type Name:	Signature and date:
GLENNA MULLAN	4/19/99

Please print or type.

GENERATOR/CONSULTANT'S COPY

TPST SOIL RECYCLERS OF OREGON

9333 N. Harborgate Street Portland, OR 97203

OR 011814

WEIGHMASTER CERTIFICATE – LICENSE #68636

THIS IS TO CERTIFY that the following described soil commodity was weighed, measured, or counted by a weighmaster, whose signature is on this certificate, as prescribed by the Division of Measurement Standards of the Oregon Department of Agriculture.

Manifest # A09 -03693 -006 04/19/99

Generator Site Information	Facility Information
KOPPERS TANK FOUNDATION EXCAVATION	TPST SOIL RECYCLERS OF OREGON
7540 NW ST HELENS ROAD	9333 N HARBORGATE STREET
PORTLAND, OR 97210 USA	PORTLAND, OR 97203 USA

				LBS	TONS	
0	IN --->	09:28:33am	Gross Wt:	83,880	41.94	Manual Wt
0	OUT -->	09:35:18am	Tare Wt:	32,860	16.43	Manual Wt
			NET WT:	51,020	25.51	

TRANSPORTER/DRIVER: CELORIE/LONNIE NOLAN

Weighmaster _____

Koppers016945

Manifest

TPS Technologies Soil Recycling
Non-Hazardous Soils

↓ Manifest # ↓

Date of Shipment:	Responsible for Payment:	Transporter Truck #:	Facility #:	Given by TPS:	Load #
	Contractor	Clarie 3	A09	03693	006

Generator and/or Consultant

Generator's Name and Billing Address: KOPPERS INDUSTRIES, INC. 7540 NW ST HELENS ROAD PORTLAND, OR 97210 USA	Generator's Phone #: (503) 286-3681 Person to Contact: AMOS KAMERER FAX #: (503) 285-2831	Generator's US EPA ID No. Customer Account Number with TPS: 9KOPPER
Consultant's Name and Billing Address: RM CAT ENVIRONMENTAL -- CONTRACTOR -- 12823 NE AIRPORT WAY PORTLAND, OR 97230 USA	Consultant's Phone #: (503) 408-8880 Person to Contact: BOB JANAK FAX #: (503) 408-8716	Customer Account Number with TPS: 1003513
Generation Site (Transport from): *(name & address)* KOPPERS TANK FOUNDATION EXCAVATION 7540 NW ST HELENS ROAD PORTLAND, OR 97210 USA	Site Phone #: Person to Contact: FAX #:	BTEX Levels TPH Levels AVG. Levels
Designated Facility (Transport to): *(name & address)* TPST SOIL RECYCLERS OF OREGON 9333 N HARBORGATE STREET PORTLAND, OR 97203 USA	Facility Phone #: 503-735-9525 Person to Contact: GLENNA MULLAN FAX #: 503-240-1712	Facility Permit Numbers
Transporter Name and Mailing Address:	Transporter's Phone #: Person to Contact: FAX #:	Transporter's US EPA ID No.: Transporter's DOT No.: Customer Account Number with TPS:

Description of Soil	Moisture Content	Contaminated by:	Approx. Qty:	Description of Delivery	Gross Weight	Tare Weight	Net Weight
Sand ☐ Organic ☐ Clay ☐ Other ☐	0 - 10% ☐ 10 - 20% ☐ 20% - over ☐	Gas ☐ Diesel ☐ Other ☐			83880	32860	51020
Sand ☐ Organic ☐ Clay ☐ Other ☐	0 - 10% ☐ 10 - 20% ☐ 20% - over ☐	Gas ☐ Diesel ☐ Other ☐				25.51	

List any exception to items listed above:

Generator's and/or consultant's certification: I/We certify that the soil referenced herein is taken entirely from those soils described in the Soil Data Sheet completed and certified by me/us for the Generation Site shown above and nothing has been added or done to such soil that would alter it in any way.

Print or Type Name: Generator ☐ Consultant ☐ SIGNATURE ON FILE

Signature and date: Month Day Year

Transporter

Transporter's certification: I/We acknowledge receipt of the soil described above and certify that such soil is being delivered in exactly the same condition as when received. I/We further certify that this soil is being directly transported from the Generation Site to the Designated Facility without off-loading, adding to, subtracting from or in any way delaying delivery to such site.

Print or Type Name: Lonnie Nolan

Signature and date: Lonnie Nolan Month 4 Day 19 Year 99

Recycling Facility

Discrepancies:

Recycling Facility certifies the receipt of the soil covered by this manifest except as noted above:

Print or Type Name: GLENNA MULLAN

Signature and date: Glenna Mullan 4/19/99

Please print or type.

GENERATOR/consultant's COPY

Koppers016946

TPST SOIL RECYCLERS OF OREGON

9333 N. Harborgate Street Portland, OR 97203

OR 011816

WEIGHMASTER CERTIFICATE – LICENSE #68636

THIS IS TO CERTIFY that the following described soil commodity was weighed, measured, or counted by a weighmaster, whose signature is on this certificate, as prescribed by the Division of Measurement Standards of the Oregon Department of Agriculture.

Manifest # A09 -03693 -007 04/19/99

Generator Site Information	Facility Information
KOPPERS TANK FOUNDATION EXCAVATION	TPST SOIL RECYCLERS OF OREGON
7540 NW ST HELENS ROAD	9333 N HARBORGATE STREET
PORTLAND, OR 97210 USA	PORTLAND, OR 97203 USA

				LBS	TONS	
0	IN --->	09:42:21am	Gross Wt:	94,680	47.34	Manual Wt
0	OUT -->	09:51:12am	Tare Wt:	34,740	17.37	Manual Wt
			NET WT:	59,940	29.97	

TRANSPORTER/DRIVER: GELORIE/RON DENNY

Weighmaster

Koppers016947

Manifest

TPS Technologies Soil Recycling
Non-Hazardous Soils

↓ Manifest # ↓

Date of Shipment:	Responsible for Payment:	Transporter Truck #:	Facility #:	Given by TPS:	Load #
	Contractor	Clarie 1	A09	03693	007

Generator and/or Consultant

Generator's Name and Billing Address: KOPPERS INDUSTRIES, INC. 7540 NW ST HELENS ROAD PORTLAND, OR 97210 USA	Generator's Phone #: (503) 286-3681 Person to Contact: AMOS KAMERER FAX #: (503) 285-2831	Generator's US EPA ID No. Customer Account Number with TPS: 9KOPPER
Consultant's Name and Billing Address: RM CAT ENVIRONMENTAL -- CONTRACTOR -- 12823 NE AIRPORT WAY PORTLAND, OR 97230 USA	Consultant's Phone #: (503) 408-8880 Person to Contact: BOB JANAK FAX #: (503) 408-8716	 Customer Account Number with TPS: 100351G
Generation Site (Transport from): *(name & address)* KOPPERS TANK FOUNDATION EXCAVATION 7540 NW ST HELENS ROAD PORTLAND, OR 97210 USA	Site Phone #: Person to Contact: FAX #:	BTEX Levels TPH Levels AVG. Levels
Designated Facility (Transport to): *(name & address)* TPST SOIL RECYCLERS OF OREGON 9333 N HARBORGATE STREET PORTLAND, OR 97203 USA	Facility Phone #: 503-735-9525 Person to Contact: GLENNA MULLAN FAX #: 503-240-1712	Facility Permit Numbers
Transporter Name and Mailing Address:	Transporter's Phone #: Person to Contact: FAX #:	Transporter's US EPA ID No.: Transporter's DOT No.: Customer Account Number with TPS:

Description of Soil	Moisture Content	Contaminated by:	Approx. Qty:	Description of Delivery	Gross Weight	Tare Weight	Net Weight
Sand ☐ Organic ☐ Clay ☐ Other ☐	0 - 10% ☐ 10 - 20% ☐ 20% - over ☐	Gas ☐ Diesel ☐ Other ☐			74680	34740	39940
Sand ☐ Organic ☐ Clay ☐ Other ☐	0 - 10% ☐ 10 - 20% ☐ 20% - over ☐	Gas ☐ Diesel ☐ Other ☐				2997	

List any exception to items listed above:

Generator's and/or consultant's certification: I/We certify that the soil referenced herein is taken entirely from those soils described in the Soil Data Sheet completed and certified by me/us for the Generation Site shown above and nothing has been added or done to such soil that would alter it in any way.

Print or Type Name: Generator ☐ Consultant ☐	Signature and date:	Month	Day	Year
SIGNATURE ON FILE				

Transporter

Transporter's certification: I/We acknowledge receipt of the soil described above and certify that such soil is being delivered in exactly the same condition as when received. I/We further certify that this soil is being directly transported from the Generation Site to the Designated Facility without off-loading, adding to, subtracting from or in any way delaying delivery to such site.

Print or Type Name:	Signature and date:	Month	Day	Year
X Ron Denny	X Ron Denny	4	19	99

Recycling Facility

Discrepancies:

Recycling Facility certifies the receipt of the soil covered by this manifest except as noted above:

Print or Type Name:	Signature and date:
GLENNA MULLAN	Glenna Mullan 4/19/99

Please print or type.

GENERATOR/CONSULTANT'S COPY

TPST SOIL RECYCLERS OF OREGON

9333 N. Harborgate Street Portland, OR 97203

OR 011817

WEIGHMASTER CERTIFICATE – LICENSE #68636

THIS IS TO CERTIFY that the following described soil commodity was weighed, measured, or counted by a weighmaster, whose signature is on this certificate, as prescribed by the Division of Measurement Standards of the Oregon Department of Agriculture.

Manifest # A09 -03693 -008 04/19/99

Generator Site Information	Facility Information
KOPPERS TANK FOUNDATION EXCAVATION	TPST SOIL RECYCLERS OF OREGON
7540 NW ST HELENS ROAD	9333 N HARBORGATE STREET
PORTLAND, OR 97210 USA	PORTLAND, OR 97203 USA

				LBS	TONS	
0	IN --->	09:55:26am	Gross Wt:	80,540	40.27	Manual Wt
0	OUT -->	10:01:31am	Tare Wt:	31,700	15.85	Manual Wt
			NET WT:	48,840	24.42	

TRANSPORTER/DRIVER: CELORIE/JAMES MAYO

Weighmaster _____

Koppers016949

Manifest

TPS Technologies Soil Recycling
Non-Hazardous Soils

↓ Manifest # ↓

Date of Shipment:	Responsible for Payment:	Transporter Truck #:	Facility #:	Given by TPS:	Load #
	Contractor	Blue 15	A09	03693	008

Generator and/or Consultant

Generator's Name and Billing Address:	Generator's Phone #:	Generator's US EPA ID No.
KOPPERS INDUSTRIES, INC. 7540 NW ST HELENS ROAD PORTLAND, OR 97210 USA	(503) 286-3081 Person to Contact: AMOS KAMEKER FAX #: (503) 285-2831	Customer Account Number with TPS: 9KOPPER
Consultant's Name and Billing Address:	**Consultant's Phone #:**	
RM CAT ENVIRONMENTAL -- CONTRACTOR -- 12823 NE AIRPORT WAY PORTLAND, OR 97230 USA	(503) 408-8880 Person to Contact: BOB JANAK FAX #: (503) 408-8216	Customer Account Number with TPS: 10035L3
Generation Site (Transport from): *(name & address)*	**Site Phone #:**	BTEX Levels
KOPPERS TANK FOUNDATION EXCAVATION 7540 NW ST HELENS ROAD PORTLAND, OR 97210 USA	Person to Contact: FAX #:	TPH Levels AVG. Levels
Designated Facility (Transport to): *(name & address)*	**Facility Phone #:** 503-735-9525	Facility Permit Numbers
TPST SOIL RECYCLERS OF OREGON 9333 N HARBORGATE STREET PORTLAND, OR 97203 USA	Person to Contact: GLENNA MULLAN FAX #: 503-240-1712	
Transporter Name and Mailing Address:	**Transporter's Phone #:**	Transporter's US EPA ID No.:
	Person to Contact:	Transporter's DOT No.:
	FAX #:	Customer Account Number with TPS:

Description of Soil	Moisture Content	Contaminated by:	Approx. Qty:	Description of Delivery	Gross Weight	Tare Weight	Net Weight
Sand ☐ Organic ☐ Clay ☐ Other ☐	0 - 10% ☐ 10 - 20% ☐ 20% - over ☐	Gas ☐ Diesel ☐ Other ☐			76540	31700	44840
Sand ☐ Organic ☐ Clay ☐ Other ☐	0 - 10% ☐ 10 - 20% ☐ 20% - over ☐	Gas ☐ Diesel ☐ Other ☐				24.42	

List any exception to items listed above:

Generator's and/or consultant's certification: I/We certify that the soil referenced herein is taken entirely from those soils described in the Soil Data Sheet completed and certified by me/us for the Generation Site shown above and nothing has been added or done to such soil that would alter it in any way.

Print or Type Name: Generator ☐ Consultant ☐	Signature and date:	Month	Day	Year
SIGNATURE ON FILE				

Transporter

Transporter's certification: I/We acknowledge receipt of the soil described above and certify that such soil is being delivered in exactly the same condition as when received. I/We further certify that this soil is being directly transported from the Generation Site to the Designated Facility without off-loading, adding to, subtracting from or in any way delaying delivery to such site.

Print or Type Name:	Signature and date:	Month	Day	Year
X James Mayo	X [signature] Mayo	4	19	99

Recycling Facility

Discrepancies:

Recycling Facility certifies the receipt of the soil covered by this manifest except as noted above:

Print or Type Name:	Signature and date:
GLENNA MULLAN	[signature] 4/19/99

Please print or type.

GENERATOR/consultant's COPY

TPST SOIL RECYCLERS OF OREGON

9333 N. Harborgate Street Portland, OR 97203

OR 011818

WEIGHMASTER CERTIFICATE – LICENSE #68636

THIS IS TO CERTIFY that the following described soil commodity was weighed, measured, or counted by a weighmaster, whose signature is on this certificate, as prescribed by the Division of Measurement Standards of the Oregon Department of Agriculture.

Manifest # A09 -03693 -009 04/19/99

Generator Site Information	Facility Information
KOPPERS TANK FOUNDATION EXCAVATION	TPST SOIL RECYCLERS OF OREGON
7540 NW ST HELENS ROAD	9333 N HARBORGATE STREET
PORTLAND, OR 97210 USA	PORTLAND, OR 97203 USA

				LBS	TONS	
0	IN --->	10:13:39am	Gross Wt:	79,060	39.53	Manual Wt
0	OUT -->	10:18:55am	Tare Wt:	32,800	16.40	Manual Wt
			NET WT:	46,260	23.13	

TRANSPORTER/DRIVER: CELORIE/LONNIE NOLAN

Weighmaster _____

Koppers016951

Manifest

TPS Technologies Soil Recycling
Non-Hazardous Soils

↓ Manifest # ↓

Generator and/or Consultant

Date of Shipment:	Responsible for Payment:	Transporter Truck #:	Facility #:	Given by TPS:	Load #
	CONTRACTOR	Volvo 3	009	03693	009

Generator's Name and Billing Address:	Generator's Phone #:	Generator's US EPA ID No.
KOPPERS INDUSTRIES, INC. 7540 NW ST HELENS ROAD PORTLAND, OR 97210 USA	(503) 286-3681	
	Person to Contact: AMOS KAMERER	
	FAX #: (503) 285-2831	Customer Account Number with TPS: 9KOPPER

Consultant's Name and Billing Address:	Consultant's Phone #:	
RM CAT ENVIRONMENTAL - CONTRACTOR - 12823 NE AIRPORT WAY PORTLAND, OR 97230 USA	(503) 408-8830	
	Person to Contact: BOB JANAF	
	FAX #: (503) 408-8716	Customer Account Number with TPS: 100351

Generation Site (Transport from): *(name & address)*	Site Phone #:	BTEX Levels
KOPPER'S TANK FOUNDATION EXCAVATION 7540 NW ST HELEN'S ROAD PORTLAND, OR 97210 USA	Person to Contact:	TPH Levels
	FAX #:	AVG. Levels

Designated Facility (Transport to): *(name & address)*	Facility Phone #:	Facility Permit Numbers
TPST SOIL RECYCLERS OF OREGON 9333 N HARBORGATE STREET PORTLAND, OR 97203 USA	503-735-9525	
	Person to Contact: GLENNA MULLAN	
	FAX #: 503-240-1712	

Transporter Name and Mailing Address:	Transporter's Phone #:	Transporter's US EPA ID No.:
	Person to Contact:	Transporter's DOT No.:
	FAX #:	Customer Account Number with TPS:

Description of Soil	Moisture Content	Contaminated by:	Approx. Qty:	Description of Delivery	Gross Weight	Tare Weight	Net Weight
Sand ☐ Organic ☐ Clay ☐ Other ☐	0 - 10% ☐ 10 - 20% ☐ 20% - over ☐	Gas ☐ Diesel ☐ Other ☐			79060	32780	46280
Sand ☐ Organic ☐ Clay ☐ Other ☐	0 - 10% ☐ 10 - 20% ☐ 20% - over ☐	Gas ☐ Diesel ☐ Other ☐				23.13	

List any exception to items listed above:

Generator's and/or consultant's certification: I/We certify that the soil referenced herein is taken entirely from those soils described in the Soil Data Sheet completed and certified by me/us for the Generation Site shown above and nothing has been added or done to such soil that would alter it in any way.

Print or Type Name: Generator ☐ Consultant ☐	Signature and date:	Month	Day	Year
SIGNATURE ON FILE				

Transporter

Transporter's certification: I/We acknowledge receipt of the soil described above and certify that such soil is being delivered in exactly the same condition as when received. I/We further certify that this soil is being directly transported from the Generation Site to the Designated Facility without off-loading, adding to, subtracting from or in any way delaying delivery to such site.

Print or Type Name:	Signature and date:	Month	Day	Year
Lonnie Nolan	Lonnie	4	19	99

Recycling Facility

Discrepancies:

Recycling Facility certifies the receipt of the soil covered by this manifest except as noted above:

Print or Type Name:	Signature and date:
GLENNA MULLAN	Glenna Mull 4/19/99

Please print or type.

GENERATOR/CONSULTANT'S COPY

TPST SOIL RECYCLERS OF OREGON

9333 N. Harborgate Street Portland, OR 97203

OR 011819

WEIGHMASTER CERTIFICATE – LICENSE #68636

THIS IS TO CERTIFY that the following described soil commodity was weighed, measured, or counted by a weighmaster, whose signature is on this certificate, as prescribed by the Division of Measurement Standards of the Oregon Department of Agriculture.

Manifest # A09 -03693 -010 04/19/99

Generator Site Information	Facility Information
KOPPERS TANK FOUNDATION EXCAVATION	TPST SOIL RECYCLERS OF OREGON
7540 NW ST HELENS ROAD	9333 N HARBORGATE STREET
PORTLAND, OR 97210 USA	PORTLAND, OR 97203 USA

				LBS	TONS	
0	IN --->	10:32:57am	Gross Wt:	89,540	44.77	Manual Wt
0	OUT -->	10:38:38am	Tare Wt:	34,720	17.36	Manual Wt
			NET WT:	54,820	27.41	

TRANSPORTER/DRIVER: CELORIE/RON DENNY

Weighmaster _____

Koppers016953

Manifest

TPS Technologies Soil Recycling
Non-Hazardous Soils

↓ Manifest # ↓

Date of Shipment:	Responsible for Payment:	Transporter Truck #:	Facility #:	Given by TPS:	Load #
	Contractor	Truck 1	009	03693	010

Generator and/or Consultant

Generator's Name and Billing Address:	Generator's Phone #:	Generator's US EPA ID No.
KOPPERS INDUSTRIES, INC 7540 NW ST HELENS ROAD PORTLAND, OR 97210 USA	(503) 286-3581 Person to Contact: AMOS KAMERER FAX #: (503) 285-2831	Customer Account Number with TPS: 9KOPPER
Consultant's Name and Billing Address:	**Consultant's Phone #:**	
RM CAT ENVIRONMENTAL -- CONTRACTOR -- 12823 NE AIRPORT WAY PORTLAND, OR 97230 USA	(503) 408-8880 Person to Contact: BOB JANAK FAX #: (503) 408-8716	Customer Account Number with TPS: 1003613
Generation Site (Transport from): *(name & address)*	**Site Phone #:**	BTEX Levels
KOPPERS TANK FOUNDATION EXCAVATION 7540 NW ST HELENS ROAD PORTLAND, OR 97210 USA	Person to Contact: FAX #:	TPH Levels AVG. Levels
Designated Facility (Transport to): *(name & address)*	**Facility Phone #:** 503-735-9525	Facility Permit Numbers
TPST SOIL RECYCLERS OF OREGON 9333 N HARBORGATE STREET PORTLAND, OR 97203 USA	Person to Contact: GLENNA MULLAN FAX #: 503-240-1717	
Transporter Name and Mailing Address:	**Transporter's Phone #:**	Transporter's US EPA ID No.:
	Person to Contact:	Transporter's DOT No.:
	FAX #:	Customer Account Number with TPS:

Description of Soil	Moisture Content	Contaminated by:	Approx. Qty:	Description of Delivery	Gross Weight	Tare Weight	Net Weight
Sand ☐ Organic ☐ Clay ☐ Other ☐	0 - 10% ☐ 10 - 20% ☐ 20% - over ☐	Gas ☐ Diesel ☐ Other ☐			89540	34120	54820
Sand ☐ Organic ☐ Clay ☐ Other ☐	0 - 10% ☐ 10 - 20% ☐ 20% - over ☐	Gas ☐ Diesel ☐ Other ☐				37.41	

List any exception to items listed above:

Generator's and/or consultant's certification: I/We certify that the soil referenced herein is taken entirely from those soils described in the Soil Data Sheet completed and certified by me/us for the Generation Site shown above and nothing has been added or done to such soil that would alter it in any way.

Print or Type Name: Generator ☐ Consultant ☐	Signature and date:	Month	Day	Year
SIGNATURE ON FILE				

Transporter

Transporter's certification: I/We acknowledge receipt of the soil described above and certify that such soil is being delivered in exactly the same condition as when received. I/We further certify that this soil is being directly transported from the Generation Site to the Designated Facility without off-loading, adding to, subtracting from or in any way delaying delivery to such site.

Print or Type Name:	Signature and date:	Month	Day	Year
X Ron Denny	X Ron Denny	4	19	99

Recycling Facility

Discrepancies:

Recycling Facility certifies the receipt of the soil covered by this manifest except as noted above:

Print or Type Name:	Signature and date:
GLENNA MULLAN	Glenna Mullan 4/19/99

Please print or type.

GENERATOR/consultant's COPY

TPST SOIL RECYCLERS OF OREGON

9333 N. Harborgate Street Portland, OR 97203

OR 011820

WEIGHMASTER CERTIFICATE – LICENSE #68636

THIS IS TO CERTIFY that the following described soil commodity was weighed, measured, or counted by a weighmaster, whose signature is on this certificate, as prescribed by the Division of Measurement Standards of the Oregon Department of Agriculture.

Manifest # A09 -03693 -011 04/19/99

Generator Site Information	Facility Information
KOPPERS TANK FOUNDATION EXCAVATION	TPST SOIL RECYCLERS OF OREGON
7540 NW ST HELENS ROAD	9333 N HARBORGATE STREET
PORTLAND, OR 97210 USA	PORTLAND, OR 97203 USA

				LBS	TONS	
0	IN --->	10:45:34am	Gross Wt:	74,220	37.11	Manual Wt
0	OUT -->	10:50:55am	Tare Wt:	31,700	15.85	Manual Wt
			NET WT:	42,520	21.26	

TRANSPORTER/DRIVER: CELORIE/JAMES MAYO

Weighmaster _____

Koppers016955

Manifest

TPS Technologies Soil Recycling
Non-Hazardous Soils

↓ Manifest # ↓

Date of Shipment:	Responsible for Payment:	Transporter Truck #:	Facility #:	Given by TPS:	Load #
	Contractor	Vehicle 15	A09	03693	911

Generator and/or Consultant

Generator's Name and Billing Address:	Generator's Phone #:	Generator's US EPA ID No.
KOPPERS INDUSTRIES, INC 7540 NW ST HELENS ROAD PORTLAND, OR 97210 USA	(503) 286 3681 Person to Contact: AMOS KAMERER FAX #: (503) 285-2811	Customer Account Number with TPS: 9KOPPER
Consultant's Name and Billing Address:	**Consultant's Phone #:**	
RM CAT ENVIRONMENTAL -- CONTRACTOR -- 12823 NE AIRPORT WAY PORTLAND, OR 97230 USA	(503) 408-8880 Person to Contact: BOB JANAE FAX #: (503) 408-8716	Customer Account Number with TPS: 100351.3
Generation Site (Transport from): *(name & address)*	**Site Phone #:**	**BTEX Levels**
KOPPERS TANK FOUNDATION EXCAVATION 7540 NW ST HELENS ROAD PORTLAND, OR 97210 USA	Person to Contact: FAX #:	TPH Levels AVG. Levels
Designated Facility (Transport to): *(name & address)*	**Facility Phone #:**	**Facility Permit Numbers**
TPST SOIL RECYCLERS OF OREGON 9363 N HARBORGATE STREET PORTLAND, OR 97203 USA	503-735-9525 Person to Contact: GLENNA MULLAN FAX #: 503-240-1712	
Transporter Name and Mailing Address:	**Transporter's Phone #:**	**Transporter's US EPA ID No.:**
	Person to Contact:	Transporter's DOT No.:
	FAX #:	Customer Account Number with TPS:

Description of Soil	Moisture Content	Contaminated by:	Approx. Qty:	Description of Delivery	Gross Weight	Tare Weight	Net Weight
Sand ☐ Organic ☐ Clay ☐ Other ☐	0 - 10% ☐ 10 - 20% ☐ 20% - over ☐	Gas ☐ Diesel ☐ Other ☐			74720	31700	42520
Sand ☐ Organic ☐ Clay ☐ Other ☐	0 - 10% ☐ 10 - 20% ☐ 20% - over ☐	Gas ☐ Diesel ☐ Other ☐				21.26	

List any exception to items listed above:

Generator's and/or consultant's certification: I/We certify that the soil referenced herein is taken entirely from those soils described in the Soil Data Sheet completed and certified by me/us for the Generation Site shown above and nothing has been added or done to such soil that would alter it in any way.

Print or Type Name: Generator ☐ Consultant ☐	Signature and date:	Month	Day	Year
SIGNATURE ON FILE				

Transporter

Transporter's certification: I/We acknowledge receipt of the soil described above and certify that such soil is being delivered in exactly the same condition as when received. I/We further certify that this soil is being directly transported from the Generation Site to the Designated Facility without off-loading, adding to, subtracting from or in any way delaying delivery to such site.

Print or Type Name:	Signature and date:	Month	Day	Year
X James Mayo	X [signature]	4	19	99

Recycling Facility

Discrepancies:

Recycling Facility certifies the receipt of the soil covered by this manifest except as noted above:

Print or Type Name:	Signature and date:
GLENNA MULLAN	[signature] 4/19/99

Please print or type.

GENERATOR/CONSULTANT'S COPY

TPST SOIL RECYCLERS OF OREGON

9333 N. Harborgate Street Portland, OR 97203

OR 011821

WEIGHMASTER CERTIFICATE – LICENSE #68636

THIS IS TO CERTIFY that the following described soil commodity was weighed, measured, or counted by a weighmaster, whose signature is on this certificate, as prescribed by the Division of Measurement Standards of the Oregon Department of Agriculture.

