2 N 2

NYD 057 722 258

New York State Department of Environmental Conservation
Division of Solid & Hazardous Materials, Region One
Building 40 - SUNY, Stony Brook, New York 11790-2356
Phone: (631) 444-0375 • **FAX:** (631) 444-0231
Website: www.dec.state.ny.us

Erin M. Crotty
Commissioner

January 22, 2003

MEMORANDUM

To: Gary Casper, 7258
From: Shaun Snee

Subject: Pride Solvents - North Babylon

I am sending you a copy of the Permit for the above referenced facility, as per your request.

Our secretary copied what was in the binder. We may have more recent closure plans, etc., in our files that have not been amended into the official permit. If there are any questions on issues of this type, let me know and I will try to resolve any inconsistencies.

657623

Kathy Murphy

New York State Department of Environmental Conservation
Division of Environmental Permits, Region One
Building 40 - SUNY, Stony Brook, New York 11790-2356
Phone: (516) 444-0365 FAX: (516) 444-0360

John P. Cahill
Commissioner

April 2, 1999

AMENDMENT TO PERMIT

RECEIVED
NYSDEC - Region 1
APR - 5 1999
Solid & Hazardous Materials

Pride Solvents and Chemical Co., Inc.
78-88 Lamar Street
West Babylon, NY 11704
Attn.: Arthur Dhom

Re: UPA No. 1-4720-00299/00007
EPA I.D. No. NYD057722258

Dear Mr. Dhom:

We have reviewed your recent request to amend the above referenced permit for your commercial hazardous waste container storage and solvent reclamation facility located at 78-88 Lamar Street, in West Babylon.

We have reviewed your request pursuant to 6NYCRR Part 621 "Uniform Procedures Regulations" and 6NYCRR Subpart 373-1 "Hazardous Waste Treatment, Storage and Disposal Facility Permitting Requirements".

You wish to replace the existing "Customer/Generator Audit" found on pages 172-177 with a new document entitled "Hazardous Waste Profile Sheet".

We find your proposed modification will not substantially change the scope of the permitted actions or the existing permit conditions, therefore, your permit is hereby amended to replace the "Customer/Generator Audit" with the "Hazardous Waste Profile Sheet".

The above referenced revised pages are included with this mailing. Please add these new pages to the existing document and discard the old pages.

This letter is an amendment to the original permit and as such, shall be available at the job site at all times.

All other terms and conditions remain as written in the original permit.

Very truly yours,

John A. Wieland
Deputy Permit Administrator

JAW:cg
enclosure: Hazardous Waste Profile Sheet

cc: Ravi Pilar w/amended pages
Katy Murphy w/amended pages
File w/amended pages

25 Years of Excellence
1970-1995

PRIDE SOLVENTS AND CHEMICAL CO. OF NY, INC.

6 Long Island Avenue • Holtsville, New York 11742 • Tel (516) 758-0200 • Fax (516) 758-0290

HAZARDOUS WASTE PROFILE SHEET

GENERATOR: _____ DATE: _____

MAILING ADDRESS: _____ PHONE #: _____

_____ FAX #: _____

EPA ID#: _____

CONTACT: _____ TITLE: _____

WASTE CHARACTERIZATION

DESCRIPTION OF WASTE: _____

PROCESS WHICH GENERATES THIS WASTE: _____

_____

CHEMICAL COMPOSITION (List all compounds present, attach all available lab results)

CONSTITUENT	MINIMUM	MAXIMUM
_____	_____	_____ %
_____	_____	_____ %
_____	_____	_____ %
_____	_____	_____ %

HAZARDOUS CHARACTERISTICS

	YES	NO
INFECTIOUS	____	____
EXPLOSIVE	____	____
REACTIVE (WATER)	____	____
REACTIVE	____	____
RADIOACTIVE	____	____
PCB	____	____
CYANIDES	____	____
PESTICIDES / HERBICIDES	____	____

METAL CONTENT (If yes enter concentration)

	YES	NO	
ARSENIC	____	____	____ PPM
CADMIUM	____	____	____ PPM
CHROMIUM IV	____	____	____ PPM
LEAD	____	____	____ PPM
MERCURY	____	____	____ PPM
NICKEL	____	____	____ PPM
SELENIUM	____	____	____ PPM
THALLIUM	____	____	____ PPM
COPPER	____	____	____ PPM
BARIUM	____	____	____ PPM
ZINC	____	____	____ PPM

CERTIFICATION

The undersigned hereby certifies that the above information is an accurate description of the nature and source of the material; The physical properties and chemical composition have fully described using all available information and all known or suspected hazards have been disclosed.