Manifest # A09 -03693 -012 04/19/99

Generator Site Information	Facility Information
KOPPERS TANK FOUNDATION EXCAVATION	TPST SOIL RECYCLERS OF OREGON
7540 NW ST HELENS ROAD	9333 N HARBORGATE STREET
PORTLAND, OR 97210 USA	PORTLAND, OR 97203 USA

				LBS	TONS	
0	IN --->	11:10:49am	Gross Wt:	77,920	38.96	Manual Wt
0	OUT -->	11:16:17am	Tare Wt:	32,780	16.39	Manual Wt
			NET WT:	45,140	22.57	

TRANSPORTER/DRIVER: CELORIE/LONNIE NOLAN

Weighmaster

Koppers016957

Manifest

TPS Technologies Soil Recycling
Non-Hazardous Soils

↓ Manifest # ↓

Date of Shipment:	Responsible for Payment:	Transporter Truck #:	Facility #:	Given by TPS:	Load #
	Contractor	Blue 3	A09	03643	012

Generator and/or Consultant

Generator's Name and Billing Address:	Generator's Phone #:	Generator's US EPA ID No.
KOPPERS INDUSTRIES, INC. 7540 NW ST HELENS ROAD PORTLAND, OR 97210 USA	(503) 286-3681 Person to Contact: AMOS KAMERER FAX #: (503) 285 2831	Customer Account Number with TPS: 9KOPPER
Consultant's Name and Billing Address:	**Consultant's Phone #:**	
RM CAT ENVIRONMENTAL -- CONTRACTOR -- 12823 NE AIRPORT WAY PORTLAND, OR 97230 USA	(503) 408-8880 Person to Contact: BOB TAMAK FAX #: (503) 408-8716	Customer Account Number with TPS: 100361.3
Generation Site (Transport from): *(name & address)*	**Site Phone #:**	BTEX Levels
KOPPERS TANK FOUNDATION EXCAVATION 7540 NW ST HELENS ROAD PORTLAND, OR 97210 USA	Person to Contact: FAX #:	TPH Levels AVG. Levels
Designated Facility (Transport to): *(name & address)*	**Facility Phone #:**	Facility Permit Numbers
TPST SOIL RECYCLERS OF OREGON 9333 N HARBORGATE STREET PORTLAND, OR 97203 USA	503-735-9525 Person to Contact: GLENNA MULLAN FAX #: 503-240-1712	
Transporter Name and Mailing Address:	**Transporter's Phone #:**	Transporter's US EPA ID No.:
	Person to Contact:	Transporter's DOT No.:
	FAX #:	Customer Account Number with TPS:

Description of Soil	Moisture Content	Contaminated by:	Approx. Qty:	Description of Delivery	Gross Weight	Tare Weight	Net Weight
Sand ☐ Organic ☐ Clay ☐ Other ☐	0 - 10% ☐ 10 - 20% ☐ 20% - over ☐	Gas ☐ Diesel ☐ Other ☐			77920	32700	45140
Sand ☐ Organic ☐ Clay ☐ Other ☐	0 - 10% ☐ 10 - 20% ☐ 20% - over ☐	Gas ☐ Diesel ☐ Other ☐				22.57	

List any exception to items listed above:

Generator's and/or consultant's certification: I/We certify that the soil referenced herein is taken entirely from those soils described in the Soil Data Sheet completed and certified by me/us for the Generation Site shown above and nothing has been added or done to such soil that would alter it in any way.

Print or Type Name: Generator ☐ Consultant ☐	Signature and date:	Month	Day	Year
SIGNATURE ON FILE				

Transporter

Transporter's certification: I/We acknowledge receipt of the soil described above and certify that such soil is being delivered in exactly the same condition as when received. I/We further certify that this soil is being directly transported from the Generation Site to the Designated Facility without off-loading, adding to, subtracting from or in any way delaying delivery to such site.

Print or Type Name:	Signature and date:	Month	Day	Year
Lonnie Nolen	Lonnie Nolen	4	19	99

Recycling Facility

Discrepancies:

Recycling Facility certifies the receipt of the soil covered by this manifest except as noted above:

Print or Type Name:	Signature and date:
GLENNA MULLAN	Glenna Mullan 4/19/99

Please print or type:

GENERATOR/consultant's COPY

TPST SOIL RECYCLERS OF OREGON

9333 N. Harborgate Street Portland, OR 97203

OR 011822

WEIGHMASTER CERTIFICATE – LICENSE #68636

THIS IS TO CERTIFY that the following described soil commodity was weighed, measured, or counted by a weighmaster, whose signature is on this certificate, as prescribed by the Division of Measurement Standards of the Oregon Department of Agriculture.

Manifest # A09 -03693 -013 04/19/99

Generator Site Information	Facility Information
KOPPERS TANK FOUNDATION EXCAVATION	TPST SOIL RECYCLERS OF OREGON
7540 NW ST HELENS ROAD	9333 N HARBORGATE STREET
PORTLAND, OR 97210 USA	PORTLAND, OR 97203 USA

				LBS	TONS	
0	IN --->	11:34:20am	Gross Wt:	87,720	43.86	Manual Wt
0	OUT -->	11:39:56am	Tare Wt:	34,680	17.34	Manual Wt
			NET WT:	53,040	26.52	

TRANSPORTER/DRIVER: CELORIE/RON DENNY

Weighmaster _____

Koppers016959

Manifest

TPS Technologies Soil Recycling
Non-Hazardous Soils

↓ Manifest # ↓

Date of Shipment:	Responsible for Payment:	Transporter Truck #:	Facility #:	Given by TPS:	Load #
	Contractor	Idaho 1	A09	A1693	913

Generator and/or Consultant

Generator's Name and Billing Address:	Generator's Phone #:	Generator's US EPA ID No.
KOPPERS INDUSTRIES, INC. 7540 NW ST HELENS ROAD PORTLAND, OR 97210 USA	(503) 286-3681 Person to Contact: AMOS KAMERER FAX #: (503) 285-2831	Customer Account Number with TPS: 9KOPPER

Consultant's Name and Billing Address:	Consultant's Phone #:	
RM CAT ENVIRONMENTAL -- CONTRACTOR -- 12823 NE AIRPORT WAY PORTLAND, OR 97230 USA	(503) 408-8880 Person to Contact: BOB JANAK FAX #: (503) 408-8716	Customer Account Number with TPS: 1003513

Generation Site (Transport from): *(name & address)*	Site Phone #:	BTEX Levels
KOPPERS TANK FOUNDATION EXCAVATION 7540 NW ST HELENS ROAD PORTLAND, OR 97210 USA	Person to Contact:	TPH Levels
	FAX #:	AVG. Levels

Designated Facility (Transport to): *(name & address)*	Facility Phone #:	Facility Permit Numbers
TPST SOIL RECYCLERS OF OREGON 9333 N HARBORGATE STREET PORTLAND, OR 97203 USA	503-735-9525 Person to Contact: GLENNA MULLAN FAX #: 503-240-1712	

Transporter Name and Mailing Address:	Transporter's Phone #:	Transporter's US EPA ID No.:
	Person to Contact:	Transporter's DOT No.:
	FAX #:	Customer Account Number with TPS:

Description of Soil	Moisture Content	Contaminated by:	Approx. Qty:	Description of Delivery	Gross Weight	Tare Weight	Net Weight
Sand ☐ Organic ☐ Clay ☐ Other ☐	0 - 10% ☐ 10 - 20% ☐ 20% - over ☐	Gas ☐ Diesel ☐ Other ☐			87720	34680	53040
Sand ☐ Organic ☐ Clay ☐ Other ☐	0 - 10% ☐ 10 - 20% ☐ 20% - over ☐	Gas ☐ Diesel ☐ Other ☐				26.52	

List any exception to items listed above:

Generator's and/or consultant's certification: I/We certify that the soil referenced herein is taken entirely from those soils described in the Soil Data Sheet completed and certified by me/us for the Generation Site shown above and nothing has been added or done to such soil that would alter it in any way.

Print or Type Name: Generator ☐ Consultant ☐	Signature and date:	Month	Day	Year
SIGNATURE ON FILE				

Transporter

Transporter's certification: I/We acknowledge receipt of the soil described above and certify that such soil is being delivered in exactly the same condition as when received. I/We further certify that this soil is being directly transported from the Generation Site to the Designated Facility without off-loading, adding to, subtracting from or in any way delaying delivery to such site.

Print or Type Name:	Signature and date:	Month	Day	Year
Ron Denny	Ron Denny	4	19	99

Recycling Facility

Discrepancies:

Recycling Facility certifies the receipt of the soil covered by this manifest except as noted above:

Print or Type Name:	Signature and date:
GLENNA MULLAN	Glenna Mullan 4/19/99

Please print or type.

GENERATOR/CONSULTANT'S COPY

TPST SOIL RECYCLERS OF OREGON

9333 N. Harborgate Street Portland, OR 97203

OR 011823

WEIGHMASTER CERTIFICATE – LICENSE #68636

THIS IS TO CERTIFY that the following described soil commodity was weighed, measured, or counted by a weighmaster, whose signature is on this certificate, as prescribed by the Division of Measurement Standards of the Oregon Department of Agriculture.

Manifest # A09 -03693 -014 04/19/99

Generator Site Information	Facility Information
KOPPERS TANK FOUNDATION EXCAVATION	TPST SOIL RECYCLERS OF OREGON
7540 NW ST HELENS ROAD	9333 N HARBORGATE STREET
PORTLAND, OR 97210 USA	PORTLAND, OR 97203 USA

				LBS	TONS	
0	IN --->	11:38:06am	Gross Wt:	81,340	40.67	Manual Wt
0	OUT -->	11:48:13am	Tare Wt:	32,100	16.05	Manual Wt
			NET WT:	49,240	24.62	

TRANSPORTER/DRIVER: HECKMAN/MARCIE HECKMAN

Weighmaster

Koppers016961

Manifest

TPS Technologies Soil Recycling
Non-Hazardous Soils

↓ Manifest # ↓

Date of Shipment:	Responsible for Payment:	Transporter Truck #:	Facility #:	Given by TPS:	Load #
	Contractor	Hackman	A09	036693	914

Generator and/or Consultant

Generator's Name and Billing Address:	Generator's Phone #:	Generator's US EPA ID No.
KOPPERS INDUSTRIES, INC. 7540 NW ST HELENS ROAD PORTLAND, OR 97210 USA	(503) 286-3681 Person to Contact: AMOS KAMPER FAX #: (503) 285-2831	Customer Account Number with TPS: 9KOPPER
Consultant's Name and Billing Address:	**Consultant's Phone #:**	
RM CAT ENVIRONMENTAL -- CONTRACTOR -- 12823 NE AIRPORT WAY PORTLAND, OR 97230 USA	(503) 408-8880 Person to Contact: BOB JANAK FAX #: (503) 408-8716	Customer Account Number with TPS: 10036LR
Generation Site (Transport from): *(name & address)*	**Site Phone #:**	BTEX Levels
KOPPERS TANK FOUNDATION EXCAVATION 7540 NW ST HELENS ROAD PORTLAND, OR 97210 USA	Person to Contact:	TPH Levels
	FAX #:	AVG. Levels
Designated Facility (Transport to): *(name & address)*	**Facility Phone #:** 503-735-9525	Facility Permit Numbers
TPST SOIL RECYCLERS OF OREGON 9333 N HARBORGATE STREET PORTLAND, OR 97203 USA	Person to Contact: GLENNA MULLAN FAX #: 503-240-1712	
Transporter Name and Mailing Address:	**Transporter's Phone #:**	Transporter's US EPA ID No.:
	Person to Contact:	Transporter's DOT No.:
	FAX #:	Customer Account Number with TPS:

Description of Soil	Moisture Content	Contaminated by:	Approx. Qty:	Description of Delivery	Gross Weight	Tare Weight	Net Weight
Sand ☐ Organic ☐ Clay ☐ Other ☐	0 - 10% ☐ 10 - 20% ☐ 20% - over ☐	Gas ☐ Diesel ☐ Other ☐			57134	32100	49246
Sand ☐ Organic ☐ Clay ☐ Other ☐	0 - 10% ☐ 10 - 20% ☐ 20% - over ☐	Gas ☐ Diesel ☐ Other ☐				21.62	

List any exception to items listed above:

Generator's and/or consultant's certification: I/We certify that the soil referenced herein is taken entirely from those soils described in the Soil Data Sheet completed and certified by me/us for the Generation Site shown above and nothing has been added or done to such soil that would alter it in any way.

Print or Type Name: Generator ☐ Consultant ☐	Signature and date:	Month	Day	Year
SIGNATURE ON FILE				

Transporter

Transporter's certification: I/We acknowledge receipt of the soil described above and certify that such soil is being delivered in exactly the same condition as when received. I/We further certify that this soil is being directly transported from the Generation Site to the Designated Facility without off-loading, adding to, subtracting from or in any way delaying delivery to such site.

Print or Type Name:	Signature and date:	Month	Day	Year
X Marcie Jean Heckman	X Marcie Heckman	4	19	99

Recycling Facility

Discrepancies:

Recycling Facility certifies the receipt of the soil covered by this manifest except as noted above:

Print or Type Name:	Signature and date:
GLENNA MULLAN	Glenna Mullan 4/19/99

Please print or type.

GENERATOR/consultant's COPY

TPST SOIL RECYCLERS OF OREGON

9333 N. Harborgate Street Portland, OR 97203

OR 011824

WEIGHMASTER CERTIFICATE – LICENSE #68636

THIS IS TO CERTIFY that the following described soil commodity was weighed, measured, or counted by a weighmaster, whose signature is on this certificate, as prescribed by the Division of Measurement Standards of the Oregon Department of Agriculture.

Manifest # A09 -03693 -015 04/19/99

Generator Site Information
KOPPERS TANK FOUNDATION EXCAVATION
7540 NW ST HELENS ROAD

PORTLAND, OR 97210 USA

Facility Information
TPST SOIL RECYCLERS OF OREGON
9333 N HARBORGATE STREET

PORTLAND, OR 97203 USA

				LBS	TONS	
0	IN --->	11:44:43am	Gross Wt:	53,160	26.58	Manual Wt
0	OUT -->	11:50:05am	Tare Wt:	22,440	11.22	Manual Wt
			NET WT:	30,720	15.36	

TRANSPORTER/DRIVER: MEL JAMES

Weighmaster _____

Koppers016963

Manifest

TPS Technologies Soil Recycling
Non-Hazardous Soils

↓ Manifest # ↓

Date of Shipment:	Responsible for Payment:	Transporter Truck #:	Facility #:	Given by TPS:	Load #
	Contractor	Mel James	009	03693	015

Generator and/or Consultant

Generator's Name and Billing Address:	Generator's Phone #:	Generator's US EPA ID No.
KOPPERS INDUSTRIES, INC. 7540 NW ST HELENS ROAD PORTLAND, OR 97210 USA	(503) 285-3681 Person to Contact: AMOS KAMERER FAX #: (503) 285-2831	Customer Account Number with TPS: 9KOPPER
Consultant's Name and Billing Address:	**Consultant's Phone #:**	
RM CAT ENVIRONMENTAL --- CONTRACTOR --- 12823 NE AIRPORT WAY PORTLAND, OR 97230 USA	(503) 408-8880 Person to Contact: BOB JANAK FAX #: (503) 408-8716	Customer Account Number with TPS: 10035L3
Generation Site (Transport from): *(name & address)*	**Site Phone #:**	BTEX Levels
KOPPERS TANK FOUNDATION EXCAVATION 7540 NW ST HELENS ROAD PORTLAND, OR 97210 USA	Person to Contact: FAX #:	TPH Levels AVG. Levels
Designated Facility (Transport to): *(name & address)*	**Facility Phone #:** 503-735-9525	Facility Permit Numbers
TPST SOIL RECYCLERS OF OREGON 9333 N HARBORGATE STREET PORTLAND, OR 97203 USA	Person to Contact: GLENNA MULLAN FAX #: 503-240-1712	
Transporter Name and Mailing Address:	**Transporter's Phone #:**	Transporter's US EPA ID No.:
	Person to Contact:	Transporter's DOT No.:
	FAX #:	Customer Account Number with TPS:

Description of Soil	Moisture Content	Contaminated by:	Approx. Qty:	Description of Delivery	Gross Weight	Tare Weight	Net Weight
Sand ☐ Organic ☐ Clay ☐ Other ☐	0 - 10% ☐ 10 - 20% ☐ 20% - over ☐	Gas ☐ Diesel ☐ Other ☐			53160	22440	30720
Sand ☐ Organic ☐ Clay ☐ Other ☐	0 - 10% ☐ 10 - 20% ☐ 20% - over ☐	Gas ☐ Diesel ☐ Other ☐				15.36	

List any exception to items listed above:

Generator's and/or consultant's certification: I/We certify that the soil referenced herein is taken entirely from those soils described in the Soil Data Sheet completed and certified by me/us for the Generation Site shown above and nothing has been added or done to such soil that would alter it in any way.

Print or Type Name: Generator ☐ Consultant ☐	Signature and date:	Month	Day	Year
SIGNATURE ON FILE				

Transporter

Transporter's certification: I/We acknowledge receipt of the soil described above and certify that such soil is being delivered in exactly the same condition as when received. I/We further certify that this soil is being directly transported from the Generation Site to the Designated Facility without off-loading, adding to, subtracting from or in any way delaying delivery to such site.

Print or Type Name:	Signature and date:	Month	Day	Year
Mel James	Mel James			

Recycling Facility

Discrepancies:

Recycling Facility certifies the receipt of the soil covered by this manifest except as noted above:

Print or Type Name:	Signature and date:
GLENNA MULLAN	Glenna Mullan 4/19/99

Please print or type.

GENERATOR/CONSULTANT'S COPY

Koppers016964

TPST SOIL RECYCLERS OF OREGON

9333 N. Harborgate Street Portland, OR 97203

OR 011825

WEIGHMASTER CERTIFICATE – LICENSE #68636

THIS IS TO CERTIFY that the following described soil commodity was weighed, measured, or counted by a weighmaster, whose signature is on this certificate, as prescribed by the Division of Measurement Standards of the Oregon Department of Agriculture.

Manifest # A09 -03693 -016 04/19/99

Generator Site Information	Facility Information
KOPPERS TANK FOUNDATION EXCAVATION	TPST SOIL RECYCLERS OF OREGON
7540 NW ST HELENS ROAD	9333 N HARBORGATE STREET
PORTLAND, OR 97210 USA	PORTLAND, OR 97203 USA

				LBS	TONS	
0	IN --->	11:45:42am	Gross Wt:	73,340	36.67	Manual Wt
0	OUT -->	12:00:05pm	Tare Wt:	31,640	15.82	Manual Wt
			NET WT:	41,700	20.85	

TRANSPORTER/DRIVER: CELORIE/JAMES MAYO

Weighmaster _____

Koppers016965

Manifest

TPS Technologies Soil Recycling
Non-Hazardous Soils

↓ Manifest # ↓

Date of Shipment:	Responsible for Payment:	Transporter Truck #:	Facility #:	Given by TPS:	Load #
	Contractor	Dave 15	A09	03693	016

Generator and/or Consultant

Generator's Name and Billing Address: KOPPERS INDUSTRIES, INC. 7540 NW ST HELENS ROAD PORTLAND, OR 97210 USA	Generator's Phone #: (503) 286-3681 Person to Contact: AMOS KAMERER FAX #: (503) 285-2831	Generator's US EPA ID No. Customer Account Number with TPS: 9KOPPER
Consultant's Name and Billing Address: RM CAT ENVIRONMENTAL -- CONTRACTOR -- 12823 NE AIRPORT WAY PORTLAND, OR 97230 USA	Consultant's Phone #: (503) 408-8800 Person to Contact: BOB JANAK FAX #: (503) 408-8716	 Customer Account Number with TPS: L0035113
Generation Site (Transport from): *(name & address)* KOPPERS TANK FOUNDATION EXCAVATION 7540 NW ST HELENS ROAD PORTLAND, OR 97210 USA	Site Phone #: Person to Contact: FAX #:	BTEX Levels TPH Levels AVG. Levels
Designated Facility (Transport to): *(name & address)* TPST SOIL RECYCLERS OF OREGON 9333 N HARBORGATE STREET PORTLAND, OR 97203 USA	Facility Phone #: 503-735-9525 Person to Contact: GLENNA MULLAN FAX #: 503-240-1712	Facility Permit Numbers
Transporter Name and Mailing Address:	Transporter's Phone #: Person to Contact: FAX #:	Transporter's US EPA ID No.: Transporter's DOT No.: Customer Account Number with TPS:

Description of Soil	Moisture Content	Contaminated by:	Approx. Qty:	Description of Delivery	Gross Weight	Tare Weight	Net Weight
Sand ☐ Organic ☐ Clay ☐ Other ☐	0 - 10% ☐ 10 - 20% ☐ 20% - over ☐	Gas ☐ Diesel ☐ Other ☐			73340	31640	41700
Sand ☐ Organic ☐ Clay ☐ Other ☐	0 - 10% ☐ 10 - 20% ☐ 20% - over ☐	Gas ☐ Diesel ☐ Other ☐				20.85	

List any exception to items listed above:

Generator's and/or consultant's certification: I/We certify that the soil referenced herein is taken entirely from those soils described in the Soil Data Sheet completed and certified by me/us for the Generation Site shown above and nothing has been added or done to such soil that would alter it in any way.

Print or Type Name: Generator ☐ Consultant ☐	Signature and date:	Month	Day	Year
SIGNATURE ON FILE				

Transporter

Transporter's certification: I/We acknowledge receipt of the soil described above and certify that such soil is being delivered in exactly the same condition as when received. I/We further certify that this soil is being directly transported from the Generation Site to the Designated Facility without off-loading, adding to, subtracting from or in any way delaying delivery to such site.

Print or Type Name:	Signature and date:	Month	Day	Year
X James Mayo	X James Mayo	4	19	99

Recycling Facility

Discrepancies:

Recycling Facility certifies the receipt of the soil covered by this manifest except as noted above:

Print or Type Name:	Signature and date:
GLENNA MULLAN	Glenna Mullan 4/19/99

Please print or type.

GENERATOR/consultant's COPY

TPST SOIL RECYCLERS OF OREGON

9333 N. Harborgate Street Portland, OR 97203

OR 011826

WEIGHMASTER CERTIFICATE – LICENSE #68636

THIS IS TO CERTIFY that the following described soil commodity was weighed, measured, or counted by a weighmaster, whose signature is on this certificate, as prescribed by the Division of Measurement Standards of the Oregon Department of Agriculture.

Manifest # A09 -03693 -017 04/19/99

Generator Site Information	Facility Information
KOPPERS TANK FOUNDATION EXCAVATION	TPST SOIL RECYCLERS OF OREGON
7540 NW ST HELENS ROAD	9333 N HARBORGATE STREET
PORTLAND, OR 97210 USA	PORTLAND, OR 97203 USA

				LBS	TONS	
0	IN --->	12:01:07pm	Gross Wt:	76,600	38.30	Manual Wt
0	OUT -->	12:06:35pm	Tare Wt:	32,740	16.37	Manual Wt
			NET WT:	43,860	21.93	

TRANSPORTER/DRIVER: CELORIE/LONNIE NOLAN

Weighmaster _____

Koppers016967

Manifest

TPS Technologies Soil Recycling
Non-Hazardous Soils

↓ Manifest # ↓

Date of Shipment:	Responsible for Payment:	Transporter Truck #:	Facility #:	Given by TPS:	Load #
	Contractor	Volvo 3	A09	03693	017

Generator and/or Consultant

Generator's Name and Billing Address: KOPPERS INDUSTRIES, INC. 7540 NW ST HELENS ROAD PORTLAND, OR 97210 USA	Generator's Phone #: (503) 286-3681 Person to Contact: AMOS KAMERER FAX #: (503) 285-2831	Generator's US EPA ID No. Customer Account Number with TPS: 9KOPPER
Consultant's Name and Billing Address: RM CAT ENVIRONMENTAL -- CONTRACTOR -- 12823 NE AIRPORT WAY PORTLAND, OR 97230 USA	Consultant's Phone #: (503) 408-8880 Person to Contact: BOB JANAK FAX #: (503) 408-8716	 Customer Account Number with TPS: 1003513
Generation Site (Transport from): *(name & address)* KOPPERS TANK FOUNDATION EXCAVATION 7540 NW ST HELENS ROAD PORTLAND, OR 97210 USA	Site Phone #: Person to Contact: FAX #:	BTEX Levels TPH Levels AVG. Levels
Designated Facility (Transport to): *(name & address)* TPST SOIL RECYCLERS OF OREGON 9333 N HARBORGATE STREET PORTLAND, OR 97203 USA	Facility Phone #: 503-735-9525 Person to Contact: GLENNA MULLAN FAX #: 503-240-1712	Facility Permit Numbers
Transporter Name and Mailing Address:	Transporter's Phone #: Person to Contact: FAX #:	Transporter's US EPA ID No.: Transporter's DOT No.: Customer Account Number with TPS:

Description of Soil	Moisture Content	Contaminated by:	Approx. Qty:	Description of Delivery	Gross Weight	Tare Weight	Net Weight
Sand ☐ Organic ☐ Clay ☐ Other ☐	0 - 10% ☐ 10 - 20% ☐ 20% - over ☐	Gas ☐ Diesel ☐ Other ☐			76600	32740	43860
Sand ☐ Organic ☐ Clay ☐ Other ☐	0 - 10% ☐ 10 - 20% ☐ 20% - over ☐	Gas ☐ Diesel ☐ Other ☐				21.93	

List any exception to items listed above:

Generator's and/or consultant's certification: I/We certify that the soil referenced herein is taken entirely from those soils described in the Soil Data Sheet completed and certified by me/us for the Generation Site shown above and nothing has been added or done to such soil that would alter it in any way.

Print or Type Name: Generator ☐ Consultant ☐	Signature and date:	Month	Day	Year
SIGNATURE ON FILE				

Transporter

Transporter's certification: I/We acknowledge receipt of the soil described above and certify that such soil is being delivered in exactly the same condition as when received. I/We further certify that this soil is being directly transported from the Generation Site to the Designated Facility without off-loading, adding to, subtracting from or in any way delaying delivery to such site.

Print or Type Name:	Signature and date:	Month	Day	Year
X Leonie Nolan	X Leonie Nolan	4	19	99

Recycling Facility

Discrepancies:

Recycling Facility certifies the receipt of the soil covered by this manifest except as ~~noted~~ above:

Print or Type Name:	Signature and date:
GLENNA MULLAN	4/19/99

Please print or type.

GENERATOR/CONSULTANT'S COPY

TPST SOIL RECYCLERS OF OREGON

9333 N. Harborgate Street Portland, OR 97203

OR 011827

WEIGHMASTER CERTIFICATE – LICENSE #68636

THIS IS TO CERTIFY that the following described soil commodity was weighed, measured, or counted by a weighmaster, whose signature is on this certificate, as prescribed by the Division of Measurement Standards of the Oregon Department of Agriculture.