Date: _____ Name: _____ Title: _____

Signature: _____

Please retain a copy for your records.

K. Murphy

New York State Department of Environmental Conservation
Division of Environmental Permits
Building 40 - SUNY, Stony Brook, NY 11790-2356
Phone (516) 444-0365
Fax # (516) 444-0360

NYSDEC-REGION 1
RECEIVED
DEC 18 1997
SOLID & HAZARDOUS MATERIALS

John P. Cahill
Commissioner

AMENDMENT TO PERMIT

December 12, 1997

Pride Solvents and Chemicals Co., Inc.
78-88 Lamar Street
West Babylon, NY 11704
Attn: Arthur Dhom

Re: UPA No. 1-4720-00299/00002-0
EPA I.D. No. NYD057722258

Dear Mr. Dhom:

We have reviewed your recent request to amend the above referenced permit for your commercial hazardous waste container storage and solvent reclamation facility located at 78-88 Lamar Street, in West Babylon.

We have reviewed your request pursuant to 6NYCRR Part 621 "Uniform Procedures Regulations" and 6NYCRR Subpart 373-1 "Hazardous Waste Treatment, Storage and Disposal Facility Permitting Requirements".

You wish to add n-propyl bromide as a waste to be received, stored and treated at your facility.

We find your proposed modification will not substantially change the scope of the permitted actions or the existing permit conditions, so long as there is no increase in storage or throughput. Therefore, Special Condition Number 9 has been added to read:

9. The volume of non-hazardous wastes stored and/or treated at the facility will displace an equal volume of hazardous waste to be stored and/or treated.

Additionally, the following pages have been modified to incorporate the new waste into the permit and to reflect current operations at the facility.

MODULE VI - STORAGE IN CONTAINERS

Page 101 revised 6/27/97

MODULE VII - STORAGE/TREATMENT IN TANKS

Page 103 revised 6/27/97

ATTACHMENT I - WASTE ANALYSIS PLAN

Page 110
Page 112
Page 113
Page 114
Page 115
Page 130
Page 136

ATTACHMENT II - SECURITY, INSPECTION, PREPAREDNESS AND INSPECTION

Page 226
Page 227
Page 231

ATTACHMENT III - PERSONNEL TRAINING PLAN

New Training Plan Pages 241 - end

ATTACHMENT IV - CONTINGENCY PLAN

Page 260
Page 253 - Table I
Page 265 - Table II
Page 271
Page 279
Page 280 - Table IV
Page 290

ATTACHMENT VI

Page 438

ATTACHMENT VII

Page 443
Page 445
Page 455

ATTACHMENT VIII

Page 469

CERTIFICATION

Page 480

The above referenced revised pages are included with this mailing. Please add these new pages to the existing document and discard the old pages.

This letter is an amendment to the original permit and as such, shall be available at the job site at all times.

All other terms and conditions remain as written in the original permit.

Very truly yours,

Roger Evans
Deputy Regional Permit Administrator

RXE:cg
enclosure

cc: Ravi Pilar w/amended pages
Katy Murphy w/o amended pages
File w/amended pages

PRIDE SOLVENTS AND CHEMICALS CO., INC.

6 NYCRR PART 373 PERMIT

UPA No: 1-4720-0029/00002-0

EPA.I.D.No: NYD057722258

JUNE 1995

w/Revisions of 6/12/97

RESPONSIVENESS SUMMARY

PRIDE SOLVENTS & CHEMICALS
6NYCRR PART 373 PERMIT

The following comments on the draft permit public noticed on June 1, 1994 were received during the comment period:

COMMENTS RECEIVED FROM THE APPLICANT:

In his letter dated July 12, 1994, the applicant submitted the following comments:

1. APPLICANT'S COMMENT:

The Corrective Action requirements appear to have been adopted upon the mistaken belief that the solid waste treatment unit conducted by Pride within the building at 78 Lamar Street continues to release hazardous waste to the environment. Pride submits that there is no such continuing releases of hazardous waste from the solid waste treatment unit contained within the building at 78 Lamar Street.

DEC'S RESPONSE:

Fact Sheet page 7 Item F does not refer to Building 78 as erroneously commented. It refers to permitted facility (refer to sheet 1 of the draft permit). The definition of facility includes all contiguous land and structures, other appurtenances and improvements on the land..... (refer to 6NYCRR Part 370). Therefore it includes the land and other buildings inside the facility property line.