Manifest # A09 -03693 -018 04/19/99

Generator Site Information

KOPPERS TANK FOUNDATION EXCAVATION
7540 NW ST HELENS ROAD

PORTLAND, OR 97210 USA

Facility Information

TPST SOIL RECYCLERS OF OREGON
9333 N HARBORGATE STREET

PORTLAND, OR 97203 USA

				LBS	TONS	
0	IN --->	12:21:11pm	Gross Wt:	87,880	43.94	Manual Wt
0	OUT -->	12:26:12pm	Tare Wt:	34,100	17.05	Manual Wt
			NET WT:	53,780	26.89	

TRANSPORTER/DRIVER: TIM GOODNER

Weighmaster _____

Koppers016969

Manifest

TPS Technologies Soil Recycling
Non-Hazardous Soils

↓ Manifest # ↓

Date of Shipment:	Responsible for Payment:	Transporter Truck #:	Facility #:	Given by TPS:	Load #
	Contractor	Goodwer	A09	03693	018

Generator and/or Consultant

Generator's Name and Billing Address:	Generator's Phone #:	Generator's US EPA ID No.
KOPPERS INDUSTRIES, INC. 7540 NW ST HELENS ROAD PORTLAND, OR 97210 USA	(503) 286-3681 Person to Contact: AMOS KAMERER FAX #: (503) 285-2831	Customer Account Number with TPS: 9KOPPER
Consultant's Name and Billing Address:	**Consultant's Phone #:**	
RM CAT ENVIRONMENTAL --- CONTRACTOR --- 12823 NE AIRPORT WAY PORTLAND, OR 97230 USA	(503) 408-8880 Person to Contact: BOB JANAK FAX #: (503) 408-8716	Customer Account Number with TPS: 1003513
Generation Site (Transport from): *(name & address)*	**Site Phone #:**	BTEX Levels
KOPPERS TANK FOUNDATION EXCAVATION 7540 NW ST HELENS ROAD PORTLAND, OR 97210 USA	Person to Contact: FAX #:	TPH Levels AVG. Levels
Designated Facility (Transport to): *(name & address)*	**Facility Phone #:**	**Facility Permit Numbers**
TPST SOIL RECYCLERS OF OREGON 9333 N HARBORGATE STREET PORTLAND, OR 97203 USA	503-735-9575 Person to Contact: GLENNA MULLAN FAX #: 503-240-1712	
Transporter Name and Mailing Address:	**Transporter's Phone #:**	**Transporter's US EPA ID No.:**
	Person to Contact:	Transporter's DOT No.:
	FAX #:	Customer Account Number with TPS:

Description of Soil	Moisture Content	Contaminated by:	Approx. Qty:	Description of Delivery	Gross Weight	Tare Weight	Net Weight
Sand ☐ Organic ☐ Clay ☐ Other ☐	0 - 10% ☐ 10 - 20% ☐ 20% - over ☐	Gas ☐ Diesel ☐ Other ☐			87880	34100	53780
Sand ☐ Organic ☐ Clay ☐ Other ☐	0 - 10% ☐ 10 - 20% ☐ 20% - over ☐	Gas ☐ Diesel ☐ Other ☐				26.89	

List any exception to items listed above:

Generator's and/or consultant's certification: I/We certify that the soil referenced herein is taken entirely from those soils described in the Soil Data Sheet completed and certified by me/us for the Generation Site shown above and nothing has been added or done to such soil that would alter it in any way.

Print or Type Name: Generator ☐ Consultant ☐	Signature and date:	Month	Day	Year
SIGNATURE ON FILE				

Transporter

Transporter's certification: I/We acknowledge receipt of the soil described above and certify that such soil is being delivered in exactly the same condition as when received. I/We further certify that this soil is being directly transported from the Generation Site to the Designated Facility without off-loading, adding to, subtracting from or in any way delaying delivery to such site.

Print or Type Name:	Signature and date:	Month	Day	Year
X Tim Goodwer	X Timothy J Goodwer			

Recycling Facility

Discrepancies:

Recycling Facility certifies the receipt of the soil covered by this manifest except as noted above:

Print or Type Name:	Signature and date:
GLENNA MULLAN	Glenna Mullan 4/19/99

Please print or type.

GENERATOR/consultant's COPY

TPST SOIL RECYCLERS OF OREGON

9333 N. Harborgate Street Portland, OR 97203

OR 011828

WEIGHMASTER CERTIFICATE – LICENSE #68636

THIS IS TO CERTIFY that the following described soil commodity was weighed, measured, or counted by a weighmaster, whose signature is on this certificate, as prescribed by the Division of Measurement Standards of the Oregon Department of Agriculture.

Manifest # A09 -03693 -019 04/19/99

Generator Site Information	Facility Information
KOPPERS TANK FOUNDATION EXCAVATION	TPST SOIL RECYCLERS OF OREGON
7540 NW ST HELENS ROAD	9333 N HARBORGATE STREET
PORTLAND, OR 97210 USA	PORTLAND, OR 97203 USA

				LBS	TONS	
0	IN --->	12:21:57pm	Gross Wt:	96,020	48.01	Manual Wt
0	OUT -->	12:28:22pm	Tare Wt:	34,660	17.33	Manual Wt
			NET WT:	61,360	30.68	

TRANSPORTER/DRIVER: CELORIE/RON DENNY

Weighmaster

Koppers016971

Manifest

TPS Technologies Soil Recycling
Non-Hazardous Soils

↓ Manifest # ↓

Date of Shipment:	Responsible for Payment:	Transporter Truck #:	Facility #:	Given by TPS:	Load #
	Contractor	Clarke 1	A09	03693	019

Generator and/or Consultant

Generator's Name and Billing Address: KOPPERS INDUSTRIES, INC. 7540 NW ST HELENS ROAD PORTLAND, OR 97210 USA	Generator's Phone #: (503) 285-3681 Person to Contact: AMOS KAMERER FAX #: (503) 285-2031	Generator's US EPA ID No. Customer Account Number with TPS: 9KOPPER
Consultant's Name and Billing Address: RM CAT ENVIRONMENTAL -- CONTRACTOR -- 12823 NE AIRPORT WAY PORTLAND, OR 97230 USA	Consultant's Phone #: (503) 408-8080 Person to Contact: BOB JANAK FAX #: (503) 408-8716	 Customer Account Number with TPS: 1003513
Generation Site (Transport from): *(name & address)* KOPPERS TANK FOUNDATION EXCAVATION 7540 NW ST HELENS ROAD PORTLAND, OR 97210 USA	Site Phone #: Person to Contact: FAX #:	BTEX Levels TPH Levels AVG. Levels
Designated Facility (Transport to): *(name & address)* TPST SOIL RECYCLERS OF OREGON 9333 N HARBORGATE STREET PORTLAND, OR 97203 USA	Facility Phone #: 503-735-9525 Person to Contact: GLENNA MULLAN FAX #: 503-240-1712	Facility Permit Numbers
Transporter Name and Mailing Address:	Transporter's Phone #: Person to Contact: FAX #:	Transporter's US EPA ID No.: Transporter's DOT No.: Customer Account Number with TPS:

Description of Soil	Moisture Content	Contaminated by:	Approx. Qty:	Description of Delivery	Gross Weight	Tare Weight	Net Weight
Sand ☐ Organic ☐ Clay ☐ Other ☐	0 - 10% ☐ 10 - 20% ☐ 20% - over ☐	Gas ☐ Diesel ☐ Other ☐			96020	34440	61580
Sand ☐ Organic ☐ Clay ☐ Other ☐	0 - 10% ☐ 10 - 20% ☐ 20% - over ☐	Gas ☐ Diesel ☐ Other ☐				30.68	

List any exception to items listed above:

Generator's and/or consultant's certification: I/We certify that the soil referenced herein is taken entirely from those soils described in the Soil Data Sheet completed and certified by me/us for the Generation Site shown above and nothing has been added or done to such soil that would alter it in any way.

Print or Type Name: Generator ☐ Consultant ☐	Signature and date:	Month	Day	Year
SIGNATURE ON FILE				

Transporter

Transporter's certification: I/We acknowledge receipt of the soil described above and certify that such soil is being delivered in exactly the same condition as when received. I/We further certify that this soil is being directly transported from the Generation Site to the Designated Facility without off-loading, adding to, subtracting from or in any way delaying delivery to such site.

Print or Type Name:	Signature and date:	Month	Day	Year
X Ron Denny	X Ron Denny	4	19	99

Recycling Facility

Discrepancies:

Recycling Facility certifies the receipt of the soil covered by this manifest except as noted above:

Print or Type Name:	Signature and date:
GLENNA MULLAN	Glenna Mullan 4/19/99

Please print or type.

GENERATOR/CONSULTANT'S COPY

TPST SOIL RECYCLERS OF OREGON

9333 N. Harborgate Street Portland, OR 97203

OR 011829

WEIGHMASTER CERTIFICATE – LICENSE #68636

THIS IS TO CERTIFY that the following described soil commodity was weighed, measured, or counted by a weighmaster, whose signature is on this certificate, as prescribed by the Division of Measurement Standards of the Oregon Department of Agriculture.

Manifest # A09 -03693 -020 04/19/99

Generator Site Information
KOPPERS TANK FOUNDATION EXCAVATION
7540 NW ST HELENS ROAD

PORTLAND, OR 97210 USA

Facility Information
TPST SOIL RECYCLERS OF OREGON
9333 N HARBORGATE STREET

PORTLAND, OR 97203 USA

				LBS	TONS	
0	IN --->	12:23:33pm	Gross Wt:	54,020	27.01	Manual Wt
0	OUT -->	12:29:48pm	Tare Wt:	22,600	11.30	Manual Wt
			NET WT:	31,420	15.71	

TRANSPORTER/DRIVER: MEL JAMES

Weighmaster _____

Koppers016973

Manifest

TPS Technologies Soil Recycling
Non-Hazardous Soils

↓ Manifest # ↓

Generator and/or Consultant

Date of Shipment:	Responsible for Payment:	Transporter/Truck #:	Facility #:	Given by TPS:	Load #
	Contractor	Mel James	A09	93693	0.20

Generator's Name and Billing Address:	Generator's Phone #:	Generator's US EPA ID No.
KOPPERS INDUSTRIES, INC 7540 NW ST HELENS ROAD PORTLAND, OR 97210 USA	(503) 286-3681	
	Person to Contact: AMOS KAMERER	
	FAX #: (503) 285-2831	Customer Account Number with TPS: 9KOPPER

Consultant's Name and Billing Address:	Consultant's Phone #:	
RM CAT ENVIRONMENTAL -- CONTRACTOR -- 12823 NE AIRPORT WAY PORTLAND, OR 97230 USA	(503) 408-8880	
	Person to Contact: BOB JANAK	
	FAX #: (503) 408-8716	Customer Account Number with TPS: L00351

Generation Site (Transport from): *(name & address)*	Site Phone #:	BTEX Levels
KOPPERS- TANK FOUNDATION EXCAVATION 7540 NW ST HELENS ROAD PORTLAND, OR 97210 USA	Person to Contact:	TPH Levels
	FAX #:	AVG. Levels

Designated Facility (Transport to): *(name & address)*	Facility Phone #:	Facility Permit Numbers
TPST SOIL RECYCLERS OF OREGON 9333 N HARBORGATE STREET PORTLAND, OR 97203 USA	503-735-9525	
	Person to Contact: GLENNA MULLAN	
	FAX #: 503-240-1712	

Transporter Name and Mailing Address:	Transporter's Phone #:	Transporter's US EPA ID No.:
	Person to Contact:	Transporter's DOT No.:
	FAX #:	Customer Account Number with TPS:

Description of Soil	Moisture Content	Contaminated by:	Approx. Qty:	Description of Delivery	Gross Weight	Tare Weight	Net Weight
Sand ☐ Organic ☐ Clay ☐ Other ☐	0 - 10% ☐ 10 - 20% ☐ 20% - over ☐	Gas ☐ Diesel ☐ Other ☐			54020	22600	31420
Sand ☐ Organic ☐ Clay ☐ Other ☐	0 - 10% ☐ 10 - 20% ☐ 20% - over ☐	Gas ☐ Diesel ☐ Other ☐				15.71	

List any exception to items listed above:

Generator's and/or consultant's certification: I/We certify that the soil referenced herein is taken entirely from those soils described in the Soil Data Sheet completed and certified by me/us for the Generation Site shown above and nothing has been added or done to such soil that would alter it in any way.

Print or Type Name: Generator ☐ Consultant ☐	Signature and date:	Month	Day	Year
SIGNATURE ON FILE				

Transporter

Transporter's certification: I/We acknowledge receipt of the soil described above and certify that such soil is being delivered in exactly the same condition as when received. I/We further certify that this soil is being directly transported from the Generation Site to the Designated Facility without off-loading, adding to, subtracting from or in any way delaying delivery to such site.

Print or Type Name:	Signature and date:	Month	Day	Year
Mel James	Mel James			

Recycling Facility

Discrepancies:

Recycling Facility certifies the receipt of the soil covered by this manifest except as noted above:

Print or Type Name:	Signature and date:
GLENNA MULLAN	Glenna Mullan 4/19/99

Please print or type.

GENERATOR/consultant's COPY

TPST SOIL RECYCLERS OF OREGON

9333 N. Harborgate Street Portland, OR 97203

OR 011830

WEIGHMASTER CERTIFICATE – LICENSE #68636

THIS IS TO CERTIFY that the following described soil commodity was weighed, measured, or counted by a weighmaster, whose signature is on this certificate, as prescribed by the Division of Measurement Standards of the Oregon Department of Agriculture.

Manifest # A09 -03693 -021 04/19/99

Generator Site Information	Facility Information
KOPPERS TANK FOUNDATION EXCAVATION	TPST SOIL RECYCLERS OF OREGON
7540 NW ST HELENS ROAD	9333 N HARBORGATE STREET
PORTLAND, OR 97210 USA	PORTLAND, OR 97203 USA

				LBS	TONS	
0	IN --->	12:30:22pm	Gross Wt:	90,800	45.40	Manual Wt
0	OUT -->	12:41:23pm	Tare Wt:	32,260	16.13	Manual Wt
			NET WT:	58,540	29.27	

TRANSPORTER/DRIVER: HECKMAN/MARCIE HECKMAN

Weighmaster _____

Koppers016975

Manifest

TPS Technologies Soil Recycling
Non-Hazardous Soils

↓ Manifest # ↓

Date of Shipment:	Responsible for Payment:	Transporter Truck #:	Facility #:	Given by TPS:	Load #
	Contractor		009	03693	024

Generator and/or Consultant

Generator's Name and Billing Address:	Generator's Phone #:	Generator's US EPA ID No.
KOPPERS INDUSTRIES, INC 7540 NW ST HELENS ROAD PORTLAND, OR 97210 USA	(503) 286-3681	
	Person to Contact: AMOS KAMERER	
	FAX #: (503) 285-2831	Customer Account Number with TPS: 9KOPPER
Consultant's Name and Billing Address:	**Consultant's Phone #:**	
RM CAT ENVIRONMENTAL -- CONTRACTOR -- 12823 NE AIRPORT WAY PORTLAND, OR 97230 USA	(503) 408-8880	
	Person to Contact: BOB JANAK	
	FAX #: (503) 408-8716	Customer Account Number with TPS: 10035L3
Generation Site (Transport from): *(name & address)*	**Site Phone #:**	BTEX Levels
KOPPERS TANK FOUNDATION EXCAVATION 7540 NW ST HELENS ROAD PORTLAND, OR 97210 USA	Person to Contact:	TPH Levels
	FAX #:	AVG. Levels
Designated Facility (Transport to): *(name & address)*	**Facility Phone #:**	Facility Permit Numbers
TPST SOIL RECYCLERS OF OREGON 9333 N HARBORGATE STREET PORTLAND, OR 97203 USA	503-735-9525	
	Person to Contact: GLENNA MULLAN	
	FAX #: 503-240-1712	
Transporter Name and Mailing Address:	**Transporter's Phone #:**	Transporter's US EPA ID No.:
	Person to Contact:	Transporter's DOT No.:
	FAX #:	Customer Account Number with TPS:

Description of Soil	Moisture Content	Contaminated by:	Approx. Qty:	Description of Delivery	Gross Weight	Tare Weight	Net Weight
Sand ☐ Organic ☐ Clay ☐ Other ☐	0 - 10% ☐ 10 - 20% ☐ 20% - over ☐	Gas ☐ Diesel ☐ Other ☐			90800	32260	58540
Sand ☐ Organic ☐ Clay ☐ Other ☐	0 - 10% ☐ 10 - 20% ☐ 20% - over ☐	Gas ☐ Diesel ☐ Other ☐				39.27	

List any exception to items listed above:

Generator's and/or consultant's certification: I/We certify that the soil referenced herein is taken entirely from those soils described in the Soil Data Sheet completed and certified by me/us for the Generation Site shown above and nothing has been added or done to such soil that would alter it in any way.

Print or Type Name:	Generator ☐	Consultant ☐	Signature and date:	Month	Day	Year
SIGNATURE ON FILE						

Transporter

Transporter's certification: I/We acknowledge receipt of the soil described above and certify that such soil is being delivered in exactly the same condition as when received. I/We further certify that this soil is being directly transported from the Generation Site to the Designated Facility without off-loading, adding to, subtracting from or in any way delaying delivery to such site.

Print or Type Name:	Signature and date:	Month	Day	Year
X Marcie Jean Heckman	X Marcie Heckman	4	19	99

Recycling Facility

Discrepancies:

Recycling Facility certifies the receipt of the soil covered by this manifest except as noted above:

Print or Type Name:	Signature and date:
GLENNA MULLAN	4/19/99

Please print or type:

GENERATOR/CONSULTANT'S COPY

Koppers016976

TPST SOIL RECYCLERS OF OREGON

9333 N. Harborgate Street Portland, OR 97203

OR 011831

WEIGHMASTER CERTIFICATE – LICENSE #68636

THIS IS TO CERTIFY that the following described soil commodity was weighed, measured, or counted by a weighmaster, whose signature is on this certificate, as prescribed by the Division of Measurement Standards of the Oregon Department of Agriculture.

Manifest # A09 -03693 -022 04/19/99

Generator Site Information	Facility Information
KOPPERS TANK FOUNDATION EXCAVATION	TPST SOIL RECYCLERS OF OREGON
7540 NW ST HELENS ROAD	9333 N HARBORGATE STREET
PORTLAND, OR 97210 USA	PORTLAND, OR 97203 USA

				LBS	TONS	
0	IN --->	12:45:58pm	Gross Wt:	88,440	44.22	Manual Wt
0	OUT -->	12:52:28pm	Tare Wt:	31,620	15.81	Manual Wt
			NET WT:	56,820	28.41	

TRANSPORTER/DRIVER: CELORIE/JAMES MAYO

Weighmaster _____

Koppers016977

Manifest

TPS Technologies Soil Recycling
Non-Hazardous Soils

↓ Manifest # ↓

Date of Shipment:	Responsible for Payment:	Transporter Truck #:	Facility #:	Given by TPS:	Load #
	Contractor	Celsie 15	A09	03693	022

Generator and/or Consultant

Generator's Name and Billing Address:	Generator's Phone #:	Generator's US EPA ID No.
KOPPERS INDUSTRIES, INC. 7540 NW ST HELENS ROAD PORTLAND, OR 97210 USA	(503) 286-3681	
	Person to Contact: AMOS KAMERER	
	FAX #: (503) 285-2831	Customer Account Number with TPS: 9KOPPER

Consultant's Name and Billing Address:	Consultant's Phone #:	
RM CAT ENVIRONMENTAL -- CONTRACTOR -- 12823 NE AIRPORT WAY PORTLAND, OR 97230 USA	(503) 408-8880	
	Person to Contact: BOB JANAK	
	FAX #: (503) 408-8716	Customer Account Number with TPS: 100513

Generation Site (Transport from): *(name & address)*	Site Phone #:	BTEX Levels
KOPPERS TANK FOUNDATION EXCAVATION 7540 NW ST HELENS ROAD PORTLAND, OR 97210 USA	Person to Contact:	TPH Levels
	FAX #:	AVG. Levels

Designated Facility (Transport to): *(name & address)*	Facility Phone #:	Facility Permit Numbers
TPST SOIL RECYCLERS OF OREGON 9333 N HARBORGATE STREET PORTLAND, OR 97203 USA	503-735-9525	
	Person to Contact: GLENNA MULLAN	
	FAX #: 503-240-1712	

Transporter Name and Mailing Address:	Transporter's Phone #:	Transporter's US EPA ID No.:
	Person to Contact:	Transporter's DOT No.:
	FAX #:	Customer Account Number with TPS:

Description of Soil	Moisture Content	Contaminated by:	Approx. Qty:	Description of Delivery	Gross Weight	Tare Weight	Net Weight
Sand ☐ Organic ☐ Clay ☐ Other ☐	0 - 10% ☐ 10 - 20% ☐ 20% - over ☐	Gas ☐ Diesel ☐ Other ☐			58440	31620	26820
Sand ☐ Organic ☐ Clay ☐ Other ☐	0 - 10% ☐ 10 - 20% ☐ 20% - over ☐	Gas ☐ Diesel ☐ Other ☐				28.41	

List any exception to items listed above:

Generator's and/or consultant's certification: I/We certify that the soil referenced herein is taken entirely from those soils described in the Soil Data Sheet completed and certified by me/us for the Generation Site shown above and nothing has been added or done to such soil that would alter it in any way.

Print or Type Name: Generator ☐ Consultant ☐	Signature and date:	Month	Day	Year
SIGNATURE ON FILE				

Transporter

Transporter's certification: I/We acknowledge receipt of the soil described above and certify that such soil is being delivered in exactly the same condition as when received. I/We further certify that this soil is being directly transported from the Generation Site to the Designated Facility without off-loading, adding to, subtracting from or in any way delaying delivery to such site.

Print or Type Name:	Signature and date:	Month	Day	Year
X James Mayo	X James Mayo	4	19	99

Recycling Facility

Discrepancies:

Recycling Facility certifies the receipt of the soil covered by this manifest except as noted above:

Print or Type Name:	Signature and date:
GLENNA MULLAN	Glenna Mullan 4/19/99

Please print or type.

GENERATOR/consultant's COPY

TPST SOIL RECYCLERS OF OREGON

9333 N. Harborgate Street Portland, OR 97203

OR 011832

WEIGHMASTER CERTIFICATE – LICENSE #68636

THIS IS TO CERTIFY that the following described soil commodity was weighed, measured, or counted by a weighmaster, whose signature is on this certificate, as prescribed by the Division of Measurement Standards of the Oregon Department of Agriculture.

Manifest # A09 -03693 -023 04/19/99

Generator Site Information	Facility Information
KOPPERS TANK FOUNDATION EXCAVATION	TPST SOIL RECYCLERS OF OREGON
7540 NW ST HELENS ROAD	9333 N HARBORGATE STREET
PORTLAND, OR 97210 USA	PORTLAND, OR 97203 USA

				LBS	TONS	
0	IN --->	12:54:42pm	Gross Wt:	83,960	41.98	Manual Wt
0	OUT -->	01:00:23pm	Tare Wt:	32,740	16.37	Manual Wt
			NET WT:	51,220	25.61	

TRANSPORTER/DRIVER: GLORIE/LONNIE NOLAN

Weighmaster _____

Koppers016979

Manifest

TPS Technologies Soil Recycling
Non-Hazardous Soils

↓ Manifest # ↓

Generator and/or Consultant

Date of Shipment:	Responsible for Payment:	Transporter Truck #:	Facility #:	Given by TPS:	Load #
	Contractor	Alpine 3	A09	03693	023

Generator's Name and Billing Address: KOPPERS INDUSTRIES, INC. 7540 NW ST HELENS ROAD PORTLAND, OR 97210 USA	Generator's Phone #: (503) 286-3681 Person to Contact: AMOS KAMERER FAX #: (503) 285-2831	Generator's US EPA ID No. Customer Account Number with TPS: 9KOPPER
Consultant's Name and Billing Address: RM CAT ENVIRONMENTAL -- CONTRACTOR -- 12823 NE AIRPORT WAY PORTLAND, OR 97230 USA	Consultant's Phone #: (503) 408-8880 Person to Contact: BOB JANAK FAX #: (503) 408-8716	 Customer Account Number with TPS: 1003513
Generation Site (Transport from): *(name & address)* KOPPERS TANK FOUNDATION EXCAVATION 7540 NW ST HELENS ROAD PORTLAND, OR 97210 USA	Site Phone #: Person to Contact: FAX #:	BTEX Levels TPH Levels AVG. Levels
Designated Facility (Transport to): *(name & address)* TPST SOIL RECYCLERS OF OREGON 9333 N HARBORGATE STREET PORTLAND, OR 97203 USA	Facility Phone #: 503-735-9525 Person to Contact: GLENNA MULLAN FAX #: 503-240-1712	Facility Permit Numbers
Transporter Name and Mailing Address:	Transporter's Phone #: Person to Contact: FAX #:	Transporter's US EPA ID No.: Transporter's DOT No.: Customer Account Number with TPS:

Description of Soil	Moisture Content	Contaminated by:	Approx. Qty:	Description of Delivery	Gross Weight	Tare Weight	Net Weight
Sand ☐ Organic ☐ Clay ☐ Other ☐	0 - 10% ☐ 10 - 20% ☐ 20% - over ☐	Gas ☐ Diesel ☐ Other ☐			83960	32760	51200
Sand ☐ Organic ☐ Clay ☐ Other ☐	0 - 10% ☐ 10 - 20% ☐ 20% - over ☐	Gas ☐ Diesel ☐ Other ☐				25.61	

List any exception to items listed above:

Generator's and/or consultant's certification: I/We certify that the soil referenced herein is taken entirely from those soils described in the Soil Data Sheet completed and certified by me/us for the Generation Site shown above and nothing has been added or done to such soil that would alter it in any way.

Print or Type Name:	Signature and date:	Month	Day	Year
Generator ☐ Consultant ☐ SIGNATURE ON FILE				

Transporter

Transporter's certification: I/We acknowledge receipt of the soil described above and certify that such soil is being delivered in exactly the same condition as when received. I/We further certify that this soil is being directly transported from the Generation Site to the Designated Facility without off-loading, adding to, subtracting from or in any way delaying delivery to such site.

Print or Type Name:	Signature and date:	Month	Day	Year
X Lonnie Nolan	Lonnie Nolan	4	19	99

Recycling Facility

Discrepancies:

Recycling Facility certifies the receipt of the soil covered by this manifest except as noted above:

Print or Type Name:	Signature and date:
GLENNA MULLAN	Glenna Mullan 4/19/99

Please print or type.

GENERATOR/CONSULTANT'S COPY

TPST SOIL RECYCLERS OF OREGON

9333 N. Harborgate Street Portland, OR 97203

OR 011833

WEIGHMASTER CERTIFICATE – LICENSE #68636

THIS IS TO CERTIFY that the following described soil commodity was weighed, measured, or counted by a weighmaster, whose signature is on this certificate, as prescribed by the Division of Measurement Standards of the Oregon Department of Agriculture.

Manifest # A09 -03693 -024 04/19/99

Generator Site Information

KOPPERS TANK FOUNDATION EXCAVATION
7540 NW ST HELENS ROAD

PORTLAND, OR 97210 USA

Facility Information

TPST SOIL RECYCLERS OF OREGON
9333 N HARBORGATE STREET

PORTLAND, OR 97203 USA

				LBS	TONS	
0	IN --->	01:15:16pm	Gross Wt:	86,420	43.21	Manual Wt
0	OUT -->	01:24:16pm	Tare Wt:	34,380	17.19	Manual Wt
			NET WT:	52,040	26.02	

TRANSPORTER/DRIVER: TIM GOODNER

Weighmaster _____

Koppers016981

Manifest

TPS Technologies Soil Recycling
Non-Hazardous Soils

↓ Manifest # ↓

Date of Shipment:	Responsible for Payment:	Transporter Truck #:	Facility #:	Given by TPS:	Load #
	Contractor	Goodwer	A09	03693	024

Generator and/or Consultant

Generator's Name and Billing Address:	Generator's Phone #:	Generator's US EPA ID No.
KOPPERS INDUSTRIES, INC 7540 NW ST HELENS ROAD PORTLAND, OR 97210 USA	(503) 286-3681 Person to Contact: AMOS KAMERER FAX #: (503) 285-2831	Customer Account Number with TPS: 9KOPPER
Consultant's Name and Billing Address:	**Consultant's Phone #:**	
RM CAT ENVIRONMENTAL -- CONTRACTOR -- 12823 NE AIRPORT WAY PORTLAND, OR 97230 USA	(503) 408-8880 Person to Contact: BOB JANAK FAX #: (503) 408-8716	Customer Account Number with TPS: 1000513
Generation Site (Transport from): *(name & address)*	**Site Phone #:**	**BTEX Levels**
KOPPERS TANK FOUNDATION EXCAVATION 7540 NW ST HELENS ROAD PORTLAND, OR 97210 USA	Person to Contact: FAX #:	TPH Levels AVG. Levels
Designated Facility (Transport to): *(name & address)*	**Facility Phone #:** 503-735-9525	**Facility Permit Numbers**
TPST SOIL RECYCLERS OF OREGON 9333 N HARBORGATE STREET PORTLAND, OR 97203 USA	Person to Contact: GLENNA MULLAN FAX #: 503-240-1712	
Transporter Name and Mailing Address:	**Transporter's Phone #:**	**Transporter's US EPA ID No.:**
	Person to Contact:	Transporter's DOT No.:
	FAX #:	Customer Account Number with TPS:

Description of Soil	Moisture Content	Contaminated by:	Approx. Qty:	Description of Delivery	Gross Weight	Tare Weight	Net Weight
Sand ☐ Organic ☐ Clay ☐ Other ☐	0 - 10% ☐ 10 - 20% ☐ 20% - over ☐	Gas ☐ Diesel ☐ Other ☐			86420	32360	54060
Sand ☐ Organic ☐ Clay ☐ Other ☐	0 - 10% ☐ 10 - 20% ☐ 20% - over ☐	Gas ☐ Diesel ☐ Other ☐				26.02	

List any exception to items listed above:

Generator's and/or consultant's certification: I/We certify that the soil referenced herein is taken entirely from those soils described in the Soil Data Sheet completed and certified by me/us for the Generation Site shown above and nothing has been added or done to such soil that would alter it in any way.

Print or Type Name: Generator ☐ Consultant ☐	Signature and date:	Month	Day	Year
SIGNATURE ON FILE				

Transporter

Transporter's certification: I/We acknowledge receipt of the soil described above and certify that such soil is being delivered in exactly the same condition as when received. I/We further certify that this soil is being directly transported from the Generation Site to the Designated Facility without off-loading, adding to, subtracting from or in any way delaying delivery to such site.

Print or Type Name:	Signature and date:	Month	Day	Year
Tim Goodwer	Timothy L Hoose	4	19	99

Recycling Facility

Discrepancies:

Recycling Facility certifies the receipt of the soil covered by this manifest except as noted above:

Print or Type Name:	Signature and date:
GLENNA MULLAN	Glenna Mullan 4/19/99

Please print or type.

GENERATOR/consultant's COPY

TPST SOIL RECYCLERS OF OREGON

9333 N. Harborgate Street Portland, OR 97203

OR 011834

WEIGHMASTER CERTIFICATE – LICENSE #68636

THIS IS TO CERTIFY that the following described soil commodity was weighed, measured, or counted by a weighmaster, whose signature is on this certificate, as prescribed by the Division of Measurement Standards of the Oregon Department of Agriculture.

Manifest # A09 -03693 -025 04/19/99

Generator Site Information	Facility Information
KOPPERS TANK FOUNDATION EXCAVATION	TPST SOIL RECYCLERS OF OREGON
7540 NW ST HELENS ROAD	9333 N HARBORGATE STREET
PORTLAND, OR 97210 USA	PORTLAND, OR 97203 USA

				LBS	TONS	
0	IN --->	01:20:29pm	Gross Wt:	94,740	47.37	Manual Wt
0	OUT -->	01:27:50pm	Tare Wt:	34,400	17.20	Manual Wt
			NET WT:	60,340	30.17	

TRANSPORTER/DRIVER: CELORIE/RON DENNY

Weighmaster _____

Koppers016983

Manifest

TPS Technologies Soil Recycling
Non-Hazardous Soils

↓ Manifest # ↓

Date of Shipment:	Responsible for Payment:	Transporter Truck #:	Facility #:	Given by TPS:	Load #
	Contractor	Victoria 1	A09	03693	025

Generator and/or Consultant

Generator's Name and Billing Address:	Generator's Phone #:	Generator's US EPA ID No.
KOPPERS INDUSTRIES, INC. 7540 NW ST HELENS ROAD PORTLAND, OR 97210 USA	(503) 286-3681 Person to Contact: AMOS KAMERER FAX #: (503) 285-2831	Customer Account Number with TPS: SKOPPER

Consultant's Name and Billing Address:	Consultant's Phone #:	
RM CAT ENVIRONMENTAL -- CONTRACTOR -- 12823 NE AIRPORT WAY PORTLAND, OR 97230 USA	(503) 408-8880 Person to Contact: BOB JANAK FAX #: (503) 408-8716	Customer Account Number with TPS: 100313

Generation Site (Transport from): *(name & address)*	Site Phone #:	BTEX Levels
KOPPERS TANK FOUNDATION EXCAVATION 7540 NW ST HELENS ROAD PORTLAND, OR 97210 USA	Person to Contact:	TPH Levels
	FAX #:	AVG. Levels

Designated Facility (Transport to): *(name & address)*	Facility Phone #:	Facility Permit Numbers
TPST SOIL RECYCLERS OF OREGON 9333 N HARBORGATE STREET PORTLAND, OR 97203 USA	503-735-9525 Person to Contact: GLENNA MULLAN FAX #: 503-240-1712	

Transporter Name and Mailing Address:	Transporter's Phone #:	Transporter's US EPA ID No.:
	Person to Contact:	Transporter's DOT No.:
	FAX #:	Customer Account Number with TPS:

Description of Soil	Moisture Content	Contaminated by:	Approx. Qty:	Description of Delivery	Gross Weight	Tare Weight	Net Weight
Sand ☐ Organic ☐ Clay ☐ Other ☐	0 - 10% ☐ 10 - 20% ☐ 20% - over ☐	Gas ☐ Diesel ☐ Other ☐			94740	34400	60340
Sand ☐ Organic ☐ Clay ☐ Other ☐	0 - 10% ☐ 10 - 20% ☐ 20% - over ☐	Gas ☐ Diesel ☐ Other ☐				30.17	

List any exception to items listed above:

Generator's and/or consultant's certification: I/We certify that the soil referenced herein is taken entirely from those soils described in the Soil Data Sheet completed and certified by me/us for the Generation Site shown above and nothing has been added or done to such soil that would alter it in any way.

Print or Type Name: Generator ☐ Consultant ☐	Signature and date:	Month	Day	Year
SIGNATURE ON FILE				

Transporter

Transporter's certification: I/We acknowledge receipt of the soil described above and certify that such soil is being delivered in exactly the same condition as when received. I/We further certify that this soil is being directly transported from the Generation Site to the Designated Facility without off-loading, adding to, subtracting from or in any way delaying delivery to such site.

Print or Type Name:	Signature and date:	Month	Day	Year
X Ron Denny	X Ron Denny	4	19	99

Recycling Facility

Discrepancies:

Recycling Facility certifies the receipt of the soil covered by this manifest except as noted above:

Print or Type Name:	Signature and date:
GLENNA MULLAN	Glenna Mullan 4/19/99

Please print or type.

GENERATOR/CONSULTANT'S COPY

TPST SOIL RECYCLERS OF OREGON

9333 N. Harborgate Street Portland, OR 97203

OR 011835

WEIGHMASTER CERTIFICATE – LICENSE #68636

THIS IS TO CERTIFY that the following described soil commodity was weighed, measured, or counted by a weighmaster, whose signature is on this certificate, as prescribed by the Division of Measurement Standards of the Oregon Department of Agriculture.

Manifest # A09 -03693 -026 04/19/99

Generator Site Information	Facility Information
KOPPERS TANK FOUNDATION EXCAVATION	TPST SOIL RECYCLERS OF OREGON
7540 NW ST HELENS ROAD	9333 N HARBORGATE STREET
PORTLAND, OR 97210 USA	PORTLAND, OR 97203 USA

				LBS	TONS	
0	IN --->	01:36:08pm	Gross Wt:	80,760	40.38	Manual Wt
0	OUT -->	01:43:24pm	Tare Wt:	32,200	16.10	Manual Wt
			NET WT:	48,560	24.28	

TRANSPORTER/DRIVER: HECKMAN/MARCIE HECKMAN

Weighmaster _____

Koppers016985

Manifest

TPS Technologies Soil Recycling
Non-Hazardous Soils

↓ Manifest # ↓

Generator and/or Consultant

Date of Shipment:	Responsible for Payment:	Transporter Truck #:	Facility #:	Given by TPS:	Load #
	Contractor	Heckman	A09	03693	0.26

Generator's Name and Billing Address:	Generator's Phone #:	Generator's US EPA ID No.
KOPPERS INDUSTRIES, INC. 7540 NW ST HELENS ROAD PORTLAND, OR 97210 USA	(503) 286-3681 Person to Contact: AMOS KAMERER FAX #: (503) 285-2831	Customer Account Number with TPS: 9KOPPER
Consultant's Name and Billing Address:	**Consultant's Phone #:**	
RM CAT ENVIRONMENTAL -- CONTRACTOR -- 12823 NE AIRPORT WAY PORTLAND, OR 97230 USA	(503) 408-8880 Person to Contact: BOB JANAK FAX #: (503) 408-8716	Customer Account Number with TPS: 10035113
Generation Site (Transport from): *(name & address)*	**Site Phone #:**	**BTEX Levels**
KOPPERS TANK FOUNDATION EXCAVATION 7540 NW ST HELENS ROAD PORTLAND, OR 97210 USA	Person to Contact:	TPH Levels
	FAX #:	AVG. Levels
Designated Facility (Transport to): *(name & address)*	**Facility Phone #:**	**Facility Permit Numbers**
TPST SOIL RECYCLERS OF OREGON 9333 N HARBORGATE STREET PORTLAND, OR 97203 USA	503-735-9525 Person to Contact: GLENNA MULLAN FAX #: 503-240-1712	
Transporter Name and Mailing Address:	**Transporter's Phone #:**	**Transporter's US EPA ID No.:**
	Person to Contact:	Transporter's DOT No.:
	FAX #:	Customer Account Number with TPS:

Description of Soil	Moisture Content	Contaminated by:	Approx. Qty:	Description of Delivery	Gross Weight	Tare Weight	Net Weight
Sand ☐ Organic ☐ Clay ☐ Other ☐	0 - 10% ☐ 10 - 20% ☐ 20% - over ☐	Gas ☐ Diesel ☐ Other ☐			80760	32200	48560
Sand ☐ Organic ☐ Clay ☐ Other ☐	0 - 10% ☐ 10 - 20% ☐ 20% - over ☐	Gas ☐ Diesel ☐ Other ☐				24.28	

List any exception to items listed above:

Generator's and/or consultant's certification: I/We certify that the soil referenced herein is taken entirely from those soils described in the Soil Data Sheet completed and certified by me/us for the Generation Site shown above and nothing has been added or done to such soil that would alter it in any way.

Print or Type Name: Generator ☐ Consultant ☐	Signature and date:	Month	Day	Year
SIGNATURE ON FILE				

Transporter

Transporter's certification: I/We acknowledge receipt of the soil described above and certify that such soil is being delivered in exactly the same condition as when received. I/We further certify that this soil is being directly transported from the Generation Site to the Designated Facility without off-loading, adding to, subtracting from or in any way delaying delivery to such site.

Print or Type Name:	Signature and date:	Month	Day	Year
Marcie Jean Heckman	Marcie J Heckman	4	19	99

Recycling Facility

Discrepancies:

Recycling Facility certifies the receipt of the soil covered by this manifest except as noted above:

Print or Type Name:	Signature and date:
GLENNA MULLAN	Glenna Mullan 4/19/99

Please print or type.

GENERATOR/consultant's COPY

TPST SOIL RECYCLERS OF OREGON

9333 N. Harborgate Street Portland, OR 97203

OR 011836

WEIGHMASTER CERTIFICATE – LICENSE #68636

THIS IS TO CERTIFY that the following described soil commodity was weighed, measured, or counted by a weighmaster, whose signature is on this certificate, as prescribed by the Division of Measurement Standards of the Oregon Department of Agriculture.

Manifest # A09 -03693 -027 04/19/99

Generator Site Information	Facility Information
KOPPERS TANK FOUNDATION EXCAVATION	TPST SOIL RECYCLERS OF OREGON
7540 NW ST HELENS ROAD	9333 N HARBORGATE STREET
PORTLAND, OR 97210 USA	PORTLAND, OR 97203 USA

				LBS	TONS	
0	IN --->	01:38:05pm	Gross Wt:	89,060	44.53	Manual Wt
0	OUT -->	01:48:03pm	Tare Wt:	31,660	15.83	Manual Wt
			NET WT:	57,400	28.70	

TRANSPORTER/DRIVER: CELORIE/JAMES MAYO

Weighmaster

Koppers016987

Manifest

TPS Technologies Soil Recycling
Non-Hazardous Soils

↓ Manifest # ↓

Date of Shipment:	Responsible for Payment:	Transporter Truck #:	Facility #:	Given by TPS:	Load #
	Contractor	Volvo-5	A09	03693	021

Generator and/or Consultant

Generator's Name and Billing Address:	Generator's Phone #:	Generator's US EPA ID No.
KOPPERS INDUSTRIES, INC. 7540 NW ST HELENS ROAD PORTLAND, OR 97210 USA	(503) 286-3681 Person to Contact: AMOS KAMEKER FAX #: (503) 285-2831	Customer Account Number with TPS: KOPPER
Consultant's Name and Billing Address:	**Consultant's Phone #:**	
RM CAT ENVIRONMENTAL -- CONTRACTOR - 12823 NE AIRPORT WAY PORTLAND, OR 97230 USA	(503) 408-8880 Person to Contact: BOB JANAL FAX #: (503) 408-8716	Customer Account Number with TPS: 1003613
Generation Site (Transport from): *(name & address)*	**Site Phone #:**	BTEX Levels
KOPPERS TANK FOUNDATION EXCAVATION 7540 NW ST HELENS ROAD PORTLAND, OR 97210 USA	Person to Contact:	TPH Levels
	FAX #:	AVG. Levels
Designated Facility (Transport to): *(name & address)*	**Facility Phone #:**	Facility Permit Numbers
TPST SOIL RECYCLERS OF OREGON 9333 N HARBORGATE STREET PORTLAND, OR 97203 USA	503-735-9525 Person to Contact: GLENNA MULLAN FAX #: 503-240-1712	
Transporter Name and Mailing Address:	**Transporter's Phone #:**	Transporter's US EPA ID No.:
	Person to Contact:	Transporter's DOT No.:
	FAX #:	Customer Account Number with TPS:

Description of Soil	Moisture Content	Contaminated by:	Approx. Qty:	Description of Delivery	Gross Weight	Tare Weight	Net Weight
Sand ☐ Organic ☐ Clay ☐ Other ☐	0 - 10% ☐ 10 - 20% ☐ 20% - over ☐	Gas ☐ Diesel ☐ Other ☐			89000	31600	57400
Sand ☐ Organic ☐ Clay ☐ Other ☐	0 - 10% ☐ 10 - 20% ☐ 20% - over ☐	Gas ☐ Diesel ☐ Other ☐				38.70	

List any exception to items listed above:

Generator's and/or consultant's certification: I/We certify that the soil referenced herein is taken entirely from those soils described in the Soil Data Sheet completed and certified by me/us for the Generation Site shown above and nothing has been added or done to such soil that would alter it in any way.

Print or Type Name: Generator ☐ Consultant ☐	Signature and date:	Month	Day	Year
SIGNATURE ON FILE				

Transporter

Transporter's certification: I/We acknowledge receipt of the soil described above and certify that such soil is being delivered in exactly the same condition as when received. I/We further certify that this soil is being directly transported from the Generation Site to the Designated Facility without off-loading, adding to, subtracting from or in any way delaying delivery to such site.

Print or Type Name:	Signature and date:	Month	Day	Year
James Mayo	James Mayo	4	19	99

Recycling Facility

Discrepancies:

Recycling Facility certifies the receipt of the soil covered by this manifest except as noted above:

Print or Type Name:	Signature and date:
GLENNA MULLAN	Glenna Mull 4/19/99

Please print or type.

GENERATOR/CONSULTANT'S COPY

TPST SOIL RECYCLERS OF OREGON

9333 N. Harborgate Street Portland, OR 97203

OR 011837

WEIGHMASTER CERTIFICATE – LICENSE #68636

THIS IS TO CERTIFY that the following described soil commodity was weighed, measured, or counted by a weighmaster, whose signature is on this certificate, as prescribed by the Division of Measurement Standards of the Oregon Department of Agriculture.

Manifest # A09 -03693 -028 04/19/99

Generator Site Information

KOPPERS TANK FOUNDATION EXCAVATION
7540 NW ST HELENS ROAD

PORTLAND, OR 97210 USA

Facility Information

TPST SOIL RECYCLERS OF OREGON
9333 N HARBORGATE STREET

PORTLAND, OR 97203 USA

				LBS	TONS	
0	IN --->	01:42:42pm	Gross Wt:	40,600	20.30	Manual Wt
0	OUT -->	01:50:20pm	Tare Wt:	22,620	11.31	Manual Wt
			NET WT:	17,980	08.99	

TRANSPORTER/DRIVER: MEL JAMES

Weighmaster _____

Koppers016989

Manifest

TPS Technologies Soil Recycling
Non-Hazardous Soils

↓ Manifest # ↓

Date of Shipment:	Responsible for Payment:	Transporter Truck #:	Facility #:	Given by TPS:	Load #
	Contractor	Mel James	A09	93693	0,28

Generator and/or Consultant

Generator's Name and Billing Address:	Generator's Phone #:	Generator's US EPA ID No.
KOPPERS INDUSTRIES, INC. 7540 NW ST HELENS ROAD PORTLAND, OR 97210 USA	(503) 286-3681 Person to Contact: AMOS KAMERER FAX #: (503) 285-2831	Customer Account Number with TPS: 9KOPPER
Consultant's Name and Billing Address:	**Consultant's Phone #:**	
RM CAT ENVIRONMENTAL — CONTRACTOR — 12823 NE AIRPORT WAY PORTLAND, OR 97230 USA	(503) 408-8880 Person to Contact: BOB JANAK FAX #: (503) 408-8716	Customer Account Number with TPS: L003513
Generation Site (Transport from): *(name & address)*	**Site Phone #:**	**BTEX Levels**
KOPPERS TANK FOUNDATION EXCAVATION 7540 NW ST HELENS ROAD PORTLAND, OR 97210 USA	Person to Contact: FAX #:	TPH Levels AVG. Levels
Designated Facility (Transport to): *(name & address)*	**Facility Phone #:**	**Facility Permit Numbers**
TPST SOIL RECYCLERS OF OREGON 9333 N HARBORGATE STREET PORTLAND, OR 97203 USA	503-735-9525 Person to Contact: GLENNA MULLAN FAX #: 503-240-1712	
Transporter Name and Mailing Address:	**Transporter's Phone #:**	**Transporter's US EPA ID No.:**
	Person to Contact:	Transporter's DOT No.:
	FAX #:	Customer Account Number with TPS:

Description of Soil	Moisture Content	Contaminated by:	Approx. Qty:	Description of Delivery	Gross Weight	Tare Weight	Net Weight
Sand ☐ Organic ☐ Clay ☐ Other ☐	0 - 10% ☐ 10 - 20% ☐ 20% - over ☐	Gas ☐ Diesel ☐ Other ☐			40600	22620	17980
Sand ☐ Organic ☐ Clay ☐ Other ☐	0 - 10% ☐ 10 - 20% ☐ 20% - over ☐	Gas ☐ Diesel ☐ Other ☐				8.99	

List any exception to items listed above:

Generator's and/or consultant's certification: I/We certify that the soil referenced herein is taken entirely from those soils described in the Soil Data Sheet completed and certified by me/us for the Generation Site shown above and nothing has been added or done to such soil that would alter it in any way.

Print or Type Name: Generator ☐ Consultant ☐	Signature and date:	Month	Day	Year
SIGNATURE ON FILE				

Transporter

Transporter's certification: I/We acknowledge receipt of the soil described above and certify that such soil is being delivered in exactly the same condition as when received. I/We further certify that this soil is being directly transported from the Generation Site to the Designated Facility without off-loading, adding to, subtracting from or in any way delaying delivery to such site.

Print or Type Name:	Signature and date:	Month	Day	Year
X Mel James	X Mel James			

Recycling Facility

Discrepancies:

Recycling Facility certifies the receipt of the soil covered by this manifest except as noted above:

Print or Type Name:	Signature and date:
GLENNA MULLAN	4/19/99

Please print or type.

GENERATOR/consultant's COPY

TPST SOIL RECYCLERS OF OREGON

9333 N. Harborgate Street Portland, OR 97203

OR 011838

WEIGHMASTER CERTIFICATE – LICENSE #68636

THIS IS TO CERTIFY that the following described soil commodity was weighed, measured, or counted by a weighmaster, whose signature is on this certificate, as prescribed by the Division of Measurement Standards of the Oregon Department of Agriculture.

Manifest # A09 -03693 -029 04/19/99

Generator Site Information	Facility Information
KOPPERS TANK FOUNDATION EXCAVATION	TPST SOIL RECYCLERS OF OREGON
7540 NW ST HELENS ROAD	9333 N HARBORGATE STREET
PORTLAND, OR 97210 USA	PORTLAND, OR 97203 USA

				LBS	TONS	
0	IN --->	01:46:50pm	Gross Wt:	80,160	40.08	Manual Wt
0	OUT -->	01:53:48pm	Tare Wt:	32,720	16.36	Manual Wt
			NET WT:	47,440	23.72	

TRANSPORTER/DRIVER: GELORIE/LONNIE NOLAN

Weighmaster

Koppers016991

Manifest

TPS Technologies Soil Recycling
Non-Hazardous Soils

↓ Manifest # ↓

Generator and/or Consultant

Date of Shipment:	Responsible for Payment:	Transporter Truck #:	Facility #:	Given by TPS:	Load #
	Contractor	Pelorie 3	A09	03693	029

Generator's Name and Billing Address: KOPPERS INDUSTRIES, INC 7540 NW ST HELENS ROAD PORTLAND, OR 97210 USA	Generator's Phone #: (503) 286-3681 Person to Contact: AMOS KAMERER FAX #: (503) 285-2831	Generator's US EPA ID No. Customer Account Number with TPS: 9KOPPER
Consultant's Name and Billing Address: RM CAT ENVIRONMENTAL -- CONTRACTOR -- 12823 NE AIRPORT WAY PORTLAND, OR 97230 USA	Consultant's Phone #: (503) 408-8880 Person to Contact: BOB JANAK FAX #: (503) 408-8716	 Customer Account Number with TPS: 1003513
Generation Site (Transport from): *(name & address)* KOPPERS TANK FOUNDATION EXCAVATION 7540 NW ST HELENS ROAD PORTLAND, OR 97210 USA	Site Phone #: Person to Contact: FAX #:	BTEX Levels TPH Levels AVG. Levels
Designated Facility (Transport to): *(name & address)* TPST SOIL RECYCLERS OF OREGON 9333 N HARBORGATE STREET PORTLAND, OR 97203 USA	Facility Phone #: 503-735-9525 Person to Contact: GLENNA MULLAN FAX #: 503-240-1712	Facility Permit Numbers
Transporter Name and Mailing Address:	Transporter's Phone #: Person to Contact: FAX #:	Transporter's US EPA ID No.: Transporter's DOT No.: Customer Account Number with TPS:

Description of Soil	Moisture Content	Contaminated by:	Approx. Qty:	Description of Delivery	Gross Weight	Tare Weight	Net Weight
Sand ☐ Organic ☐ Clay ☐ Other ☐	0 - 10% ☐ 10 - 20% ☐ 20% - over ☐	Gas ☐ Diesel ☐ Other ☐			80160	32720	47440
Sand ☐ Organic ☐ Clay ☐ Other ☐	0 - 10% ☐ 10 - 20% ☐ 20% - over ☐	Gas ☐ Diesel ☐ Other ☐				2372	

List any exception to items listed above:

Generator's and/or consultant's certification: I/We certify that the soil referenced herein is taken entirely from those soils described in the Soil Data Sheet completed and certified by me/us for the Generation Site shown above and nothing has been added or done to such soil that would alter it in any way.

Print or Type Name: Generator ☐ Consultant ☐	Signature and date:	Month	Day	Year
SIGNATURE ON FILE				

Transporter

Transporter's certification: I/We acknowledge receipt of the soil described above and certify that such soil is being delivered in exactly the same condition as when received. I/We further certify that this soil is being directly transported from the Generation Site to the Designated Facility without off-loading, adding to, subtracting from or in any way delaying delivery to such site.

Print or Type Name:	Signature and date:	Month	Day	Year
X Lonnie Nolan	X Lonnie Nolan	4	19	99

Recycling Facility

Discrepancies:

Recycling Facility certifies the receipt of the soil covered by this manifest except as noted above:

Print or Type Name:	Signature and date:
GLENNA MULLAN	Glenna Mullan 4/19/99

Please print or type:

GENERATOR/CONSULTANT'S COPY

Koppers016992

TPST SOIL RECYCLERS OF OREGON

9333 N. Harborgate Street Portland, OR 97203

OR 011839

WEIGHMASTER CERTIFICATE – LICENSE #68636

THIS IS TO CERTIFY that the following described soil commodity was weighed, measured, or counted by a weighmaster, whose signature is on this certificate, as prescribed by the Division of Measurement Standards of the Oregon Department of Agriculture.

Manifest # A09 -03693 -030 04/19/99

Generator Site Information	Facility Information
KOPPERS TANK FOUNDATION EXCAVATION	TPST SOIL RECYCLERS OF OREGON
7540 NW ST HELENS ROAD	9333 N HARBORGATE STREET
PORTLAND, OR 97210 USA	PORTLAND, OR 97203 USA

				LBS	TONS	
0	IN --->	02:02:05pm	Gross Wt:	91,700	45.85	Manual Wt
0	OUT -->	02:07:43pm	Tare Wt:	34,400	17.20	Manual Wt
			NET WT:	57,300	28.65	

TRANSPORTER/DRIVER: CELORIE/RON DENNY

Weighmaster

Koppers016993

Manifest

TPS Technologies Soil Recycling
Non-Hazardous Soils

Manifest #

Generator and/or Consultant

Date of Shipment:	Responsible for Payment:	Transporter Truck #:	Facility #:	Given by TPS:	Load #
	Contractor	Yellow 1	A09	03693	030

Generator's Name and Billing Address:	Generator's Phone #:	Generator's US EPA ID No.
KOPPERS INDUSTRIES, INC. 7540 NW ST HELENS ROAD PORTLAND, OR 97210 USA	(503) 286-3681 Person to Contact: AMOS KAMERER FAX #: (503) 285-2831	Customer Account Number with TPS: 9XOPPER
Consultant's Name and Billing Address:	**Consultant's Phone #:**	
RM CAT ENVIRONMENTAL -- CONTRACTOR -- 12823 NE AIRPORT WAY PORTLAND, OR 97230 USA	(503) 408-8880 Person to Contact: BOB JANAK FAX #: (503) 408-8710	Customer Account Number with TPS: 100351
Generation Site (Transport from): *(name & address)*	**Site Phone #:**	BTEX Levels
KOPPERS TANK FOUNDATION EXCAVATION 7540 NW ST HELENS ROAD PORTLAND, OR 97210 USA	Person to Contact:	TPH Levels
	FAX #:	AVG. Levels
Designated Facility (Transport to): *(name & address)*	**Facility Phone #:**	Facility Permit Numbers
TPST SOIL RECYCLERS OF OREGON 9333 N HARBORGATE STREET PORTLAND, OR 97203 USA	503-735-9525 Person to Contact: GLENNA MULLAN FAX #: 503-240-1712	
Transporter Name and Mailing Address:	**Transporter's Phone #:**	Transporter's US EPA ID No.:
	Person to Contact:	Transporter's DOT No.:
	FAX #:	Customer Account Number with TPS:

Description of Soil	Moisture Content	Contaminated by:	Approx. Qty:	Description of Delivery	Gross Weight	Tare Weight	Net Weight
Sand ☐ Organic ☐ Clay ☐ Other ☐	0 - 10% ☐ 10 - 20% ☐ 20% - over ☐	Gas ☐ Diesel ☐ Other ☐			91700	34400	57300
Sand ☐ Organic ☐ Clay ☐ Other ☐	0 - 10% ☐ 10 - 20% ☐ 20% - over ☐	Gas ☐ Diesel ☐ Other ☐				28.65	

List any exception to items listed above:

Generator's and/or consultant's certification: I/We certify that the soil referenced herein is taken entirely from those soils described in the Soil Data Sheet completed and certified by me/us for the Generation Site shown above and nothing has been added or done to such soil that would alter it in any way.