The statement that the corrective action requirements is adopted upon the mistaken belief that Pride Solvents is continuing release of hazardous waste is incorrect. Fact sheet page 7, Item F refers to "continuing releases" implying releases that are remaining in place without being decontaminated. Webster Dictionary defines "continue" apart from other things as " to remain in existence, to remain in place or condition". The description in the Fact Sheet is for release as defined in Module I, Item K(8)

II. APPLICANT'S COMMENT:

Item 2 - Pride should not be obligated to institute corrective action for:

2(a) - Release of hazardous waste, including hazardous constituents not caused by Pride and/or which occurred at any time and which originated off-site and may have migrated onto the facility and thereafter travelled off the facility.

2(b) - Drywells (1 to 13) on the basis that any contamination in that area of the property has been caused by the JFB Litho Facility at 69-71 and 75 Kean Street.

2(f)(iv) - storm water drywells numbered 1 to 13

DEC'S RESPONSE:

The following documents and related correspondence indicate releases at the site:

A. Consent Order entered into by Pride Solvent with Suffolk County Department of Health - dated June 3, 1980

   Accepting violation of Sections 1205 and 1215 of the Suffolk County Sanitary Codes and agreeing to clean up the contaminated drywell and for groundwater monitoring.

B. Letter from Mr. John H. Finkenberg, Senior Sanitarian, Department of Health Services, Suffolk County - Dated December 27, 1982

   Letter states that samples collected from storm drains west side of Pride Solvent adjacent to Waste storage showed contamination of the drywell.

Therefore it is reasonable to initiate RCRA Facility investigation (RFI) at Pride Solvents to identify the source of the contamination at the site, establish spill boundaries and initiate corrective measures if required by the findings of RFI.

APPLICANT'S COMMENT:

2(d) - The operation of the business conducted at 88 Lamar Street in connection with packaging of chemicals at any time either before or after the issuance of a 373 Permit

DEC'S RESPONSE:

88 Lamar street is a contiguous property of the facility. The definition of spill according to 370-2(b)(159) is "...the accidental leaking, pumping, emitting, emptying or dumping of hazardous wastes or materials which, when spilled become hazardous wastes, into or on any land or water". The Part A application of the permit is for both 78 and 88 Lamar Street and the same EPA I.D.Number is applicable for both the buildings".

Therefore any spills that occurred at building 88 is covered under Module III

APPLICANT'S COMMENT:

2(e) - Corrective Action beyond facility boundary

DEC'S RESPONSE:

373-2.6(l)(3) specifically states that the corrective action requirements extend beyond the facility property boundary.

APPLICANT'S COMMENT:

2(f)(i) - Underground tanks numbered 1 through 16

DEC'S RESPONSE:

On April 8-11, 1985, the Petro Tite hydrostatic tank testing method was performed on the 16 underground tanks used for storing solvents. During the test several tanks failed, indicating release of solvents to the environment.

The following chemicals were stored in these tanks:

Tank No:	Solvent Grade	Chemicals	Leak test
1	XYLOL	Dimethyl Benzene	Failed
2	VM & P	Naptha	Failed
3	LAKTANE	MIXTURE of C7-C8 (flammable solvents) - used as a lacquer diluent and in printing inks	Passed
4	VARSOL # 3	STODDARD SOLVENTS - dry cleaning solvents	Passed
5	METHANOL	Methyl Alcohol	Passed
6	TECSOL	Ethyl Alcohol	Failed
7	LOPS	Aliphatic Solvents	Passed
8	Diesel Fuel		Passed
9	Gasoline		Failed
10	LOPS	Aliphatic Solvents	Failed

Tank No:	Solvent Grade	Chemicals	Leak test
11	TOLUOL	Methyl benzene	Failed
12	ACETONE	Dimethyl Ketone	Passed
13	150 ALCOHOL	Isopropyl Alcohol	Result not available
14	MEK	Methyl Ethyl Ketone	Passed
15	VARSOL 18	Stoddard Solvents - dry cleaning solvents	Result not available
16	VARSOL 1	Stoddard Solvent - dry cleaning solvents	Result not available

APPLICANT'S RESPONSE:

2f(ii) - Waste Solvent Container Storage Area

DEC'S RESPONSE:

Prior to 1982 the Drums Storage area was not coated with an impervious coating. Therefore, there is a potential for waste solvents to migrate into the soil.