Print or Type Name: Generator ☐ Consultant ☐	Signature and date:	Month	Day	Year
SIGNATURE ON FILE				

Transporter

Transporter's certification: I/We acknowledge receipt of the soil described above and certify that such soil is being delivered in exactly the same condition as when received. I/We further certify that this soil is being directly transported from the Generation Site to the Designated Facility without off-loading, adding to, subtracting from or in any way delaying delivery to such site.

Print or Type Name:	Signature and date:	Month	Day	Year
X Ron Denny	X Ron Denny	4	19	99

Recycling Facility

Discrepancies:

Recycling Facility certifies the receipt of the soil covered by this manifest except as noted above:

Print or Type Name:	Signature and date:
GLENNA MULLAN	Glenna Mullan 4/19/99

Please print or type.

GENERATOR/consultant's COPY

TPST SOIL RECYCLERS OF OREGON

9333 N. Harborgate Street Portland, OR 97203

OR 011840

WEIGHMASTER CERTIFICATE – LICENSE #68636

THIS IS TO CERTIFY that the following described soil commodity was weighed, measured, or counted by a weighmaster, whose signature is on this certificate, as prescribed by the Division of Measurement Standards of the Oregon Department of Agriculture.

Manifest # A09 -03693 -031 04/19/99

Generator Site Information	Facility Information
KOPPERS TANK FOUNDATION EXCAVATION	TPST SOIL RECYCLERS OF OREGON
7540 NW ST HELENS ROAD	9333 N HARBORGATE STREET
PORTLAND, OR 97210 USA	PORTLAND, OR 97203 USA

				LBS	TONS	
0	IN --->	02:31:35pm	Gross Wt:	90,140	45.07	Manual Wt
0	OUT -->	02:36:49pm	Tare Wt:	31,620	15.81	Manual Wt
			NET WT:	58,520	29.26	

TRANSPORTER/DRIVER: CELORIE/JAMES MAYO

Weighmaster

Koppers016995

Manifest

TPS Technologies Soil Recycling
Non-Hazardous Soils

↓ Manifest # ↓

Date of Shipment:	Responsible for Payment:	Transporter Truck #:	Facility #:	Given by TPS:	Load #
	Contractor	Victoria 5	A49	03693	031

Generator and/or Consultant

Generator's Name and Billing Address:	Generator's Phone #:	Generator's US EPA ID No.
KOPPERS INDUSTRIES, INC 7540 NW ST HELENS ROAD PORTLAND, OR 97210 USA	(503) 286-3581 Person to Contact: AMOS KAMEKER FAX #: (503) 285-2831	Customer Account Number with TPS: KOPPER
Consultant's Name and Billing Address:	**Consultant's Phone #:**	
RM CAT ENVIRONMENTAL -- CONTRACTOR -- 12823 NE AIRPORT WAY PORTLAND, OR 97230 USA	(503) 408-8880 Person to Contact: BOB JANAE FAX #: (503) 408-8716	Customer Account Number with TPS: 1003513
Generation Site (Transport from): *(name & address)*	**Site Phone #:**	BTEX Levels
KOPPERS TANK FOUNDATION EXCAVATION 7540 NW ST HELENS ROAD PORTLAND, OR 97210 USA	Person to Contact: FAX #:	TPH Levels AVG. Levels
Designated Facility (Transport to): *(name & address)*	**Facility Phone #:**	Facility Permit Numbers
TPST SOIL RECYCLERS OF OREGON 9333 N HARBORGATE STREET PORTLAND, OR 97203 USA	503-735-9525 Person to Contact: GLENNA MULLAN FAX #: 503-240-1712	
Transporter Name and Mailing Address:	**Transporter's Phone #:**	Transporter's US EPA ID No.:
	Person to Contact:	Transporter's DOT No.:
	FAX #:	Customer Account Number with TPS:

Description of Soil	Moisture Content	Contaminated by:	Approx. Qty:	Description of Delivery	Gross Weight	Tare Weight	Net Weight
Sand ☐ Organic ☐ Clay ☐ Other ☐	0 - 10% ☐ 10 - 20% ☐ 20% - over ☐	Gas ☐ Diesel ☐ Other ☐			90140	31620	58520
Sand ☐ Organic ☐ Clay ☐ Other ☐	0 - 10% ☐ 10 - 20% ☐ 20% - over ☐	Gas ☐ Diesel ☐ Other ☐				2926	

List any exception to items listed above:

Generator's and/or consultant's certification: I/We certify that the soil referenced herein is taken entirely from those soils described in the Soil Data Sheet completed and certified by me/us for the Generation Site shown above and nothing has been added or done to such soil that would alter it in any way.

Print or Type Name: Generator ☐ Consultant ☐	Signature and date:	Month	Day	Year
SIGNATURE ON FILE				

Transporter

Transporter's certification: I/We acknowledge receipt of the soil described above and certify that such soil is being delivered in exactly the same condition as when received. I/We further certify that this soil is being directly transported from the Generation Site to the Designated Facility without off-loading, adding to, subtracting from or in any way delaying delivery to such site.

Print or Type Name:	Signature and date:	Month	Day	Year
X James Mayo	X Mayo	4	19	99

Recycling Facility

Discrepancies:

Recycling Facility certifies the receipt of the soil covered by this manifest except as noted above:

Print or Type Name:	Signature and date:
GLENNA MULLAN	Glenna Mullan 4/19/99

Please print or type.

GENERATOR/CONSULTANT'S COPY

TPST SOIL RECYCLERS OF OREGON

9333 N. Harborgate Street Portland, OR 97203

OR 011842

WEIGHMASTER CERTIFICATE – LICENSE #68636

THIS IS TO CERTIFY that the following described soil commodity was weighed, measured, or counted by a weighmaster, whose signature is on this certificate, as prescribed by the Division of Measurement Standards of the Oregon Department of Agriculture.

Manifest # A09 -03693 -032 04/19/99

Generator Site Information	Facility Information
KOPPERS TANK FOUNDATION EXCAVATION	TPST SOIL RECYCLERS OF OREGON
7540 NW ST HELENS ROAD	9333 N HARBORGATE STREET
PORTLAND, OR 97210 USA	PORTLAND, OR 97203 USA

				LBS	TONS	
0	IN --->	02:39:01pm	Gross Wt:	83,040	41.52	Manual Wt
0	OUT -->	02:44:15pm	Tare Wt:	32,720	16.36	Manual Wt
			NET WT:	50,320	25.16	

TRANSPORTER/DRIVER: CELORIE/LONNIE NOLAN

Weighmaster _____

Koppers016997

Manifest

TPS Technologies Soil Recycling
Non-Hazardous Soils

↓ Manifest # ↓

Date of Shipment:	Responsible for Payment:	Transporter Truck #:	Facility #:	Given by TPS:	Load #
	Contractor	Volvo 3	A09	03693	0.32

Generator and/or Consultant

Generator's Name and Billing Address:	Generator's Phone #:	Generator's US EPA ID No.
KOPPERS INDUSTRIES, INC. 7540 NW ST HELENS ROAD PORTLAND, OR 97210 USA	(503) 735-3581 Person to Contact: AMOS KAMERER FAX #: (503) 285-2831	Customer Account Number with TPS: 9KOPPER

Consultant's Name and Billing Address:	Consultant's Phone #:	
RM CAT ENVIRONMENTAL -- CONTRACTOR -- 12823 NE AIRPORT WAY PORTLAND, OR 97230 USA	(503) 408-8880 Person to Contact: BOB JANAK FAX #: (503) 408-8716	Customer Account Number with TPS: 0003513

Generation Site (Transport from): *(name & address)*	Site Phone #:	BTEX Levels
KOPPERS TANK FOUNDATION EXCAVATION 7540 NW ST HELENS ROAD PORTLAND, OR 97210 USA	Person to Contact:	TPH Levels
	FAX #:	AVG. Levels

Designated Facility (Transport to): *(name & address)*	Facility Phone #:	Facility Permit Numbers
TPST SOIL RECYCLERS OF OREGON 9333 N HARBORGATE STREET PORTLAND, OR 97203 USA	503-735-9525 Person to Contact: GLENNA MULLAN FAX #: 503-240-1712	

Transporter Name and Mailing Address:	Transporter's Phone #:	Transporter's US EPA ID No.:
	Person to Contact:	Transporter's DOT No.:
	FAX #:	Customer Account Number with TPS:

Description of Soil	Moisture Content	Contaminated by:	Approx. Qty:	Description of Delivery	Gross Weight	Tare Weight	Net Weight
Sand ☐ Organic ☐ Clay ☐ Other ☐	0 - 10% ☐ 10 - 20% ☐ 20% - over ☐	Gas ☐ Diesel ☐ Other ☐			83040	32700	50340
Sand ☐ Organic ☐ Clay ☐ Other ☐	0 - 10% ☐ 10 - 20% ☐ 20% - over ☐	Gas ☐ Diesel ☐ Other ☐				25.16	

List any exception to items listed above:

Generator's and/or consultant's certification: I/We certify that the soil referenced herein is taken entirely from those soils described in the Soil Data Sheet completed and certified by me/us for the Generation Site shown above and nothing has been added or done to such soil that would alter it in any way.

Print or Type Name: Generator ☐ Consultant ☐	Signature and date:	Month	Day	Year
SIGNATURE ON FILE				

Transporter

Transporter's certification: I/We acknowledge receipt of the soil described above and certify that such soil is being delivered in exactly the same condition as when received. I/We further certify that this soil is being directly transported from the Generation Site to the Designated Facility without off-loading, adding to, subtracting from or in any way delaying delivery to such site.

Print or Type Name:	Signature and date:	Month	Day	Year
Lonnie Nolan	Lonnie Nolan	4	19	99

Recycling Facility

Discrepancies:

Recycling Facility certifies the receipt of the soil covered by this manifest except as noted above:

Print or Type Name:	Signature and date:
GLENNA MULLAN	Glenna Mullan 4/19/99

Please print or type.

GENERATOR/consultant's COPY

TPST SOIL RECYCLERS OF OREGON

9333 N. Harborgate Street Portland, OR 97203

OR 011843

WEIGHMASTER CERTIFICATE – LICENSE #68636

THIS IS TO CERTIFY that the following described soil commodity was weighed, measured, or counted by a weighmaster, whose signature is on this certificate, as prescribed by the Division of Measurement Standards of the Oregon Department of Agriculture.

Manifest # A09 -03693 -033 04/19/99

Generator Site Information	Facility Information
KOPPERS TANK FOUNDATION EXCAVATION	TPST SOIL RECYCLERS OF OREGON
7540 NW ST HELENS ROAD	9333 N HARBORGATE STREET
PORTLAND, OR 97210 USA	PORTLAND, OR 97203 USA

				LBS	TONS	
0	IN --->	02:48:13pm	Gross Wt:	92,240	46.12	Manual Wt
0	OUT -->	02:54:35pm	Tare Wt:	34,640	17.32	Manual Wt
			NET WT:	57,600	28.80	

TRANSPORTER/DRIVER: CELORIE/RON DENNY

Weighmaster _____

Koppers016999

Manifest

TPS Technologies Soil Recycling
Non-Hazardous Soils

↓ Manifest # ↓

Generator and/or Consultant

Date of Shipment:	Responsible for Payment:	Transporter Truck #:	Facility #:	Given by TPS:	Load #
	Contractor	Clarke	A09	03693	033

Generator's Name and Billing Address: KOPPERS INDUSTRIES, INC. 7540 NW ST HELENS ROAD PORTLAND, OR 97210 USA	Generator's Phone #: (503) 286-3681 Person to Contact: AMOS KAMERER FAX #: (503) 285-2831	Generator's US EPA ID No. Customer Account Number with TPS: 0KOPPER
Consultant's Name and Billing Address: RM CAT ENVIRONMENTAL -- CONTRACTOR -- 12823 NE AIRPORT WAY PORTLAND, OR 97230 USA	Consultant's Phone #: (503) 408-8880 Person to Contact: BOB JANAK FAX #: (503) 408-8716	 Customer Account Number with TPS: 1003513
Generation Site (Transport from): *(name & address)* KOPPERS TANK FOUNDATION EXCAVATION 7540 NW ST HELENS ROAD PORTLAND, OR 97210 USA	Site Phone #: Person to Contact: FAX #:	BTEX Levels TPH Levels AVG. Levels
Designated Facility (Transport to): *(name & address)* TPST SOIL RECYCLERS OF OREGON 9333 N HARBORGATE STREET PORTLAND, OR 97203 USA	Facility Phone #: 503-735-9525 Person to Contact: GLENNA MULLAN FAX #: 503-240-1712	Facility Permit Numbers
Transporter Name and Mailing Address:	Transporter's Phone #: Person to Contact: FAX #:	Transporter's US EPA ID No.: Transporter's DOT No.: Customer Account Number with TPS:

Description of Soil	Moisture Content	Contaminated by:	Approx. Qty:	Description of Delivery	Gross Weight	Tare Weight	Net Weight
Sand ☐ Organic ☐ Clay ☐ Other ☐	0 - 10% ☐ 10 - 20% ☐ 20% - over ☐	Gas ☐ Diesel ☐ Other ☐			92240	34640	57600
Sand ☐ Organic ☐ Clay ☐ Other ☐	0 - 10% ☐ 10 - 20% ☐ 20% - over ☐	Gas ☐ Diesel ☐ Other ☐				28.80	

List any exception to items listed above:

Generator's and/or consultant's certification: I/We certify that the soil referenced herein is taken entirely from those soils described in the Soil Data Sheet completed and certified by me/us for the Generation Site shown above and nothing has been added or done to such soil that would alter it in any way.

Print or Type Name: Generator ☐ Consultant ☐	Signature and date:	Month	Day	Year
SIGNATURE ON FILE				

Transporter

Transporter's certification: I/We acknowledge receipt of the soil described above and certify that such soil is being delivered in exactly the same condition as when received. I/We further certify that this soil is being directly transported from the Generation Site to the Designated Facility without off-loading, adding to, subtracting from or in any way delaying delivery to such site.

Print or Type Name:	Signature and date:	Month	Day	Year
X Ron Denny	X Ron Denny	4	19	99

Recycling Facility

Discrepancies:

Recycling Facility certifies the receipt of the soil covered by this manifest except as noted above:

Print or Type Name:	Signature and date:
GLENNA MULLAN	Glenna Mullan 4/19/99

Please print or type.

GENERATOR/CONSULTANT'S COPY

Koppers017000

TPST SOIL RECYCLERS OF OREGON

9333 N. Harborgate Street Portland, OR 97203

OR 011844

WEIGHMASTER CERTIFICATE – LICENSE #68636

THIS IS TO CERTIFY that the following described soil commodity was weighed, measured, or counted by a weighmaster, whose signature is on this certificate, as prescribed by the Division of Measurement Standards of the Oregon Department of Agriculture.

Manifest # A09 -03693 -034 04/19/99

Generator Site Information	Facility Information
KOPPERS TANK FOUNDATION EXCAVATION	TPST SOIL RECYCLERS OF OREGON
7540 NW ST HELENS ROAD	9333 N HARBORGATE STREET
PORTLAND, OR 97210 USA	PORTLAND, OR 97203 USA

				LBS	TONS	
0	IN --->	03:21:37pm	Gross Wt:	78,440	39.22	Manual Wt
0	OUT -->	03:25:51pm	Tare Wt:	31,380	15.69	Manual Wt
			NET WT:	47,060	23.53	

TRANSPORTER/DRIVER: CELORIE/JAMES MAYO

Weighmaster

Koppers017001

Manifest

TPS Technologies Soil Recycling
Non-Hazardous Soils

↓ Manifest # ↓

Generator and/or Consultant

Date of Shipment:	Responsible for Payment:	Transporter Truck #:	Facility #:	Given by TPS:	Load #
	Contractor	Blue 15	A09	03693	034

Generator's Name and Billing Address:	Generator's Phone #:	Generator's US EPA ID No.
KOPPERS INDUSTRIES, INC. 7540 NW ST HELENS ROAD PORTLAND, OR 97210 USA	(503) 286-3581	
	Person to Contact: AMOS KAMERER	
	FAX #: (503) 285-2831	Customer Account Number with TPS: 9KOPPER

Consultant's Name and Billing Address:	Consultant's Phone #:	
RM CAT ENVIRONMENTAL -- CONTRACTOR -- 12823 NE AIRPORT WAY PORTLAND, OR 97230 USA	(503) 408-8880	
	Person to Contact: BOB JANAK	
	FAX #: (503) 408-8716	Customer Account Number with TPS: 10035L3

Generation Site (Transport from): *(name & address)*	Site Phone #:	BTEX Levels
KOPPERS TANK FOUNDATION EXCAVATION 7540 NW ST HELENS ROAD PORTLAND, OR 97210 USA	Person to Contact:	TPH Levels
	FAX #:	AVG. Levels

Designated Facility (Transport to): *(name & address)*	Facility Phone #:	Facility Permit Numbers
TPST SOIL RECYCLERS OF OREGON 9333 N HARBORGATE STREET PORTLAND, OR 97203 USA	503-735-9525	
	Person to Contact: GLENNA MULLAN	
	FAX #: 503-240-1712	

Transporter Name and Mailing Address:	Transporter's Phone #:	Transporter's US EPA ID No.:
	Person to Contact:	Transporter's DOT No.:
	FAX #:	Customer Account Number with TPS:

Description of Soil	Moisture Content	Contaminated by:	Approx. Qty:	Description of Delivery	Gross Weight	Tare Weight	Net Weight
Sand ☐ Organic ☐ Clay ☐ Other ☐	0 - 10% ☐ 10 - 20% ☐ 20% - over ☐	Gas ☐ Diesel ☐ Other ☐			78440	31540	47060
Sand ☐ Organic ☐ Clay ☐ Other ☐	0 - 10% ☐ 10 - 20% ☐ 20% - over ☐	Gas ☐ Diesel ☐ Other ☐				23.43	

List any exception to items listed above:

Generator's and/or consultant's certification: I/We certify that the soil referenced herein is taken entirely from those soils described in the Soil Data Sheet completed and certified by me/us for the Generation Site shown above and nothing has been added or done to such soil that would alter it in any way.

Print or Type Name: Generator ☐ Consultant ☐	Signature and date:	Month	Day	Year
SIGNATURE ON FILE				

Transporter

Transporter's certification: I/We acknowledge receipt of the soil described above and certify that such soil is being delivered in exactly the same condition as when received. I/We further certify that this soil is being directly transported from the Generation Site to the Designated Facility without off-loading, adding to, subtracting from or in any way delaying delivery to such site.

Print or Type Name:	Signature and date:	Month	Day	Year
X James Mayo	X [signature]	4	19	99

Recycling Facility

Discrepancies:

Recycling Facility certifies the receipt of the soil covered by this manifest except as noted above:

Print or Type Name:	Signature and date:
GLENNA MULLAN	[signature] 4/19/99

Please print or type.

GENERATOR/consultant's COPY

TPST SOIL RECYCLERS OF OREGON

9333 N. Harborgate Street Portland, OR 97203

OR 011845

WEIGHMASTER CERTIFICATE – LICENSE #68636

THIS IS TO CERTIFY that the following described soil commodity was weighed, measured, or counted by a weighmaster, whose signature is on this certificate, as prescribed by the Division of Measurement Standards of the Oregon Department of Agriculture.

Manifest # A09 -03693 -035 04/19/99

Generator Site Information	Facility Information
KOPPERS TANK FOUNDATION EXCAVATION	TPST SOIL RECYCLERS OF OREGON
7540 NW ST HELENS ROAD	9333 N HARBORGATE STREET
PORTLAND, OR 97210 USA	PORTLAND, OR 97203 USA

				LBS	TONS	
0	IN --->	03:31:12pm	Gross Wt:	82,040	41.02	Manual Wt
0	OUT -->	03:36:07pm	Tare Wt:	32,680	16.34	Manual Wt
			NET WT:	49,360	24.68	

TRANSPORTER/DRIVER: CELORIE/LONNIE NOLAN

Weighmaster _____

Koppers017003

Manifest

TPS Technologies Soil Recycling
Non-Hazardous Soils

↓ Manifest # ↓

Date of Shipment:	Responsible for Payment:	Transporter Truck #:	Facility #:	Given by TPS:	Load #
	Contractor	Marie 3	A09	03693	035

Generator and/or Consultant

Generator's Name and Billing Address:	Generator's Phone #:	Generator's US EPA ID No.
KOPPERS INDUSTRIES, INC. 7540 NW ST HELENS ROAD PORTLAND, OR 97210 USA	(503) 286-3681	
	Person to Contact: AMOS KAMERER	
	FAX #: (503) 285-2831	Customer Account Number with TPS: KOPPER

Consultant's Name and Billing Address:	Consultant's Phone #:	
RM CAT ENVIRONMENTAL -- CONTRACTOR -- 12823 NE AIRPORT WAY PORTLAND, OR 97230 USA	(503) 408-8880	
	Person to Contact: BOB JANAF	
	FAX #: (503) 408-8716	Customer Account Number with TPS: L000513

Generation Site (Transport from): *(name & address)*	Site Phone #:	BTEX Levels
KOPPERS TANK FOUNDATION EXCAVATION 7540 NW ST HELENS ROAD PORTLAND, OR 97210 USA	Person to Contact:	TPH Levels
	FAX #:	AVG. Levels

Designated Facility (Transport to): *(name & address)*	Facility Phone #:	Facility Permit Numbers
TPST SOIL RECYCLERS OF OREGON 9333 N HARBORGATE STREET PORTLAND, OR 97203 USA	503-735-9525	
	Person to Contact: GLENNA MULLAN	
	FAX #: 503-240-1712	

Transporter Name and Mailing Address:	Transporter's Phone #:	Transporter's US EPA ID No.:
	Person to Contact:	Transporter's DOT No.:
	FAX #:	Customer Account Number with TPS:

Description of Soil	Moisture Content	Contaminated by:	Approx. Qty:	Description of Delivery	Gross Weight	Tare Weight	Net Weight
Sand ☐ Organic ☐ Clay ☐ Other ☐	0 - 10% ☐ 10 - 20% ☐ 20% - over ☐	Gas ☐ Diesel ☐ Other ☐			82440	32680	49760
Sand ☐ Organic ☐ Clay ☐ Other ☐	0 - 10% ☐ 10 - 20% ☐ 20% - over ☐	Gas ☐ Diesel ☐ Other ☐				24.68	

List any exception to items listed above:

Generator's and/or consultant's certification: I/We certify that the soil referenced herein is taken entirely from those soils described in the Soil Data Sheet completed and certified by me/us for the Generation Site shown above and nothing has been added or done to such soil that would alter it in any way.

Print or Type Name: Generator ☐ Consultant ☐	Signature and date:	Month	Day	Year
SIGNATURE ON FILE				

Transporter

Transporter's certification: I/We acknowledge receipt of the soil described above and certify that such soil is being delivered in exactly the same condition as when received. I/We further certify that this soil is being directly transported from the Generation Site to the Designated Facility without off-loading, adding to, subtracting from or in any way delaying delivery to such site.

Print or Type Name:	Signature and date:	Month	Day	Year
X Connie Nolan	X Connie Nolan	4	19	99

Recycling Facility

Discrepancies:

Recycling Facility certifies the receipt of the soil covered by this manifest except as noted above:

Print or Type Name:	Signature and date:
GLENNA MULLAN	Glenna Mullan 4/19/99

Please print or type.

GENERATOR/CONSULTANT'S COPY

TPST SOIL RECYCLERS OF OREGON

9333 N. Harborgate Street Portland, OR 97203

OR 011846

WEIGHMASTER CERTIFICATE – LICENSE #68636

THIS IS TO CERTIFY that the following described soil commodity was weighed, measured, or counted by a weighmaster, whose signature is on this certificate, as prescribed by the Division of Measurement Standards of the Oregon Department of Agriculture.

Manifest # A09 -03693 -036 04/19/99

Generator Site Information	Facility Information
KOPPERS TANK FOUNDATION EXCAVATION	TPST SOIL RECYCLERS OF OREGON
7540 NW ST HELENS ROAD	9333 N HARBORGATE STREET
PORTLAND, OR 97210 USA	PORTLAND, OR 97203 USA

				LBS	TONS	
0	IN --->	03:42:02pm	Gross Wt:	95,660	47.83	Manual Wt
0	OUT -->	03:47:32pm	Tare Wt:	34,600	17.30	Manual Wt
			NET WT:	61,060	30.53	

TRANSPORTER/DRIVER: CELORIE/RON DENNY

Weighmaster _____

Koppers017005

Manifest

TPS Technologies Soil Recycling

Non-Hazardous Soils

↓ Manifest # ↓

Date of Shipment:	Responsible for Payment:	Transporter Truck #:	Facility #:	Given by TPS:	Load #
	Contractor	Celone 1	A09	03693	036

Generator and/or Consultant

Generator's Name and Billing Address: KOPPERS INDUSTRIES, INC.; 7540 NW ST HELENS ROAD PORTLAND, OR 97210 USA	Generator's Phone #: (503) 286-3681	Generator's US EPA ID No.
	Person to Contact: AMOS KAMERER	
	FAX #: (503) 285-2831	Customer Account Number with TPS: 9KOPPER
Consultant's Name and Billing Address: RM CAT ENVIRONMENTAL -- CONTRACTOR -- 12823 NE AIRPORT WAY PORTLAND, OR 97230 USA	Consultant's Phone #: (503) 408-8880	
	Person to Contact: BOB JANAK	
	FAX #: (503) 408-8716	Customer Account Number with TPS: 1003513
Generation Site (Transport from): *(name & address)* KOPPERS TANK FOUNDATION EXCAVATION 7540 NW ST HELENS ROAD PORTLAND, OR 97210 USA	Site Phone #:	BTEX Levels
	Person to Contact:	TPH Levels
	FAX #:	AVG. Levels
Designated Facility (Transport to): *(name & address)* TPST SOIL RECYCLERS OF OREGON 9333 N HARBORGATE STREET PORTLAND, OR 97203 USA	Facility Phone #: 503-735-9525	Facility Permit Numbers
	Person to Contact: GLENNA MULLAN	
	FAX #: 503-240-1712	
Transporter Name and Mailing Address:	Transporter's Phone #:	Transporter's US EPA ID No.:
	Person to Contact:	Transporter's DOT No.:
	FAX #:	Customer Account Number with TPS:

Description of Soil	Moisture Content	Contaminated by:	Approx. Qty:	Description of Delivery	Gross Weight	Tare Weight	Net Weight
Sand ☐ Organic ☐ Clay ☐ Other ☐	0 - 10% ☐ 10 - 20% ☐ 20% - over ☐	Gas ☐ Diesel ☐ Other ☐			95660	34600	61060
Sand ☐ Organic ☐ Clay ☐ Other ☐	0 - 10% ☐ 10 - 20% ☐ 20% - over ☐	Gas ☐ Diesel ☐ Other ☐				30.53	

List any exception to items listed above:

Generator's and/or consultant's certification: I/We certify that the soil referenced herein is taken entirely from those soils described in the Soil Data Sheet completed and certified by me/us for the Generation Site shown above and nothing has been added or done to such soil that would alter it in any way.

Print or Type Name: Generator ☐ Consultant ☐ SIGNATURE ON FILE

Signature and date: Month Day Year

Transporter

Transporter's certification: I/We acknowledge receipt of the soil described above and certify that such soil is being delivered in exactly the same condition as when received. I/We further certify that this soil is being directly transported from the Generation Site to the Designated Facility without off-loading, adding to, subtracting from or in any way delaying delivery to such site.

Print or Type Name: X Ron Denny

Signature and date: X Ron Denny

Month 4 Day 19 Year 99

Recycling Facility

Discrepancies:

Recycling Facility certifies the receipt of the soil covered by this manifest except as noted above:

Print or Type Name: GLENNA MULLAN

Signature and date: Glenna Mullan

Please print or type.

GENERATOR/consultant's COPY

Koppers017006

TPST SOIL RECYCLERS OF OREGON

9333 N. Harborgate Street Portland, OR 97203

OR 011847

WEIGHMASTER CERTIFICATE – LICENSE #68636

THIS IS TO CERTIFY that the following described soil commodity was weighed, measured, or counted by a weighmaster, whose signature is on this certificate, as prescribed by the Division of Measurement Standards of the Oregon Department of Agriculture.