APPLICANT'S COMMENT:

2(f)(iii) - Prior Outside Drum Storage Area

DEC'S RESPONSE:

It is reasonable to conclude that when drums containing spent solvents are handled and stored in unpaved areas of a facility without protection from the elements, that there is a potential for the release of spent solvents into the environment . This requires a RCRA Facility Investigation to determine whether there has been any releases to the environment and to determine the extent of contamination. Spent Solvents were stored in drums outside the building of the facility without containment system or protection from the elements for a long period of time. These drums of spent solvents were stored in violation of Suffolk County Article XII.

III. APPLICANT'S COMMENT:

2(c) - Any alleged release of hazardous waste including hazardous constituents from

any portion of the entire facility of 78-88 Lamar Street prior to the issuance of the permit;

Item 3 - Pride objects to any condition or requirement imposing upon it, the obligation to perform any (a) RCRA Facility Assessment (RFA); (b) a RCRA Facility Investigation (RFI); and (c) any Corrective Measure (CM) unless such corrective action is required by reason of a future release of hazardous waste including hazardous constituents after the issuance of the 373 Permit;

Item 4 - Pride objects to that part of the Module III that allows the Commissioner to select the corrective measures from the corrective measures alternatives in the corrective measures study and then allows the Commissioner to institute a permit modification for the selected corrective measures which requires the owner or operator of the facility to demonstrate financial assurance for completing the approved corrective measures;

DEC'S RESPONSE:

6NYCRR Part 373-2.6(l) states specifically that this section applies to " The owner or operator of a facility seeking a permit for the treatment, storage or disposal of hazardous waste must institute corrective action as necessary to protect human health and the environment for all releases of hazardous waste or constituents from any solid waste management unit at the facility, regardless of the time the waste was placed in such unit. It is incorrect to assume that this section is not applicable to spills prior to issuance of the permit.

IV. APPLICANT'S COMMENT::

Item 5 - The Module III conditions impose an unreasonable burden on Pride with respect to pre-existing conditions and releases of hazardous waste by others for which Pride must assume the obligation to take corrective measures including demonstration of financial assurance in order to comply with the permit conditions or suffer the risk of loss of its permit and the right to operate its business. As such, the actions of the Commissioner in this regard are arbitrary and capricious or an abuse of discretion, including an abuse of discretion as to the measure or mode of penalty or disciplined impose.

DEC'S RESPONSE:

Based on the information available with the Department as listed above, the Department determined that a RCRA Facility Investigation (RFI), included in Module III of the Draft Permit, is required at Pride Solvents. The RFI will identify the source and extent of the contamination, Pride Solvent will be required to initiate Corrective Measures as

described in Module III of the Permit. The actions of the Department are not arbitrary and capricious nor an abuse of discretion, but a determination made based on information given above. Pride Solvent is required to undertake corrective action as specified in the permit [373-2.6(k)(2) and 373-2.6(l)(3)] to protect human health and the environment.

A settlement conference was held between the permittee and the Department on November 16, 1994 to resolve the issues commented above by the permittee. The Department informed the permittee that under 6 NYCRR Part 373-2.6 the permittee is obligated to conduct corrective action as described under Module III of the Permit for both on-site and if any resulting off site contamination. The permittee insisted that they are only responsible for on-site investigation and clean up and that all references to offsite clean up responsibilities be removed from the permit. The Department made it clear that it can not abdicate its right to require the permittee to clean up a release that has migrated beyond the facility boundary as stipulated under 6 NYCRR Part 373-2.6(i)(3).

THE DEPARTMENT AND THE PERMITTEE AGREED TO INCORPORATE IN THE PERMIT THE FOLLOWING SPECIAL CONDITION TO ADDRESS THIS ISSUE:

Special Condition 7:

The permittee shall undertake the following corrective action:

a. The Division of Hazardous Substances Regulation will handle all remedial activities and procedures to be conducted on-site at the facility under this permit in accordance with the requirements set forth in Module III.

b. Corrective action for off-site contamination shall be handled by the Division of Hazardous Waste Remediation who will address all remedial activities concerning off-site contamination under ECL Article 27 Title 13.

However, if the Department determines that permittee is responsible for off-site contamination and if the Department determines that negotiations have failed to result in an appropriate off-site remedial investigation and/or remediation being undertaken by the responsible parties, then the Department shall require the permittee to undertake off-site corrective action under 6NYCRR Part 373-2.6 and in accordance with requirements set forth in Module III of this permit.

COMMENTS RECEIVED FROM THE TOWN OF BABYLON:

In their letter dated July 15, 1994, the Town of Babylon submitted the following comments:

The Town of Babylon Environmental Conservation Commission, request a complete copy of the above referenced permit application of the above referenced facility located within our township, as an interested party. The Commissioner has not heretofore been advised of this permit application and has learned of it only by a review of the Environmental Notice Bulletin. We would object to the issuance of any permit prior to our review of the permit materials. We further request a hearing for the purpose of delaying any grant of the permit prior to review of these materials by the full Commission.