Manifest # A09 -03693 -037 04/19/99

Generator Site Information	Facility Information
KOPPERS TANK FOUNDATION EXCAVATION	TPST SOIL RECYCLERS OF OREGON
7540 NW ST HELENS ROAD	9333 N HARBORGATE STREET
PORTLAND, OR 97210 USA	PORTLAND, OR 97203 USA

				LBS	TONS	
0	IN --->	04:12:12pm	Gross Wt:	83,360	41.68	Manual Wt
0	OUT -->	04:17:14pm	Tare Wt:	31,360	15.68	Manual Wt
			NET WT:	52,000	26.00	

TRANSPORTER/DRIVER: CELORIE JAMES MAYO

Weighmaster _____

Koppers017007

Manifest

TPS Technologies Soil Recycling

Non-Hazardous Soils

↓ Manifest # ↓

Date of Shipment:	Responsible for Payment:	Transporter Truck #:	Facility #:	Given by TPS:	Load #
	Contractor	Clarie 15	A09	03693	037

Generator and/or Consultant

Generator's Name and Billing Address: KOPPERS INDUSTRIES, INC. 7540 NW ST HELENS ROAD PORTLAND, OR 97210 USA	Generator's Phone #: (503) 286-3681 Person to Contact: AMOS KAMERER FAX #: (503) 285-2831	Generator's US EPA ID No. Customer Account Number with TPS: 9KOPPER
Consultant's Name and Billing Address: RM CAT ENVIRONMENTAL -- CONTRACTOR -- 12823 NE AIRPORT WAY PORTLAND, OR 97230 USA	Consultant's Phone #: (503) 408-8880 Person to Contact: BOB JANAK FAX #: (503) 408-8716	 Customer Account Number with TPS: 1003513
Generation Site (Transport from): *(name & address)* KOPPERS TANK FOUNDATION EXCAVATION 7540 NW ST HELENS ROAD PORTLAND, OR 97210 USA	Site Phone #: Person to Contact: FAX #:	BTEX Levels TPH Levels AVG. Levels
Designated Facility (Transport to): *(name & address)* TPST SOIL RECYCLERS OF OREGON 9333 N HARBORGATE STREET PORTLAND, OR 97203 USA	Facility Phone #: 503-735-9525 Person to Contact: GLENNA MULLAN FAX #: 503-240-1712	Facility Permit Numbers
Transporter Name and Mailing Address:	Transporter's Phone #: Person to Contact: FAX #:	Transporter's US EPA ID No.: Transporter's DOT No.: Customer Account Number with TPS:

Description of Soil	Moisture Content	Contaminated by:	Approx. Qty:	Description of Delivery	Gross Weight	Tare Weight	Net Weight
Sand ☐ Organic ☐ Clay ☐ Other ☐	0 - 10% ☐ 10 - 20% ☐ 20% - over ☐	Gas ☐ Diesel ☐ Other ☐			83360	31360	52000
Sand ☐ Organic ☐ Clay ☐ Other ☐	0 - 10% ☐ 10 - 20% ☐ 20% - over ☐	Gas ☐ Diesel ☐ Other ☐				26.00	

List any exception to items listed above:

Generator's and/or consultant's certification: I/We certify that the soil referenced herein is taken entirely from those soils described in the Soil Data Sheet completed and certified by me/us for the Generation Site shown above and nothing has been added or done to such soil that would alter it in any way.

Print or Type Name: Generator ☐ Consultant ☐ SIGNATURE ON FILE

Signature and date: Month Day Year

Transporter

Transporter's certification: I/We acknowledge receipt of the soil described above and certify that such soil is being delivered in exactly the same condition as when received. I/We further certify that this soil is being directly transported from the Generation Site to the Designated Facility without off-loading, adding to, subtracting from or in any way delaying delivery to such site.

Print or Type Name: X James Mayo

Signature and date: X [signature] Mayo

Month 4 Day 19 Year 99

Recycling Facility

Discrepancies:

Recycling Facility certifies the receipt of the soil covered by this manifest except as noted above:

Print or Type Name: GLENNA MULLAN

Signature and date: [signature] 4/19/99

Please print or type.

GENERATOR/CONSULTANT'S COPY

TPST SOIL RECYCLERS OF OREGON

9333 N. Harborgate Street Portland, OR 97203

OR 011848

WEIGHMASTER CERTIFICATE – LICENSE #68636

THIS IS TO CERTIFY that the following described soil commodity was weighed, measured, or counted by a weighmaster, whose signature is on this certificate, as prescribed by the Division of Measurement Standards of the Oregon Department of Agriculture.

Manifest # A09 -03693 -038 04/19/99

Generator Site Information	Facility Information
KOPPERS TANK FOUNDATION EXCAVATION	TPST SOIL RECYCLERS OF OREGON
7540 NW ST HELENS ROAD	9333 N HARBORGATE STREET
PORTLAND, OR 97210 USA	PORTLAND, OR 97203 USA

				LBS	TONS	
0	IN --->	04:16:02pm	Gross Wt:	84,120	42.06	Manual Wt
0	OUT -->	04:22:22pm	Tare Wt:	32,660	16.33	Manual Wt
			NET WT:	51,460	25.73	

TRANSPORTER/DRIVER: CELORIE/LONNIE NOLAN

Weighmaster: _____

Koppers017009

Manifest

TPS Technologies Soil Recycling
Non-Hazardous Soils

↓ Manifest # ↓

Date of Shipment:	Responsible for Payment:	Transporter Truck #:	Facility #:	Given by TPS:	Load #
	Contractor	Celorie 3	A09	03693	038

Generator and/or Consultant

Generator's Name and Billing Address: KOPPERS INDUSTRIES, INC. 7540 NW ST HELENS ROAD PORTLAND, OR 97210 USA	Generator's Phone #: (503) 286-3681 Person to Contact: AMOS KAMERER FAX #: (503) 285-7831	Generator's US EPA ID No. Customer Account Number with TPS: 9KOPPER
Consultant's Name and Billing Address: RM CAT ENVIRONMENTAL -- CONTRACTOR -- 12823 NE AIRPORT WAY PORTLAND, OR 97230 USA	Consultant's Phone #: (503) 408-8880 Person to Contact: BOB JANAK FAX #: (503) 408-8716	 Customer Account Number with TPS: L003513
Generation Site (Transport from): *(name & address)* KOPPERS TANK FOUNDATION EXCAVATION 7540 NW ST HELENS ROAD PORTLAND, OR 97210 USA	Site Phone #: Person to Contact: FAX #:	BTEX Levels TPH Levels AVG. Levels
Designated Facility (Transport to): *(name & address)* TPST SOIL RECYCLERS OF OREGON 9333 N HARBORGATE STREET PORTLAND, OR 97203 USA	Facility Phone #: 503-735-9525 Person to Contact: GLENNA MULLAN FAX #: 503-240-1712	Facility Permit Numbers
Transporter Name and Mailing Address:	Transporter's Phone #: Person to Contact: FAX #:	Transporter's US EPA ID No.: Transporter's DOT No.: Customer Account Number with TPS:

Description of Soil	Moisture Content	Contaminated by:	Approx. Qty:	Description of Delivery	Gross Weight	Tare Weight	Net Weight
Sand ☐ Organic ☐ Clay ☐ Other ☐	0 - 10% ☐ 10 - 20% ☐ 20% - over ☐	Gas ☐ Diesel ☐ Other ☐			84130	32660	51470
Sand ☐ Organic ☐ Clay ☐ Other ☐	0 - 10% ☐ 10 - 20% ☐ 20% - over ☐	Gas ☐ Diesel ☐ Other ☐				25.73	

List any exception to items listed above:

Generator's and/or consultant's certification: I/We certify that the soil referenced herein is taken entirely from those soils described in the Soil Data Sheet completed and certified by me/us for the Generation Site shown above and nothing has been added or done to such soil that would alter it in any way.

Print or Type Name: Generator ☐ Consultant ☐	Signature and date:	Month	Day	Year
SIGNATURE ON FILE				

Transporter

Transporter's certification: I/We acknowledge receipt of the soil described above and certify that such soil is being delivered in exactly the same condition as when received. I/We further certify that this soil is being directly transported from the Generation Site to the Designated Facility without off-loading, adding to, subtracting from or in any way delaying delivery to such site.

Print or Type Name:	Signature and date:	Month	Day	Year
Lonnie Nolan	Lonnie Nolan	4	19	99

Recycling Facility

Discrepancies:

Recycling Facility certifies the receipt of the soil covered by this manifest except as noted above:

Print or Type Name:	Signature and date:
GLENNA MULLAN	4/19/99

Please print or type.

GENERATOR/consultant's COPY

TPST SOIL RECYCLERS OF OREGON

9333 N. Harborgate Street Portland, OR 97203

OR 011849

WEIGHMASTER CERTIFICATE – LICENSE #68636

THIS IS TO CERTIFY that the following described soil commodity was weighed, measured, or counted by a weighmaster, whose signature is on this certificate, as prescribed by the Division of Measurement Standards of the Oregon Department of Agriculture.

Manifest # A09 -03693 -039 04/19/99

Generator Site Information	Facility Information
KOPPERS TANK FOUNDATION EXCAVATION	TPST SOIL RECYCLERS OF OREGON
7540 NW ST HELENS ROAD	9333 N HARBORGATE STREET
PORTLAND, OR 97210 USA	PORTLAND, OR 97203 USA

				LBS	TONS	
0	IN --->	04:27:14pm	Gross Wt:	88,700	44.35	Manual Wt
0	OUT -->	04:34:16pm	Tare Wt:	34,540	17.27	Manual Wt
			NET WT:	54,160	27.08	

TRANSPORTER/DRIVER: GELORIE/RON DENNY

Weighmaster: _____

Koppers017011

Manifest

TPS Technologies Soil Recycling
Non-Hazardous Soils

↓ Manifest # ↓

Generator and/or Consultant

Date of Shipment:	Responsible for Payment:	Transporter Truck #:	Facility #:	Given by TPS:	Load #
	Contractor	Alone	A09	03693	039

Generator's Name and Billing Address:	Generator's Phone #:	Generator's US EPA ID No.
KOPPERS INDUSTRIES, INC. 7540 NW ST HELENS ROAD PORTLAND, OR 97210 USA	(503) 286-3681	
	Person to Contact: AMOS KAMERER	
	FAX #: (503) 285-2831	Customer Account Number with TPS: KOPPER

Consultant's Name and Billing Address:	Consultant's Phone #:	
RM CAT ENVIRONMENTAL -- CONTRACTOR -- 13823 NE AIRPORT WAY PORTLAND, OR 97230 USA	(503) 408-8880	
	Person to Contact: BOB SANAK	
	FAX #: (503) 408-8716	Customer Account Number with TPS: L0035L3

Generation Site (Transport from): *(name & address)*	Site Phone #:	BTEX Levels
KOPPERS TANK FOUNDATION EXCAVATION 7540 NW ST HELENS ROAD PORTLAND, OR 97210 USA	Person to Contact:	TPH Levels
	FAX #:	AVG. Levels

Designated Facility (Transport to): *(name & address)*	Facility Phone #:	Facility Permit Numbers
TPST SOIL RECYCLERS OF OREGON 9333 N HARBORGATE STREET PORTLAND, OR 97203 USA	503-735-9525	
	Person to Contact: GLENNA MULLAN	
	FAX #: 503-240-1712	

Transporter Name and Mailing Address:	Transporter's Phone #:	Transporter's US EPA ID No.:
	Person to Contact:	Transporter's DOT No.:
	FAX #:	Customer Account Number with TPS:

Description of Soil	Moisture Content	Contaminated by:	Approx. Qty:	Description of Delivery	Gross Weight	Tare Weight	Net Weight
Sand ☐ Organic ☐ Clay ☐ Other ☐	0 - 10% ☐ 10 - 20% ☐ 20% - over ☐	Gas ☐ Diesel ☐ Other ☐			88700	34540	54160
Sand ☐ Organic ☐ Clay ☐ Other ☐	0 - 10% ☐ 10 - 20% ☐ 20% - over ☐	Gas ☐ Diesel ☐ Other ☐				27.08	

List any exception to items listed above:

Generator's and/or consultant's certification: I/We certify that the soil referenced herein is taken entirely from those soils described in the Soil Data Sheet completed and certified by me/us for the Generation Site shown above and nothing has been added or done to such soil that would alter it in any way.

Print or Type Name: Generator ☐ Consultant ☐	Signature and date:	Month	Day	Year
SIGNATURE ON FILE				

Transporter

Transporter's certification: I/We acknowledge receipt of the soil described above and certify that such soil is being delivered in exactly the same condition as when received. I/We further certify that this soil is being directly transported from the Generation Site to the Designated Facility without off-loading, adding to, subtracting from or in any way delaying delivery to such site.

Print or Type Name:	Signature and date:	Month	Day	Year
X Ron Denny	X Ron Denny	4	19	99

Recycling Facility

Discrepancies:

Recycling Facility certifies the receipt of the soil covered by this manifest except as noted above:

Print or Type Name:	Signature and date:
GLENNA MULLAN	4/19/99

Please print or type.

GENERATOR/CONSULTANT'S COPY

Koppers017012

TPST SOIL RECYCLERS OF OREGON

9333 N. Harborgate Street Portland, OR 97203

OR 011850

WEIGHMASTER CERTIFICATE – LICENSE #68636

THIS IS TO CERTIFY that the following described soil commodity was weighed, measured, or counted by a weighmaster, whose signature is on this certificate, as prescribed by the Division of Measurement Standards of the Oregon Department of Agriculture.

Manifest # A09 -03693 -040 04/20/99

Generator Site Information	Facility Information
KOPPERS TANK FOUNDATION EXCAVATION	TPST SOIL RECYCLERS OF OREGON
7540 NW ST HELENS ROAD	9333 N HARBORGATE STREET
PORTLAND, OR 97210 USA	PORTLAND, OR 97203 USA

				LBS	TONS	
0	IN --->	08:10:24am	Gross Wt:	94,800	47.40	Manual Wt
0	OUT -->	08:16:04am	Tare Wt:	34,520	17.26	Manual Wt
			NET WT:	60,280	30.14	

TRANSPORTER/DRIVER: CELORIE/RON DENNY

Weighmaster

Koppers017013

Manifest

TPS Technologies Soil Recycling

Non-Hazardous Soils

↓ Manifest # ↓

Date of Shipment:	Responsible for Payment:	Transporter Truck #:	Facility #:	Given by TPS:	Load #
	Contractor	Gloria I	A09	03693	040

Generator and/or Consultant

Generator's Name and Billing Address:	Generator's Phone #:	Generator's US EPA ID No.
KOPPERS INDUSTRIES, INC 7540 NW ST HELENS ROAD PORTLAND, OR 97210 USA	(503) 285-3681 Person to Contact: AMOS KAMEKER FAX #: (503) 285-2831	Customer Account Number with TPS: 9KOPPER
Consultant's Name and Billing Address:	**Consultant's Phone #:**	
RM CAT ENVIRONMENTAL -- CONTRACTOR -- 12823 NE AIRPORT WAY PORTLAND, OR 97230 USA	(503) 408-8880 Person to Contact: BOB JANAK FAX #: (503) 408-8716	Customer Account Number with TPS: L003513
Generation Site (Transport from): *(name & address)*	**Site Phone #:**	BTEX Levels
KOPPERS TANK FOUNDATION EXCAVATION 7540 NW ST HELENS ROAD PORTLAND, OR 97210 USA	Person to Contact: FAX #:	TPH Levels AVG. Levels
Designated Facility (Transport to): *(name & address)*	**Facility Phone #:**	**Facility Permit Numbers**
TPST SOIL RECYCLERS OF OREGON 9333 N RARDORGATE STREET PORTLAND, OR 97203 USA	503-735-9525 Person to Contact: GLENNA MULLAN FAX #: 503-240-1712	
Transporter Name and Mailing Address:	**Transporter's Phone #:**	**Transporter's US EPA ID No.:**
	Person to Contact:	Transporter's DOT No.:
	FAX #:	Customer Account Number with TPS:

Description of Soil	Moisture Content	Contaminated by:	Approx. Qty:	Description of Delivery	Gross Weight	Tare Weight	Net Weight
Sand ☐ Organic ☐ Clay ☐ Other ☐	0 - 10% ☐ 10 - 20% ☐ 20% - over ☐	Gas ☐ Diesel ☐ Other ☐			94700	34520	60180
Sand ☐ Organic ☐ Clay ☐ Other ☐	0 - 10% ☐ 10 - 20% ☐ 20% - over ☐	Gas ☐ Diesel ☐ Other ☐				30.14	

List any exception to items listed above:

Generator's and/or consultant's certification: I/We certify that the soil referenced herein is taken entirely from those soils described in the Soil Data Sheet completed and certified by me/us for the Generation Site shown above and nothing has been added or done to such soil that would alter it in any way.

Print or Type Name: Generator ☐ Consultant ☐	Signature and date:	Month	Day	Year
SIGNATURE ON FILE				

Transporter

Transporter's certification: I/We acknowledge receipt of the soil described above and certify that such soil is being delivered in exactly the same condition as when received. I/We further certify that this soil is being directly transported from the Generation Site to the Designated Facility without off-loading, adding to, subtracting from or in any way delaying delivery to such site.

Print or Type Name:	Signature and date:	Month	Day	Year
X Ron Denny	X Ron Denny	4	20	99

Recycling Facility

Discrepancies:

Recycling Facility certifies the receipt of the soil covered by this manifest except as noted above:

Print or Type Name:	Signature and date:
GLENNA MULLAN	Glenna Mullan 4/20/99

Please print or type.

GENERATOR/consultant's COPY

TPST SOIL RECYCLERS OF OREGON

9333 N. Harborgate Street Portland, OR 97203

OR 011851

WEIGHMASTER CERTIFICATE – LICENSE #68636

THIS IS TO CERTIFY that the following described soil commodity was weighed, measured, or counted by a weighmaster, whose signature is on this certificate, as prescribed by the Division of Measurement Standards of the Oregon Department of Agriculture.

Manifest # A09 -03693 -041 04/20/99

Generator Site Information	Facility Information
KOPPERS TANK FOUNDATION EXCAVATION	TPST SOIL RECYCLERS OF OREGON
7540 NW ST HELENS ROAD	9333 N HARBORGATE STREET
PORTLAND, OR 97210 USA	PORTLAND, OR 97203 USA

				LBS	TONS	
0	IN --->	08:26:16am	Gross Wt:	85,360	42.68	Manual Wt
0	OUT -->	08:31:37am	Tare Wt:	32,840	16.42	Manual Wt
			NET WT:	52,520	26.26	

TRANSPORTER/DRIVER: CELORIE/LONNIE NOLAN

Weighmaster _____

Koppers017015

Manifest

TPS Technologies Soil Recycling
Non-Hazardous Soils

Manifest #

Date of Shipment:	Responsible for Payment:	Transporter Truck #:	Facility #:	Given by TPS:	Load #
	Contractor	Volvo 2	A09	03693	041

Generator and/or Consultant

Generator's Name and Billing Address:	Generator's Phone #:	Generator's US EPA ID No.
KOPPERS INDUSTRIES, INC. 7540 NW ST HELENS ROAD PORTLAND, OR 97210 USA	(503) 286-3681 Person to Contact: AMOS KAMERER FAX #: (503) 285-2831	Customer Account Number with TPS: 9KOPPER
Consultant's Name and Billing Address:	**Consultant's Phone #:**	
RM CAT ENVIRONMENTAL -- CONTRACTOR -- 12823 NE AIRPORT WAY PORTLAND, OR 97230 USA	(503) 408-8880 Person to Contact: BOB JANAK FAX #: (503) 408-8716	Customer Account Number with TPS: 1003513
Generation Site (Transport from): *(name & address)*	**Site Phone #:**	BTEX Levels
KOPPERS TANK FOUNDATION EXCAVATION 7540 NW ST HELENS ROAD PORTLAND, OR 97210 USA	Person to Contact: FAX #:	TPH Levels AVG. Levels
Designated Facility (Transport to): *(name & address)*	**Facility Phone #:** 503-735-9525	Facility Permit Numbers
TPST SOIL RECYCLERS OF OREGON 9333 N HARBORGATE STREET PORTLAND, OR 97203 USA	Person to Contact: GLENNA MULLAN FAX #: 503-240-1712	
Transporter Name and Mailing Address:	**Transporter's Phone #:**	Transporter's US EPA ID No.:
	Person to Contact:	Transporter's DOT No.:
	FAX #:	Customer Account Number with TPS:

Description of Soil	Moisture Content	Contaminated by:	Approx. Qty:	Description of Delivery	Gross Weight	Tare Weight	Net Weight
Sand ☐ Organic ☐ Clay ☐ Other ☐	0 - 10% ☐ 10 - 20% ☐ 20% - over ☐	Gas ☐ Diesel ☐ Other ☐			76360	20840	55520
Sand ☐ Organic ☐ Clay ☐ Other ☐	0 - 10% ☐ 10 - 20% ☐ 20% - over ☐	Gas ☐ Diesel ☐ Other ☐				26020	

List any exception to items listed above:

Generator's and/or consultant's certification: I/We certify that the soil referenced herein is taken entirely from those soils described in the Soil Data Sheet completed and certified by me/us for the Generation Site shown above and nothing has been added or done to such soil that would alter it in any way.

Print or Type Name: Generator ☐ Consultant ☐	Signature and date:	Month	Day	Year
SIGNATURE ON FILE				

Transporter

Transporter's certification: I/We acknowledge receipt of the soil described above and certify that such soil is being delivered in exactly the same condition as when received. I/We further certify that this soil is being directly transported from the Generation Site to the Designated Facility without off-loading, adding to, subtracting from or in any way delaying delivery to such site.

Print or Type Name:	Signature and date:	Month	Day	Year
X Lonnie Nolan	Lonnie Nolan	4	20	99

Recycling Facility

Discrepancies:

Recycling Facility certifies the receipt of the soil covered by this manifest except as noted above:

Print or Type Name:	Signature and date:
GLENNA MULLAN	Glenna Mullan 4/20/99

Please print or type.

GENERATOR/consultant's COPY

TPST SOIL RECYCLERS OF OREGON

9333 N. Harborgate Street Portland, OR 97203

OR 011852

WEIGHMASTER CERTIFICATE – LICENSE #68636

THIS IS TO CERTIFY that the following described soil commodity was weighed, measured, or counted by a weighmaster, whose signature is on this certificate, as prescribed by the Division of Measurement Standards of the Oregon Department of Agriculture.

Manifest # A09 -03693 -042 04/20/99

Generator Site Information	Facility Information
KOPPERS TANK FOUNDATION EXCAVATION	TPST SOIL RECYCLERS OF OREGON
7540 NW ST HELENS ROAD	9333 N HARBORGATE STREET
PORTLAND, OR 97210 USA	PORTLAND, OR 97203 USA

				LBS	TONS	
0	IN --->	09:13:04am	Gross Wt:	89,440	44.72	Manual Wt
0	OUT -->	09:18:21am	Tare Wt:	34,460	17.23	Manual Wt
			NET WT:	54,980	27.49	

TRANSPORTER/DRIVER: CELORIE/RON DENNY

Weighmaster _____

Koppers017017

Manifest

TPS Technologies Soil Recycling
Non-Hazardous Soils

Manifest #

Date of Shipment:	Responsible for Payment:	Transporter Truck #:	Facility #:	Given by TPS:	Load #
	Contractor	Clone 1	A09	03693	042

Generator and/or Consultant

Generator's Name and Billing Address:	Generator's Phone #:	Generator's US EPA ID No.
KOPPERS INDUSTRIES, INC. 7540 NW ST HELENS ROAD PORTLAND, OR 97210 USA	(503) 286-3681	
	Person to Contact: AMOS KAMERER	
	FAX #: (503) 285-2831	Customer Account Number with TPS: 9KOPPER
Consultant's Name and Billing Address:	**Consultant's Phone #:**	
RM CAT ENVIRONMENTAL -- CONTRACTOR -- 12823 NE AIRPORT WAY PORTLAND, OR 97230 USA	(503) 408-8880	
	Person to Contact: BOB JANAK	
	FAX #: (503) 408-8716	Customer Account Number with TPS: 1000513
Generation Site (Transport from): *(name & address)*	**Site Phone #:**	BTEX Levels
KOPPERS TANK FOUNDATION EXCAVATION 7540 NW ST HELENS ROAD PORTLAND, OR 97210 USA	Person to Contact:	TPH Levels
	FAX #:	AVG. Levels
Designated Facility (Transport to): *(name & address)*	**Facility Phone #:** 503-735-9525	Facility Permit Numbers
TPST SOIL RECYCLERS OF OREGON 9333 N HARBORGATE STREET PORTLAND, OR 97203 USA	Person to Contact: GLENNA MULLAN	
	FAX #: 503-240-1712	
Transporter Name and Mailing Address:	**Transporter's Phone #:**	Transporter's US EPA ID No.:
	Person to Contact:	Transporter's DOT No.:
	FAX #:	Customer Account Number with TPS:

Description of Soil	Moisture Content	Contaminated by:	Approx. Qty:	Description of Delivery	Gross Weight	Tare Weight	Net Weight
Sand ☐ Organic ☐ Clay ☐ Other ☐	0 - 10% ☐ 10 - 20% ☐ 20% - over ☐	Gas ☐ Diesel ☐ Other ☐			89440	34460	54980
Sand ☐ Organic ☐ Clay ☐ Other ☐	0 - 10% ☐ 10 - 20% ☐ 20% - over ☐	Gas ☐ Diesel ☐ Other ☐				27.49	

List any exception to items listed above:

Generator's and/or consultant's certification: I/We certify that the soil referenced herein is taken entirely from those soils described in the Soil Data Sheet completed and certified by me/us for the Generation Site shown above and nothing has been added or done to such soil that would alter it in any way.

Print or Type Name: Generator ☐ Consultant ☐	Signature and date:	Month	Day	Year
SIGNATURE ON FILE				

Transporter

Transporter's certification: I/We acknowledge receipt of the soil described above and certify that such soil is being delivered in exactly the same condition as when received. I/We further certify that this soil is being directly transported from the Generation Site to the Designated Facility without off-loading, adding to, subtracting from or in any way delaying delivery to such site.

Print or Type Name:	Signature and date:	Month	Day	Year
X Ron Denny	X Ron Denny	4	20	99

Recycling Facility

Discrepancies:

Recycling Facility certifies the receipt of the soil covered by this manifest except as noted above:

Print or Type Name:	Signature and date:
GLENNA MULLAN	Glenna Mullan 4/20/99

Please print or type.

GENERATOR/CONSULTANT'S COPY

TPST SOIL RECYCLERS OF OREGON

9333 N. Harborgate Street Portland, OR 97203

OR 011853

WEIGHMASTER CERTIFICATE – LICENSE #68636

THIS IS TO CERTIFY that the following described soil commodity was weighed, measured, or counted by a weighmaster, whose signature is on this certificate, as prescribed by the Division of Measurement Standards of the Oregon Department of Agriculture.

Manifest # A09 -03693 -043 04/20/99

Generator Site Information	Facility Information
KOPPERS TANK FOUNDATION EXCAVATION	TPST SOIL RECYCLERS OF OREGON
7540 NW ST HELENS ROAD	9333 N HARBORGATE STREET
PORTLAND, OR 97210 USA	PORTLAND, OR 97203 USA

				LBS	TONS	
0	IN --->	09:30:53am	Gross Wt:	82,340	41.17	Manual Wt
0	OUT -->	09:37:22am	Tare Wt:	32,800	16.40	Manual Wt
			NET WT:	49,540	24.77	

TRANSPORTER/DRIVER: CELORIE/LONNIE NOLAN

Weighmaster _____

Koppers017019

Manifest

TPS Technologies Soil Recycling
Non-Hazardous Soils

↓ Manifest # ↓

Date of Shipment:	Responsible for Payment:	Transporter Truck #:	Facility #:	Given by TPS:	Load #
	Contractor	blue 2	A09	03693	043

Generator and/or Consultant

Generator's Name and Billing Address:	Generator's Phone #:	Generator's US EPA ID No.
KOPPERS INDUSTRIES, INC 7540 NW ST HELENS ROAD PORTLAND, OR 97210 USA	(503) 286-3681	
	Person to Contact: AMOS KAMERER	
	FAX #: (503) 285-2831	Customer Account Number with TPS: 9KOPPER

Consultant's Name and Billing Address:	Consultant's Phone #:	
RM CAT ENVIRONMENTAL -- CONTRACTOR -- 12823 NE AIRPORT WAY PORTLAND, OR 97230 USA	(503) 408-8880	
	Person to Contact: BOB JANAK	
	FAX #: (503) 408-8716	Customer Account Number with TPS: 1003513

Generation Site (Transport from): *(name & address)*	Site Phone #:	BTEX Levels
KOPPERS TANK FOUNDATION EXCAVATION 7540 NW ST HELENS ROAD PORTLAND, OR 97210 USA	Person to Contact:	TPH Levels
	FAX #:	AVG. Levels

Designated Facility (Transport to): *(name & address)*	Facility Phone #:	Facility Permit Numbers
TPST SOIL RECYCLERS OF OREGON 9333 N HARBORGATE STREET PORTLAND, OR 97203 USA	503-735-9525	
	Person to Contact: GLENNA MULLAN	
	FAX #: 503-240-1712	

Transporter Name and Mailing Address:	Transporter's Phone #:	Transporter's US EPA ID No.:
	Person to Contact:	Transporter's DOT No.:
	FAX #:	Customer Account Number with TPS:

Description of Soil	Moisture Content	Contaminated by:	Approx. Qty:	Description of Delivery	Gross Weight	Tare Weight	Net Weight
Sand ☐ Organic ☐ Clay ☐ Other ☐	0 - 10% ☐ 10 - 20% ☐ 20% - over ☐	Gas ☐ Diesel ☐ Other ☐			82340	32500	49840
Sand ☐ Organic ☐ Clay ☐ Other ☐	0 - 10% ☐ 10 - 20% ☐ 20% - over ☐	Gas ☐ Diesel ☐ Other ☐				24.77	

List any exception to items listed above:

Generator's and/or consultant's certification: I/We certify that the soil referenced herein is taken entirely from those soils described in the Soil Data Sheet completed and certified by me/us for the Generation Site shown above and nothing has been added or done to such soil that would alter it in any way.

Print or Type Name: Generator ☐ Consultant ☐	Signature and date:	Month	Day	Year
SIGNATURE ON FILE				

Transporter

Transporter's certification: I/We acknowledge receipt of the soil described above and certify that such soil is being delivered in exactly the same condition as when received. I/We further certify that this soil is being directly transported from the Generation Site to the Designated Facility without off-loading, adding to, subtracting from or in any way delaying delivery to such site.

Print or Type Name:	Signature and date:	Month	Day	Year
X Lonnie Nolan	X Lonnie Nolan	4	20	99

Recycling Facility

Discrepancies:

Recycling Facility certifies the receipt of the soil covered by this manifest except as noted above:

Print or Type Name:	Signature and date:
GLENNA MULLAN	4/20/99

Please print or type.

GENERATOR/consultant's COPY

TPST SOIL RECYCLERS OF OREGON

9333 N. Harborgate Street Portland, OR 97203

OR 011854

WEIGHMASTER CERTIFICATE – LICENSE #68636

THIS IS TO CERTIFY that the following described soil commodity was weighed, measured, or counted by a weighmaster, whose signature is on this certificate, as prescribed by the Division of Measurement Standards of the Oregon Department of Agriculture.

Manifest # A09 -03693 -044 04/20/99

Generator Site Information	Facility Information
KOPPERS TANK FOUNDATION EXCAVATION	TPST SOIL RECYCLERS OF OREGON
7540 NW ST HELENS ROAD	9333 N HARBORGATE STREET
PORTLAND, OR 97210 USA	PORTLAND, OR 97203 USA

				LBS	TONS	
0	IN --->	10:06:53am	Gross Wt:	96,240	48.12	Manual Wt
0	OUT --->	10:11:51am	Tare Wt:	34,480	17.24	Manual Wt
			NET WT:	61,760	30.88	

TRANSPORTER/DRIVER: CELORIE/RON DENNY

Weighmaster _____

Koppers017021

Manifest

TPS Technologies Soil Recycling
Non-Hazardous Soils

↓ Manifest # ↓

Date of Shipment:	Responsible for Payment:	Transporter Truck #:	Facility #:	Given by TPS:	Load #
	Contractor	Eloise 1	A09	03693	044

Generator and/or Consultant

Generator's Name and Billing Address:	Generator's Phone #:	Generator's US EPA ID No.
KOPPERS INDUSTRIES, INC. 7540 NW ST HELENS ROAD PORTLAND, OR 97210 USA	(503) 286-3681 Person to Contact: AMOS KAMERER FAX #: (503) 285-2831	Customer Account Number with TPS: 9KOPPER
Consultant's Name and Billing Address:	**Consultant's Phone #:**	
RM CAT ENVIRONMENTAL -- CONTRACTOR - 12823 NE AIRPORT WAY PORTLAND, OR 97230 USA	(503) 408-8880 Person to Contact: BOB JANAK FAX #: (503) 408-8716	Customer Account Number with TPS: 10035113
Generation Site (Transport from): *(name & address)*	**Site Phone #:**	BTEX Levels
KOPPERS TANK FOUNDATION EXCAVATION 7540 NW ST HELENS ROAD PORTLAND, OR 97210 USA	Person to Contact: FAX #:	TPH Levels AVG. Levels
Designated Facility (Transport to): *(name & address)*	**Facility Phone #:** 503-735-9525	Facility Permit Numbers
TPST SOIL RECYCLERS OF OREGON 9333 N HARBORGATE STREET PORTLAND, OR 97203 USA	Person to Contact: GLENNA MULLAN FAX #: 503-240-1712	
Transporter Name and Mailing Address:	**Transporter's Phone #:**	Transporter's US EPA ID No.:
	Person to Contact:	Transporter's DOT No.:
	FAX #:	Customer Account Number with TPS:

Description of Soil	Moisture Content	Contaminated by:	Approx. Qty:	Description of Delivery	Gross Weight	Tare Weight	Net Weight
Sand ☐ Organic ☐ Clay ☐ Other ☐	0 - 10% ☐ 10 - 20% ☐ 20% - over ☐	Gas ☐ Diesel ☐ Other ☐			96240	34480	61760
Sand ☐ Organic ☐ Clay ☐ Other ☐	0 - 10% ☐ 10 - 20% ☐ 20% - over ☐	Gas ☐ Diesel ☐ Other ☐				30.88	

List any exception to items listed above:

Generator's and/or consultant's certification: I/We certify that the soil referenced herein is taken entirely from those soils described in the Soil Data Sheet completed and certified by me/us for the Generation Site shown above and nothing has been added or done to such soil that would alter it in any way.

Print or Type Name: Generator ☐ Consultant ☐	Signature and date:	Month	Day	Year
SIGNATURE ON FILE				

Transporter

Transporter's certification: I/We acknowledge receipt of the soil described above and certify that such soil is being delivered in exactly the same condition as when received. I/We further certify that this soil is being directly transported from the Generation Site to the Designated Facility without off-loading, adding to, subtracting from or in any way delaying delivery to such site.

Print or Type Name:	Signature and date:	Month	Day	Year
Ron Denny	Ron Denny	4	20	99

Recycling Facility

Discrepancies:

Recycling Facility certifies the receipt of the soil covered by this manifest except as noted above:

Print or Type Name:	Signature and date:
GLENNA MULLAN	4/20/99

Please print or type.

GENERATOR/CONSULTANT'S COPY

TPST SOIL RECYCLERS OF OREGON

9333 N. Harborgate Street Portland, OR 97203

OR 011856

WEIGHMASTER CERTIFICATE – LICENSE #68636

THIS IS TO CERTIFY that the following described soil commodity was weighed, measured, or counted by a weighmaster, whose signature is on this certificate, as prescribed by the Division of Measurement Standards of the Oregon Department of Agriculture.

Manifest # A09 -03693 -045 04/20/99

Generator Site Information	Facility Information
KOPPERS TANK FOUNDATION EXCAVATION	TPST SOIL RECYCLERS OF OREGON
7540 NW ST HELENS ROAD	9333 N HARBORGATE STREET
PORTLAND, OR 97210 USA	PORTLAND, OR 97203 USA

				LBS	TONS	
0	IN --->	10:19:49am	Gross Wt:	84,800	42.40	Manual Wt
0	OUT -->	10:26:17am	Tare Wt:	32,820	16.41	Manual Wt
			NET WT:	51,980	25.99	

TRANSPORTER/DRIVER: CELORIE/LONNIE NOLAN

Weighmaster

Koppers017023

Manifest

TPS Technologies Soil Recycling
Non-Hazardous Soils

↓ Manifest # ↓

Date of Shipment:	Responsible for Payment:	Transporter Truck #:	Facility #:	Given by TPS:	Load #
	Contractor	Rose 3	A09	03693	445

Generator and/or Consultant

Generator's Name and Billing Address: KOPPERS INDUSTRIES, INC 7540 NW ST HELENS ROAD PORTLAND, OR 97210 USA	Generator's Phone #: (503) 286-3681 Person to Contact: AMOS KAMERER FAX #: (503) 285-2831	Generator's US EPA ID No. Customer Account Number with TPS: 9KOPPER
Consultant's Name and Billing Address: RM CAT ENVIRONMENTAL -- CONTRACTOR -- 12823 NE AIRPORT WAY PORTLAND, OR 97230 USA	Consultant's Phone #: (503) 408-8880 Person to Contact: ROB JANAK FAX #: (503) 408-8716	 Customer Account Number with TPS: 1003513
Generation Site (Transport from): *(name & address)* KOPPERS TANK FOUNDATION EXCAVATION 7540 NW ST HELENS ROAD PORTLAND, OR 97210 USA	Site Phone #: Person to Contact: FAX #:	BTEX Levels TPH Levels AVG. Levels
Designated Facility (Transport to): *(name & address)* TPST SOIL RECYCLERS OF OREGON 9333 N HARBORGATE STREET PORTLAND, OR 97203 USA	Facility Phone #: 503-735-9525 Person to Contact: GLENNA MULLAN FAX #: 503-240-1712	Facility Permit Numbers
Transporter Name and Mailing Address:	Transporter's Phone #: Person to Contact: FAX #:	Transporter's US EPA ID No.: Transporter's DOT No.: Customer Account Number with TPS:

Description of Soil	Moisture Content	Contaminated by:	Approx. Qty:	Description of Delivery	Gross Weight	Tare Weight	Net Weight
Sand ☐ Organic ☐ Clay ☐ Other ☐	0 - 10% ☐ 10 - 20% ☐ 20% - over ☐	Gas ☐ Diesel ☐ Other ☐			84800	37300	47500
Sand ☐ Organic ☐ Clay ☐ Other ☐	0 - 10% ☐ 10 - 20% ☐ 20% - over ☐	Gas ☐ Diesel ☐ Other ☐				2599	

List any exception to items listed above:

Generator's and/or consultant's certification: I/We certify that the soil referenced herein is taken entirely from those soils described in the Soil Data Sheet completed and certified by me/us for the Generation Site shown above and nothing has been added or done to such soil that would alter it in any way.

Print or Type Name: Generator ☐ Consultant ☐	Signature and date:	Month	Day	Year
SIGNATURE ON FILE				

Transporter

Transporter's certification: I/We acknowledge receipt of the soil described above and certify that such soil is being delivered in exactly the same condition as when received. I/We further certify that this soil is being directly transported from the Generation Site to the Designated Facility without off-loading, adding to, subtracting from or in any way delaying delivery to such site.

Print or Type Name:	Signature and date:	Month	Day	Year
X Lonnie Nolan	X Lonnie Nolan	4	20	99

Recycling Facility

Discrepancies:

Recycling Facility certifies the receipt of the soil covered by this manifest except as noted above:

Print or Type Name:	Signature and date:
GLENNA MULLAN	Glenna Mullan 4/20/99

Please print or type.

GENERATOR/consultant's COPY

TPST SOIL RECYCLERS OF OREGON

9333 N. Harborgate Street Portland, OR 97203

OR 011857

WEIGHMASTER CERTIFICATE – LICENSE #68636

THIS IS TO CERTIFY that the following described soil commodity was weighed, measured, or counted by a weighmaster, whose signature is on this certificate, as prescribed by the Division of Measurement Standards of the Oregon Department of Agriculture.

Manifest # A09 -03693 -046 04/20/99

Generator Site Information	Facility Information
KOPPERS TANK FOUNDATION EXCAVATION	TPST SOIL RECYCLERS OF OREGON
7540 NW ST HELENS ROAD	9333 N HARBORGATE STREET
PORTLAND, OR 97210 USA	PORTLAND, OR 97203 USA

				LBS	TONS	
0	IN --->	11:14:58am	Gross Wt:	95,760	47.88	Manual Wt
0	OUT -->	11:20:45am	Tare Wt:	34,440	17.22	Manual Wt
			NET WT:	61,320	30.66	

TRANSPORTER/DRIVER: CELORIE/RON DENNY

Weighmaster _____

Koppers017025

Manifest

TPS Technologies Soil Recycling
Non-Hazardous Soils

↓ Manifest # ↓

Date of Shipment:	Responsible for Payment:	Transporter Truck #:	Facility #:	Given by TPS:	Load #
	Contractor	Eldorado	009	03693	006

Generator and/or Consultant

Generator's Name and Billing Address:	Generator's Phone #:	Generator's US EPA ID No.
KOPPERS INDUSTRIES, INC. 7540 NW ST HELENS ROAD PORTLAND, OR 97210 USA	(503) 286-3681	
	Person to Contact: AMOS KAMERER	
	FAX #: (503) 285-2811	Customer Account Number with TPS: KOPPERS

Consultant's Name and Billing Address:	Consultant's Phone #:	
RM CAT ENVIRONMENTAL -- CONTRACTOR -- 12823 NE AIRPORT WAY PORTLAND, OR 97230 USA	(503) 408-0010	
	Person to Contact: BOB JANAK	
	FAX #: (503) 408-8716	Customer Account Number with TPS: 10035113

Generation Site (Transport from): *(name & address)*	Site Phone #:	BTEX Levels
KOPPERS TANK FOUNDATION EXCAVATION 7540 NW ST HELENS ROAD PORTLAND, OR 97210 USA	Person to Contact:	TPH Levels
	FAX #:	AVG. Levels

Designated Facility (Transport to): *(name & address)*	Facility Phone #: 503-735-9525	Facility Permit Numbers
TPST SOIL RECYCLERS OF OREGON 9333 N HARBORGATE STREET PORTLAND, OR 97203 USA	Person to Contact: GLENNA MULLAN	
	FAX #: 503-746-1212	

Transporter Name and Mailing Address:	Transporter's Phone #:	Transporter's US EPA ID No.:
	Person to Contact:	Transporter's DOT No.:
	FAX #:	Customer Account Number with TPS:

Description of Soil	Moisture Content	Contaminated by:	Approx. Qty:	Description of Delivery	Gross Weight	Tare Weight	Net Weight
Sand ☐ Organic ☐ Clay ☐ Other ☐	0 - 10% ☐ 10 - 20% ☐ 20% - over ☐	Gas ☐ Diesel ☐ Other ☐			95700	34440	61320
Sand ☐ Organic ☐ Clay ☐ Other ☐	0 - 10% ☐ 10 - 20% ☐ 20% - over ☐	Gas ☐ Diesel ☐ Other ☐				30.66	

List any exception to items listed above:

Generator's and/or consultant's certification: I/We certify that the soil referenced herein is taken entirely from those soils described in the Soil Data Sheet completed and certified by me/us for the Generation Site shown above and nothing has been added or done to such soil that would alter it in any way.

Print or Type Name: Generator ☐ Consultant ☐	Signature and date:	Month	Day	Year
SIGNATURE ON FILE				

Transporter

Transporter's certification: I/We acknowledge receipt of the soil described above and certify that such soil is being delivered in exactly the same condition as when received. I/We further certify that this soil is being directly transported from the Generation Site to the Designated Facility without off-loading, adding to, subtracting from or in any way delaying delivery to such site.

Print or Type Name:	Signature and date:	Month	Day	Year
X Ron Denny	X Ron Denny	4	20	99

Recycling Facility

Discrepancies:

Recycling Facility certifies the receipt of the soil covered by this manifest except as noted above:

Print or Type Name:	Signature and date:
GLENNA MULLAN	Glenna Mullan 4/20/99

Please print or type.

GENERATOR/CONSULTANT'S COPY

TPST SOIL RECYCLERS OF OREGON

9333 N. Harborgate Street Portland, OR 97203

OR 011858

WEIGHMASTER CERTIFICATE – LICENSE #68636

THIS IS TO CERTIFY that the following described soil commodity was weighed, measured, or counted by a weighmaster, whose signature is on this certificate, as prescribed by the Division of Measurement Standards of the Oregon Department of Agriculture.

Manifest # A09 -03693 -047 04/20/99

Generator Site Information	Facility Information
KOPPERS TANK FOUNDATION EXCAVATION	TPST SOIL RECYCLERS OF OREGON
7540 NW ST HELENS ROAD	9333 N HARBORGATE STREET
PORTLAND, OR 97210 USA	PORTLAND, OR 97203 USA

				LBS	TONS	
0	IN --->	11:39:05am	Gross Wt:	86,220	43.11	Manual Wt
0	OUT -->	11:43:52am	Tare Wt:	32,820	16.41	Manual Wt
			NET WT:	53,400	26.70	

TRANSPORTER/DRIVER: CELORIE/LONNIE NOLAN

Weighmaster _____

Koppers017027

Manifest

TPS Technologies Soil Recycling
Non-Hazardous Soils

↓ Manifest # ↓

Date of Shipment:	Responsible for Payment:	Transporter Truck #:	Facility #:	Given by TPS:	Load #
	Contractor	Clarice 3	A09	03693	047

Generator and/or Consultant

Generator's Name and Billing Address: KOPPERS INDUSTRIES, INC. 7540 NW ST HELENS ROAD PORTLAND, OR 97210 USA	Generator's Phone #: (503) 285-3681 Person to Contact: AMOS KAMERER FAX #: (503) 285-2831	Generator's US EPA ID No. Customer Account Number with TPS: 9KOPPER
Consultant's Name and Billing Address: RM CAT ENVIRONMENTAL -- CONTRACTOR -- 12823 NE AIRPORT WAY PORTLAND, OR 97230 USA	Consultant's Phone #: (503) 408-8880 Person to Contact: BOB JANAK FAX #: (503) 408-8716	Customer Account Number with TPS: 1003513
Generation Site (Transport from): *(name & address)* KOPPERS TANK FOUNDATION EXCAVATION 7540 NW ST HELENS ROAD PORTLAND, OR 97210 USA	Site Phone #: Person to Contact: FAX #:	BTEX Levels TPH Levels AVG. Levels
Designated Facility (Transport to): *(name & address)* TPST SOIL RECYCLERS OF OREGON 9333 N HARBORGATE STREET PORTLAND, OR 97203 USA	Facility Phone #: 503-735-9525 Person to Contact: GLENNA MULLAN FAX #: 503-240-1712	Facility Permit Numbers
Transporter Name and Mailing Address:	Transporter's Phone #: Person to Contact: FAX #:	Transporter's US EPA ID No.: Transporter's DOT No.: Customer Account Number with TPS:

Description of Soil	Moisture Content	Contaminated by:	Approx. Qty:	Description of Delivery	Gross Weight	Tare Weight	Net Weight
Sand ☐ Organic ☐ Clay ☐ Other ☐	0 - 10% ☐ 10 - 20% ☐ 20% - over ☐	Gas ☐ Diesel ☐ Other ☐			86220	32820	53400
Sand ☐ Organic ☐ Clay ☐ Other ☐	0 - 10% ☐ 10 - 20% ☐ 20% - over ☐	Gas ☐ Diesel ☐ Other ☐				26.70	

List any exception to items listed above:

Generator's and/or consultant's certification: I/We certify that the soil referenced herein is taken entirely from those soils described in the Soil Data Sheet completed and certified by me/us for the Generation Site shown above and nothing has been added or done to such soil that would alter it in any way.

Print or Type Name: Generator ☐ Consultant ☐ SIGNATURE ON FILE | Signature and date: | Month | Day | Year

Transporter

Transporter's certification: I/We acknowledge receipt of the soil described above and certify that such soil is being delivered in exactly the same condition as when received. I/We further certify that this soil is being directly transported from the Generation Site to the Designated Facility without off-loading, adding to, subtracting from or in any way delaying delivery to such site.

Print or Type Name: X Lonnie Nolan | Signature and date: X Lonnie Nolan | Month 4 | Day 20 | Year 99

Recycling Facility

Discrepancies:

Recycling Facility certifies the receipt of the soil covered by this manifest except as noted above:

Print or Type Name: GLENNA MULLAN | Signature and date: Glenna Mullan 4/20/99

Please print or type.

GENERATOR/consultant's COPY

Koppers017028

TPST SOIL RECYCLERS OF OREGON

9333 N. Harborgate Street Portland, OR 97203

OR 011859

WEIGHMASTER CERTIFICATE – LICENSE #68636

THIS IS TO CERTIFY that the following described soil commodity was weighed, measured, or counted by a weighmaster, whose signature is on this certificate, as prescribed by the Division of Measurement Standards of the Oregon Department of Agriculture.

Manifest # A09 -03693 -048 04/20/99

Generator Site Information	Facility Information
KOPPERS TANK FOUNDATION EXCAVATION	TPST SOIL RECYCLERS OF OREGON
7540 NW ST HELENS ROAD	9333 N HARBORGATE STREET
PORTLAND, OR 97210 USA	PORTLAND, OR 97203 USA

				LBS	TONS	
0	IN --->	12:05:56pm	Gross Wt:	88,100	44.05	Manual Wt
0	OUT -->	12:10:26pm	Tare Wt:	34,440	17.22	Manual Wt
			NET WT:	53,660	26.83	

TRANSPORTER/DRIVER: CELORIE/RON DENNY

Weighmaster

Koppers017029

Manifest

TPS Technologies Soil Recycling
Non-Hazardous Soils

↓ Manifest # ↓

Generator and/or Consultant

Date of Shipment:	Responsible for Payment:	Transporter Truck #:	Facility #:	Given by TPS:	Load #
	Contractor	Clorie	A09	03693	048

Generator's Name and Billing Address: KOPPERS INDUSTRIES, INC 7540 NW ST HELENS ROAD PORTLAND, OR 97210 USA	Generator's Phone #: (503) 286-3681 Person to Contact: AMOS KAMERER FAX #: (503) 285-2831	Generator's US EPA ID No. Customer Account Number with TPS: 9KOPPER
Consultant's Name and Billing Address: RM CAT ENVIRONMENTAL -- CONTRACTOR -- 12823 NE AIRPORT WAY PORTLAND, OR 97230 USA	Consultant's Phone #: (503) 408-8880 Person to Contact: BOB JANAK FAX #: (503) 408-8716	 Customer Account Number with TPS: 1003513
Generation Site (Transport from): *(name & address)* KOPPERS TANK FOUNDATION EXCAVATION 7540 NW ST HELENS ROAD PORTLAND, OR 97210 USA	Site Phone #: Person to Contact: FAX #:	BTEX Levels TPH Levels AVG. Levels
Designated Facility (Transport to): *(name & address)* TPST SOIL RECYCLERS OF OREGON 9333 N HARBORGATE STREET PORTLAND, OR 97203 USA	Facility Phone #: 503-735-9525 Person to Contact: GLENNA MULLAN FAX #: 503-240-1712	Facility Permit Numbers
Transporter Name and Mailing Address:	Transporter's Phone #: Person to Contact: FAX #:	Transporter's US EPA ID No.: Transporter's DOT No.: Customer Account Number with TPS:

Description of Soil	Moisture Content	Contaminated by:	Approx. Qty:	Description of Delivery	Gross Weight	Tare Weight	Net Weight
Sand ☐ Organic ☐ Clay ☐ Other ☐	0 - 10% ☐ 10 - 20% ☐ 20% - over ☐	Gas ☐ Diesel ☐ Other ☐			88100	34440	53660
Sand ☐ Organic ☐ Clay ☐ Other ☐	0 - 10% ☐ 10 - 20% ☐ 20% - over ☐	Gas ☐ Diesel ☐ Other ☐				26.83	

List any exception to items listed above:

Generator's and/or consultant's certification: I/We certify that the soil referenced herein is taken entirely from those soils described in the Soil Data Sheet completed and certified by me/us for the Generation Site shown above and nothing has been added or done to such soil that would alter it in any way.

Print or Type Name: Generator ☐ Consultant ☐ SIGNATURE ON FILE

Signature and date: Month Day Year

Transporter

Transporter's certification: I/We acknowledge receipt of the soil described above and certify that such soil is being delivered in exactly the same condition as when received. I/We further certify that this soil is being directly transported from the Generation Site to the Designated Facility without off-loading, adding to, subtracting from or in any way delaying delivery to such site.

Print or Type Name: X Ron Denny

Signature and date: X Ron Denny Month 4 Day 20 Year 99

Recycling Facility

Discrepancies:

Recycling Facility certifies the receipt of the soil covered by this manifest except as noted above:

Print or Type Name: GLENNA MULLAN

Signature and date: Glenna Mullan 4/20/99

Please print or type.

GENERATOR/CONSULTANT'S COPY

TPST SOIL RECYCLERS OF OREGON

9333 N. Harborgate Street Portland, OR 97203

OR 011860

WEIGHMASTER CERTIFICATE – LICENSE #68636

THIS IS TO CERTIFY that the following described soil commodity was weighed, measured, or counted by a weighmaster, whose signature is on this certificate, as prescribed by the Division of Measurement Standards of the Oregon Department of Agriculture.

Manifest # A09 -03693 -049 04/20/99

Generator Site Information	Facility Information
KOPPERS TANK FOUNDATION EXCAVATION	TPST SOIL RECYCLERS OF OREGON
7540 NW ST HELENS ROAD	9333 N HARBORGATE STREET
PORTLAND, OR 97210 USA	PORTLAND, OR 97203 USA

				LBS	TONS	
0	IN --->	12:53:35pm	Gross Wt:	98,000	49.00	Manual Wt
0	OUT -->	01:00:07pm	Tare Wt:	34,440	17.22	Manual Wt
			NET WT:	63,560	31.78	

TRANSPORTER/DRIVER: CELORIE/RON DENNY

Weighmaster

Koppers017031

Manifest

TPS Technologies Soil Recycling
Non-Hazardous Soils

↓ Manifest # ↓

Date of Shipment:	Responsible for Payment:	Transporter Truck #:	Facility #:	Given by TPS:	Load #
	Contractor	Clone 1	009	03643	049

Generator and/or Consultant

Generator's Name and Billing Address: KOPPERS INDUSTRIES, INC 7540 NW ST HELENS ROAD PORTLAND, OR 97210 USA	Generator's Phone #: (503) 286-3681 Person to Contact: AMOS FARMER FAX #: (503) 285-2831	Generator's US EPA ID No. Customer Account Number with TPS: 9KOPPER
Consultant's Name and Billing Address: RM CAT ENVIRONMENTAL -- CONTRACTOR -- 12823 NE AIRPORT WAY PORTLAND, OR 97230 USA	Consultant's Phone #: (503) 408-8886 Person to Contact: BOB JANAK FAX #: (503) 408-8716	 Customer Account Number with TPS: 1004513
Generation Site (Transport from): *(name & address)* KOPPERS TANK FOUNDATION EXCAVATION 7540 NW ST HELENS ROAD PORTLAND, OR 97210 USA	Site Phone #: Person to Contact: FAX #:	BTEX Levels TPH Levels AVG. Levels
Designated Facility (Transport to): *(name & address)* TPST SOIL RECYCLERS OF OREGON 9333 N HARBORGATE STREET PORTLAND, OR 97203 USA	Facility Phone #: 503-735-9525 Person to Contact: GLENNA MULLAN FAX #: 503-240-1712	Facility Permit Numbers
Transporter Name and Mailing Address:	Transporter's Phone #: Person to Contact: FAX #:	Transporter's US EPA ID No.: Transporter's DOT No.: Customer Account Number with TPS:

Description of Soil	Moisture Content	Contaminated by:	Approx. Qty:	Description of Delivery	Gross Weight	Tare Weight	Net Weight
Sand ☐ Organic ☐ Clay ☐ Other ☐	0 - 10% ☐ 10 - 20% ☐ 20% - over ☐	Gas ☐ Diesel ☐ Other ☐			98000	34440	63560
Sand ☐ Organic ☐ Clay ☐ Other ☐	0 - 10% ☐ 10 - 20% ☐ 20% - over ☐	Gas ☐ Diesel ☐ Other ☐				31.75	

List any exception to items listed above:

Generator's and/or consultant's certification: I/We certify that the soil referenced herein is taken entirely from those soils described in the Soil Data Sheet completed and certified by me/us for the Generation Site shown above and nothing has been added or done to such soil that would alter it in any way.

Print or Type Name: Generator ☐ Consultant ☐	Signature and date:	Month	Day	Year
SIGNATURE ON FILE				

Transporter

Transporter's certification: I/We acknowledge receipt of the soil described above and certify that such soil is being delivered in exactly the same condition as when received. I/We further certify that this soil is being directly transported from the Generation Site to the Designated Facility without off-loading, adding to, subtracting from or in any way delaying delivery to such site.

Print or Type Name:	Signature and date:	Month	Day	Year
X Ron Denny	X Ron Denny	4	20	99

Discrepancies:

Recycling Facility

Recycling Facility certifies the receipt of the soil covered by this manifest except as noted above:

Print or Type Name:	Signature and date:
GLENNA MULLAN	Glenna Mullan 4/20/99

Please print or type.

GENERATOR/consultant's COPY

TPST SOIL RECYCLERS OF OREGON

9333 N. Harborgate Street Portland, OR 97203

OR 011864

WEIGHMASTER CERTIFICATE – LICENSE #68636

THIS IS TO CERTIFY that the following described soil commodity was weighed, measured, or counted by a weighmaster, whose signature is on this certificate, as prescribed by the Division of Measurement Standards of the Oregon Department of Agriculture.

Manifest # A09 -03693 -050 04/20/99

Generator Site Information	Facility Information
KOPPERS TANK FOUNDATION EXCAVATION	TPST SOIL RECYCLERS OF OREGON
7540 NW ST HELENS ROAD	9333 N HARBORGATE STREET
PORTLAND, OR 97210 USA	PORTLAND, OR 97203 USA

				LBS	TONS	
0	IN --->	01:44:42pm	Gross Wt:	94,160	47.08	Manual Wt
0	OUT -->	01:50:22pm	Tare Wt:	34,140	17.07	Manual Wt
			NET WT:	60,020	30.01	

TRANSPORTER/DRIVER: CELORIE/RON DENNY

Weighmaster

Koppers017033

Manifest

TPS Technologies Soil Recycling
Non-Hazardous Soils

↓ Manifest # ↓

Date of Shipment:	Responsible for Payment:	Transporter Truck #:	Facility #:	Given by TPS:	Load #
	CONTRACTOR	Celorie 1	A09	03693	950

Generator and/or Consultant

Generator's Name and Billing Address:	Generator's Phone #:	Generator's US EPA ID No.
KOPPERS INDUSTRIES INC. 7540 NW ST HELENS ROAD PORTLAND, OR 97210 USA	(503) 286-3681 Person to Contact: AMOS KAMELR FAX #: (503) 285-7851	Customer Account Number with TPS: KOPPER
Consultant's Name and Billing Address:	**Consultant's Phone #:**	
RM CAT ENVIRONMENTAL -- CONTRACTOR -- 12823 NE AIRPORT WAY PORTLAND, OR 97230 USA	(503) 408-8280 Person to Contact: BOB JANAK FAX #: (503) 408-8716	Customer Account Number with TPS: 10015613
Generation Site (Transport from): *(name & address)*	**Site Phone #:**	BTEX Levels
KOPPERS TANK FOUNDATION EXCAVATION 7540 NW ST HELENS ROAD PORTLAND, OR 97210 USA	Person to Contact:	TPH Levels
	FAX #:	AVG. Levels
Designated Facility (Transport to): *(name & address)*	**Facility Phone #:**	Facility Permit Numbers
TPST SOIL RECYCLERS OF OREGON 9333 N HARBORGATE STREET PORTLAND, OR 97203 USA	503-735-9625 Person to Contact: GLENNA MULLAN FAX #: 503-240-1712	
Transporter Name and Mailing Address:	**Transporter's Phone #:**	Transporter's US EPA ID No.:
	Person to Contact:	Transporter's DOT No.:
	FAX #:	Customer Account Number with TPS:

Description of Soil	Moisture Content	Contaminated by:	Approx. Qty:	Description of Delivery	Gross Weight	Tare Weight	Net Weight
Sand ☐ Organic ☐ Clay ☐ Other ☐	0 - 10% ☐ 10 - 20% ☐ 20% - over ☐	Gas ☐ Diesel ☐ Other ☐			94160	34140	60020
Sand ☐ Organic ☐ Clay ☐ Other ☐	0 - 10% ☐ 10 - 20% ☐ 20% - over ☐	Gas ☐ Diesel ☐ Other ☐				30.01	

List any exception to items listed above:

Generator's and/or consultant's certification: I/We certify that the soil referenced herein is taken entirely from those soils described in the Soil Data Sheet completed and certified by me/us for the Generation Site shown above and nothing has been added or done to such soil that would alter it in any way.

Print or Type Name: Generator ☐ Consultant ☐	Signature and date:	Month	Day	Year
SIGNATURE ON FILE				

Transporter

Transporter's certification: I/We acknowledge receipt of the soil described above and certify that such soil is being delivered in exactly the same condition as when received. I/We further certify that this soil is being directly transported from the Generation Site to the Designated Facility without off-loading, adding to, subtracting from or in any way delaying delivery to such site.

Print or Type Name:	Signature and date:	Month	Day	Year
Ron Denny	Ron Denny	4	20	99

Recycling Facility

Discrepancies:

Recycling Facility certifies the receipt of the soil covered by this manifest except as noted above:

Print or Type Name:	Signature and date:
GLENNA MULLAN	4/20/99

Please print or type.

GENERATOR/CONSULTANT'S COPY

TPST SOIL RECYCLERS OF OREGON

9333 N. Harborgate Street Portland, OR 97203

OR 011866

WEIGHMASTER CERTIFICATE – LICENSE #68636

THIS IS TO CERTIFY that the following described soil commodity was weighed, measured, or counted by a weighmaster, whose signature is on this certificate, as prescribed by the Division of Measurement Standards of the Oregon Department of Agriculture.

Manifest # A09 -03693 -051 04/20/99

Generator Site Information	Facility Information
KOPPERS TANK FOUNDATION EXCAVATION	TPS TECHNOLOGIES INC.
7540 NW ST HELENS ROAD	9333 N HARBORGATE STREET
PORTLAND, OR 97210 USA	PORTLAND, OR 97203 USA

				LBS	TONS	
0	IN --->	02:33:59pm	Gross Wt:	92,060	46.03	Manual Wt
0	OUT -->	02:39:36pm	Tare Wt:	34,360	17.18	Manual Wt
			NET WT:	57,700	28.85	

TRANSPORTER/DRIVER: CELORIE/RON DENNY

Weighmaster

Koppers017035

Manifest

TPS Technologies Soil Recycling
Non-Hazardous Soils

↓ Manifest # ↓

Date of Shipment:	Responsible for Payment:	Transporter Truck #:	Facility #:	Given by TPS:	Load #
	Contractor	12 Case 1	A09	03593	051

Generator and/or Consultant

Generator's Name and Billing Address:	Generator's Phone #:	Generator's US EPA ID No.
KOPPERS INDUSTRIES, INC. 7540 NW ST HELENS ROAD PORTLAND, OR 97210 USA	(503) 286-3681	
	Person to Contact: AMOS KAMERER	
	FAX #: (503) 285-2831	Customer Account Number with TPS: 9KOPPER

Consultant's Name and Billing Address:	Consultant's Phone #:	
RM CAT ENVIRONMENTAL -- CONTRACTOR -- 12823 NE AIRPORT WAY PORTLAND, OR 97230 USA	(503) 408-8880	
	Person to Contact: BOB JANAK	
	FAX #: (503) 408-8716	Customer Account Number with TPS: 1003513

Generation Site (Transport from): *(name & address)*	Site Phone #:	BTEX Levels
KOPPERS TANK FOUNDATION EXCAVATION 7540 NW ST HELENS ROAD PORTLAND, OR 97210 USA	Person to Contact:	TPH Levels
	FAX #:	AVG. Levels

Designated Facility (Transport to): *(name & address)*	Facility Phone #:	Facility Permit Numbers
TPST SOIL RECYCLERS OF OREGON 9333 N HARBORGATE STREET PORTLAND, OR 97203 USA	503-735-9525	
	Person to Contact: GLENNA MULLAN	
	FAX #: 503-240-1712	

Transporter Name and Mailing Address:	Transporter's Phone #:	Transporter's US EPA ID No.:
	Person to Contact:	Transporter's DOT No.:
	FAX #:	Customer Account Number with TPS:

Description of Soil	Moisture Content	Contaminated by:	Approx. Qty:	Description of Delivery	Gross Weight	Tare Weight	Net Weight
Sand ☐ Organic ☐ Clay ☐ Other ☐	0 - 10% ☐ 10 - 20% ☐ 20% - over ☐	Gas ☐ Diesel ☐ Other ☐			92060	34360	57700
Sand ☐ Organic ☐ Clay ☐ Other ☐	0 - 10% ☐ 10 - 20% ☐ 20% - over ☐	Gas ☐ Diesel ☐ Other ☐				58.85	

List any exception to items listed above:

Generator's and/or consultant's certification: I/We certify that the soil referenced herein is taken entirely from those soils described in the Soil Data Sheet completed and certified by me/us for the Generation Site shown above and nothing has been added or done to such soil that would alter it in any way.

Print or Type Name: Generator ☐ Consultant ☐	Signature and date:	Month	Day	Year
SIGNATURE ON FILE				

Transporter

Transporter's certification: I/We acknowledge receipt of the soil described above and certify that such soil is being delivered in exactly the same condition as when received. I/We further certify that this soil is being directly transported from the Generation Site to the Designated Facility without off-loading, adding to, subtracting from or in any way delaying delivery to such site.

Print or Type Name:	Signature and date:	Month	Day	Year
X Ron Denny	X Ron Denny	4	20	99

Recycling Facility

Discrepancies:

Recycling Facility certifies the receipt of the soil covered by this manifest except as noted above:

Print or Type Name:	Signature and date:
GLENNA MULLAN	Glenna Mullan 4/20/99

Please print or type.

GENERATOR/consultant's COPY

TPST SOIL RECYCLERS OF OREGON

9333 N. Harborgate Street Portland, OR 97203

OR 011867

WEIGHMASTER CERTIFICATE – LICENSE #68636

THIS IS TO CERTIFY that the following described soil commodity was weighed, measured, or counted by a weighmaster, whose signature is on this certificate, as prescribed by the Division of Measurement Standards of the Oregon Department of Agriculture.

Manifest # A09 -03693 -052 04/20/99

Generator Site Information	Facility Information
KOPPERS TANK FOUNDATION EXCAVATION	TPS TECHNOLOGIES INC.
7540 NW ST HELENS ROAD	9333 N HARBORGATE STREET
PORTLAND, OR 97210 USA	PORTLAND, OR 97203 USA

				LBS	TONS	
0	IN --->	03:32:16pm	Gross Wt:	96,380	48.19	Manual Wt
0	OUT -->	03:41:11pm	Tare Wt:	34,300	17.15	Manual Wt
			NET WT:	62,080	31.04	

TRANSPORTER/DRIVER: CELORIE/RON DENNY

Weighmaster _____

Koppers017037

Manifest

TPS Technologies Soil Recycling
Non-Hazardous Soils

↓ Manifest # ↓

Date of Shipment:	Responsible for Payment:	Transporter Truck #:	Facility #:	Given by TPS:	Load #
	Contractor	Chevrolet	A09	03693	052

Generator and/or Consultant

Generator's Name and Billing Address: KOPPERS INDUSTRIES, INC. 7540 NW ST HELENS ROAD PORTLAND, OR 97210 USA	Generator's Phone #: (503) 286-3681 Person to Contact: AMOS KAMERER FAX #: (503) 285-2831	Generator's US EPA ID No. Customer Account Number with TPS: 9KOPPER
Consultant's Name and Billing Address: RM CAT ENVIRONMENTAL -- CONTRACTOR -- 12823 NE AIRPORT WAY PORTLAND, OR 97230 USA	Consultant's Phone #: (503) 408-8889 Person to Contact: BOB JANAK FAX #: (503) 408-8716	 Customer Account Number with TPS: 100351B
Generation Site (Transport from): *(name & address)* KOPPERS TANK FOUNDATION EXCAVATION 7540 NW ST HELENS ROAD PORTLAND, OR 97210 USA	Site Phone #: Person to Contact: FAX #: 	BTEX Levels TPH Levels AVG. Levels
Designated Facility (Transport to): *(name & address)* TPST SOIL RECYCLERS OF OREGON 9333 N HARBORGATE STREET PORTLAND, OR 97203 USA	Facility Phone #: 503-735-9525 Person to Contact: GLENNA MULLAN FAX #: 503-240-1712	Facility Permit Numbers
Transporter Name and Mailing Address:	Transporter's Phone #: Person to Contact: FAX #: 	Transporter's US EPA ID No.: Transporter's DOT No.: Customer Account Number with TPS:

Description of Soil	Moisture Content	Contaminated by:	Approx. Qty:	Description of Delivery	Gross Weight	Tare Weight	Net Weight
Sand ☐ Organic ☐ Clay ☐ Other ☐	0 - 10% ☐ 10 - 20% ☐ 20% - over ☐	Gas ☐ Diesel ☐ Other ☐			96500	34300	62080
Sand ☐ Organic ☐ Clay ☐ Other ☐	0 - 10% ☐ 10 - 20% ☐ 20% - over ☐	Gas ☐ Diesel ☐ Other ☐				31.04	

List any exception to items listed above:

Generator's and/or consultant's certification: I/We certify that the soil referenced herein is taken entirely from those soils described in the Soil Data Sheet completed and certified by me/us for the Generation Site shown above and nothing has been added or done to such soil that would alter it in any way.

Print or Type Name: Generator ☐ Consultant ☐	Signature and date:	Month	Day	Year
SIGNATURE ON FILE				

Transporter

Transporter's certification: I/We acknowledge receipt of the soil described above and certify that such soil is being delivered in exactly the same condition as when received. I/We further certify that this soil is being directly transported from the Generation Site to the Designated Facility without off-loading, adding to, subtracting from or in any way delaying delivery to such site.

Print or Type Name:	Signature and date:	Month	Day	Year
X Ron Denny	X Ron Denny	4	20	99

Recycling Facility

Discrepancies:

Recycling Facility certifies the receipt of the soil covered by this manifest except as noted above:

Print or Type Name:	Signature and date:
GLENNA MULLAN	Glenna Mullan 4/20/99

Please print or type.

GENERATOR/CONSULTANT'S COPY

TPST SOIL RECYCLERS OF OREGON

9333 N. Harborgate Street Portland, OR 97203

OR 011872

WEIGHMASTER CERTIFICATE – LICENSE #68636

THIS IS TO CERTIFY that the following described soil commodity was weighed, measured, or counted by a weighmaster, whose signature is on this certificate, as prescribed by the Division of Measurement Standards of the Oregon Department of Agriculture.

Manifest # A09 -03693 -053 04/21/99

Generator Site Information	Facility Information
KOPPERS TANK FOUNDATION EXCAVATION	TPS TECHNOLOGIES INC.
7540 NW ST HELENS ROAD	9333 N HARBORGATE STREET
PORTLAND, OR 97210 USA	PORTLAND, OR 97203 USA

				LBS	TONS	
0	IN --->	08:31:08am	Gross Wt:	44,480	22.24	Manual Wt
0	OUT -->	08:35:50am	Tare Wt:	23,300	11.65	Manual Wt
			NET WT:	21,180	10.59	

TRANSPORTER/DRIVER: MCDOWELL/LEO AGUILERA

Weighmaster _____

Koppers017039

Manifest

TPS Technologies Soil Recycling
Non-Hazardous Soils

↓ Manifest # ↓

Date of Shipment:	Responsible for Payment:	Transporter Truck #:	Facility #:	Given by TPS:	Load #
	Contractor	M Dowell	A09	03693	053

Generator and/or Consultant

Generator's Name and Billing Address:	Generator's Phone #:	Generator's US EPA ID No.
KOPPERS INDUSTRIES, INC /540 NW ST HELENS ROAD PORTLAND, OR 97210 USA	(503) 286-3681 Person to Contact: AMOS KAMERER FAX #: (503) 285-2831	Customer Account Number with TPS: 9KOPPER
Consultant's Name and Billing Address:	**Consultant's Phone #:**	
RM CAT ENVIRONMENTAL -- CONTRACTOR -- 12823 NE AIRPORT WAY PORTLAND, OR 97230 USA	(503) 408-8880 Person to Contact: BOB JANAK FAX #: (503) 408-8716	Customer Account Number with TPS: 1003513
Generation Site (Transport from): *(name & address)*	**Site Phone #:**	BTEX Levels
KOPPERS TANK FOUNDATION EXCAVATION /540 NW ST HELENS ROAD PORTLAND, OR 97210 USA	Person to Contact: FAX #:	TPH Levels AVG. Levels
Designated Facility (Transport to): *(name & address)*	**Facility Phone #:**	**Facility Permit Numbers**
TPST SOIL RECYCLERS OF OREGON 9333 N HARBORGATE STREET PORTLAND, OR 97203 USA	503-735-9525 Person to Contact: GLENNA MULLAN FAX #: 503-240-1712	
Transporter Name and Mailing Address:	**Transporter's Phone #:**	**Transporter's US EPA ID No.:**
	Person to Contact:	Transporter's DOT No.:
	FAX #:	Customer Account Number with TPS:

Description of Soil	Moisture Content	Contaminated by:	Approx. Qty:	Description of Delivery	Gross Weight	Tare Weight	Net Weight
Sand ☐ Organic ☐ Clay ☐ Other ☐	0 - 10% ☐ 10 - 20% ☐ 20% - over ☐	Gas ☐ Diesel ☐ Other ☐			47480	26300	21180
Sand ☐ Organic ☐ Clay ☐ Other ☐	0 - 10% ☐ 10 - 20% ☐ 20% - over ☐	Gas ☐ Diesel ☐ Other ☐				10.59	

List any exception to items listed above:

Generator's and/or consultant's certification: I/We certify that the soil referenced herein is taken entirely from those soils described in the Soil Data Sheet completed and certified by me/us for the Generation Site shown above and nothing has been added or done to such soil that would alter it in any way.

Print or Type Name: Generator ☐ Consultant ☐ — SIGNATURE ON FILE

Signature and date: Month / Day / Year

Transporter

Transporter's certification: I/We acknowledge receipt of the soil described above and certify that such soil is being delivered in exactly the same condition as when received. I/We further certify that this soil is being directly transported from the Generation Site to the Designated Facility without off-loading, adding to, subtracting from or in any way delaying delivery to such site.

Print or Type Name: X Leo Aguilera

Signature and date: X Leo Aguilera — Month / Day / Year

Recycling Facility

Discrepancies:

Recycling Facility certifies the receipt of the soil covered by this manifest except as noted above:

Print or Type Name: GLENNA MULLAN

Signature and date: Glenna Mullan 4/2/99

Please print or type.

GENERATOR/consultant's COPY

TPST SOIL RECYCLERS OF OREGON

9333 N. Harborgate Street Portland, OR 97203

OR 011882

WEIGHMASTER CERTIFICATE – LICENSE #68636

THIS IS TO CERTIFY that the following described soil commodity was weighed, measured, or counted by a weighmaster, whose signature is on this certificate, as prescribed by the Division of Measurement Standards of the Oregon Department of Agriculture.

Manifest # A09 -03693 -054 04/21/99

Generator Site Information	Facility Information
KOPPERS TANK FOUNDATION EXCAVATION	TPS TECHNOLOGIES INC.
7540 NW ST HELENS ROAD	9333 N HARBORGATE STREET
PORTLAND, OR 97210 USA	PORTLAND, OR 97203 USA

				LBS	TONS	
0	IN --->	10:40:51am	Gross Wt:	41,300	20.65	Manual Wt
0	OUT -->	10:44:06am	Tare Wt:	23,400	11.70	Manual Wt
			NET WT:	17,900	08.95	

TRANSPORTER/DRIVER: MCDOWELL/LEO AGUILERA

Weighmaster _____

Koppers017041

Manifest

TPS Technologies Soil Recycling
Non-Hazardous Soils

↓ Manifest # ↓

Date of Shipment:	Responsible for Payment:	Transporter Truck #:	Facility #:	Given by TPS:	Load #
	Contractor	McDowell	A09	03613	054

Generator and/or Consultant

Generator's Name and Billing Address: KOPPERS INDUSTRIES, INC. 7540 NW ST HELENS ROAD PORTLAND, OR 97210 USA	Generator's Phone #: (503) 286-3681 Person to Contact: AMOS KAMERER FAX #: (503) 285-2831	Generator's US EPA ID No. Customer Account Number with TPS: 9KOPPER
Consultant's Name and Billing Address: RM CAT ENVIRONMENTAL -- CONTRACTOR -- 12823 NE AIRPORT WAY PORTLAND, OR 97230 USA	Consultant's Phone #: (503) 408-8880 Person to Contact: BOB JANAF FAX #: (503) 408-8716	 Customer Account Number with TPS: 100315
Generation Site (Transport from): *(name & address)* KOPPERS TANK FOUNDATION EXCAVATION 7540 NW ST HELENS ROAD PORTLAND, OR 97210 USA	Site Phone #: Person to Contact: FAX #:	BTEX Levels TPH Levels AVG. Levels
Designated Facility (Transport to): *(name & address)* TPST SOIL RECYCLERS OF OREGON 9333 N HARBORGATE STREET PORTLAND, OR 97203 USA	Facility Phone #: 503-735-9525 Person to Contact: GLENNA MULLAN FAX #: 503-240-1712	Facility Permit Numbers
Transporter Name and Mailing Address:	Transporter's Phone #: Person to Contact: FAX #:	Transporter's US EPA ID No.: Transporter's DOT No.: Customer Account Number with TPS:

Description of Soil	Moisture Content	Contaminated by:	Approx. Qty:	Description of Delivery	Gross Weight	Tare Weight	Net Weight
Sand ☐ Organic ☐ Clay ☐ Other ☐	0 - 10% ☐ 10 - 20% ☐ 20% - over ☐	Gas ☐ Diesel ☐ Other ☐			41300	23400	17900
Sand ☐ Organic ☐ Clay ☐ Other ☐	0 - 10% ☐ 10 - 20% ☐ 20% - over ☐	Gas ☐ Diesel ☐ Other ☐				8.95	

List any exception to items listed above:

Generator's and/or consultant's certification: I/We certify that the soil referenced herein is taken entirely from those soils described in the Soil Data Sheet completed and certified by me/us for the Generation Site shown above and nothing has been added or done to such soil that would alter it in any way.

Print or Type Name:	Generator ☐	Consultant ☐	Signature and date:	Month	Day	Year
SIGNATURE ON FILE						

Transporter

Transporter's certification: I/We acknowledge receipt of the soil described above and certify that such soil is being delivered in exactly the same condition as when received. I/We further certify that this soil is being directly transported from the Generation Site to the Designated Facility without off-loading, adding to, subtracting from or in any way delaying delivery to such site.

Print or Type Name:	Signature and date:	Month	Day	Year
Leo Aguilar	Leo Aguilar			

Recycling Facility

Discrepancies:

Recycling Facility certifies the receipt of the soil covered by this manifest except as noted above:

Print or Type Name:	Signature and date:
GLENNA MULLAN	Glenna Mullan 4/21/99

Please print or type.

GENERATOR/CONSULTANT'S COPY

RMCAT
ENVIRONMENTAL SERVICES, INC.
CCB # 126132

April 20, 1999

Mr. Amos Kamerer
Koppers Industries
7540 NW St. Helens Road
Portland, Oregon 97210

Re: **Out of Scope Work – Change Order #1**
Remove Concrete Pads
Koppers Industries, Portland, Oregon

Dear Mr. Kamerer:

Harder Mechanical has requested that RMCAT Environmental (RMCAT) remove three concrete pads of various sizes and concrete tank saddle foundation at the Koppers facility. This work was not included in the original scope of work.

To remove this concrete, it will require the following:

- Excavator with operator to remove the concrete;
- Labor with jackhammer to breakup the concrete pad between building and pipe rack;
- Excavator with operator to load concrete;
- Transportation and disposal of additional concrete.

The cost to perform this work is **$ 975.00.**

Please call at (503) 408-7404 if you have any questions.

Sincerely,

Bob Janak
RMCAT Environmental

Koppers-1

Approved by _____ Date 4/21/99
Koppers Industries

cc: J. Stephenson

RMCAT
ENVIRONMENTAL SERVICES, INC.
CCB # 126132

April 20, 1999

Mr. Amos Kamerer
Koppers Industries
7540 NW St. Helens Road
Portland, Oregon 97210

Re: **Out of Scope Work – Change Order # 2**
Remove Concrete Pad
Koppers Industries, Portland, Oregon

Dear Mr. Kamerer

Harder Mechanical has requested that RMCAT Environmental (RMCAT) remove a concrete pad (10ft wide by 15ft long by 1 ½ ft thick) below the asphalt at the Hot Oil Heater Pad at the Koppers facility. This work was not included in the original scope of work.

To remove this concrete, it will require the following:

- Backhoe with a hydro hammer to break up concrete;
- Excavator with operator to remove and load the concrete;
- Excavator with operator to load concrete; and
- Transportation and disposal of additional concrete.

The cost to perform this work is **1,175.00.** This is in addition to the contract amount of $ 975.00. The new contract amount is $ 2,150.00.

Please call at (503) 408-7404 if you have any questions.

Sincerely,

Bob Janak
RMCAT Environmental

Koppers-2

Approved by _____ Date 4/21/99

Koppers Industries

cc: J. Stephenson

Providing the Finest in Environmental Service

RMCAT
ENVIRONMENTAL SERVICES, INC.
CCB # 126132

April 20, 1999

Mr. Amos Kamerer
Koppers Industries
7540 NW St. Helens Road
Portland, Oregon 97210

Re: **Out of Scope Work – Change Order # 3**
Remove Concrete Pad
Koppers Industries, Portland, Oregon

Dear Mr. Kamerer

Harder Mechanical has requested that RMCAT Environmental (RMCAT) remove a concrete pad (exact size unknown at this time) below the surface at the Hot Oil Heater Pad at the Koppers facility. A concrete septic tank was discovered below the surface at the tank foundation area. This work was not included in the original scope of work.

To remove this concrete, it will require the following:

- Excavator and Backhoe with a hydro hammer to break up concrete;
- Excavator with operator to remove and load the concrete;
- Excavator with operator to load concrete; and
- Transportation and disposal of additional concrete.

The cost to perform this work is **$2,045.00.** This is in addition to the current contract amount of $2,150.00. The new contract amount is $4,195.00.

Please call at (503) 408-7404 if you have any questions.

Sincerely,

Bob Janak
RMCAT Environmental

Koppers-3

Approved by _____ Date 4/21/99

Koppers Industries

cc: J. Stephenson

Providing the Finest in Environmental Service