DEC'S'S RESPONSE:

The notice of the complete application was public noticed in a local newspaper, through a local radio station and in the Environmental News Bulletin as required under 6NYCRR Part 621.6(a)(3) and (4). Notice of complete application and copies of draft permits were sent to those who filed for party status during the public hearing conducted on May 3, 1993 to resolve the permit denial preceding initiated against the facility because of its inability to obtain the liability insurance. Since then Pride Solvents obtained the required liability insurance and the draft permit was public noticed on June 1, 1994 for final disposition of the permit. In addition copies of the draft permits were also sent to those who are in the mailing list of persons interested in the project. Since during the May 3, 1993 Hearing the Town of Babylon withdrew its filing for party status, the notice of complete application and copy of the draft permit were not mailed to them.

Based on the comment received, the Town of Babylon has been included in the mailing list as an interested party and all copies of future correspondence pertaining to the issuance of this permit will be mailed to them in the future. As requested in the comment, a copy of the draft permit public noticed on June 1, 1994 was mailed to the Town on August 17, 1994.

The Notice of Public Hearing was mailed to the Town's Clerk on April 7, 1995. A legislative public hearing was held in accordance with 6 NYCRR Part 621.7(c)(3) on May 19, 1995.

SUMMARY OF HEARING REPORT

As announced in the hearing notice, a legislative hearing was held at 10 a.m. on May 19, 1995, to receive public comments on the permit application and combined draft Part 373 and HSWA permit. The hearing was held at the law offices of Robert Del Gadio in EAB Plaza, Uniondale. No members of the public or the Town of Babylon appeared or offered oral statements at the legislative hearing. No issues were proposed by either DEC Staff or the Applicant. The issues conference was also scheduled to entertain petitions for party status by members of the interested public. No petitions were received prior to the filing deadline and no late filing were presented at

the conference itself. Subject to the Applicant's confirming the size of a settling tank (for the purpose of identifying it in the final permit) Staff is prepared to issue its draft permit as authority for the facility's continued operation.

ORDER OF DEPOSITION:

No issues having been proposed for adjudication, this matter is remanded to DEC Staff for final permit issuance.

Dennis

MAY 1995
Received
Division of
Environmental
Enforcement

STATE OF NEW YORK
DEPARTMENT OF ENVIRONMENTAL CONSERVATION
50 Wolf Road
Albany, New York 12233-1550

In the Matter

- of -

the Application of **PRIDE SOLVENTS AND CHEMICAL CO., INC.** for a permit to operate a hazardous waste management facility at 78-88 Lamar Street, West Babylon, Suffolk County

DEC Project No. 1-4720-00299/00002-0

SUMMARY HEARING REPORT

- by -

Edward Buhrmaster

Edward Buhrmaster
Administrative Law Judge

RECEIVED
MAY 26 1995
RECEIVED BY
DIVISION OF MATERIALS
HAZARDOUS WASTE

May 23, 1995

SUMMARY HEARING REPORT

Brief Project Description

Pursuant to a notice dated April 7, 1995, a public hearing was held on May 19, 1995, concerning the application of Pride Solvents and Chemical Co., Inc., for permits to operate a hazardous waste management facility at 78-88 Lamar Street, West Babylon, Suffolk County.

Pride Solvents and Chemical Co. ("the Applicant") is seeking permits for an existing facility which stores and recycles hazardous waste solvents generated by metal finishing and electronics firms as well as a variety of industries and commercial businesses. These hazardous wastes are generated off-site and are shipped and stored in 55-gallon containers at the facility before being reclaimed in the facility's distillation unit.

Permits Requested

Pursuant to Article 27, Title 9, of the Environmental Conservation Law ("ECL") and Part 373 of Title 6 of New York's Compilation of Codes, Rules and Regulations ("6 NYCRR Part 373"), the Applicant requests from the Department of Environmental Conservation ("the Department" or "DEC") a permit to operate a hazardous waste management facility. In addition, the Applicant requests from the U.S. Environmental Protection Agency ("EPA") a federal Hazardous and Solid Waste Amendments ("HSWA") permit.

Storage and recycling of hazardous waste at this facility is presently authorized under a Resource Conservation and Recovery Act ("RCRA") Part "B" permit.

Prior Proceedings

Earlier proceedings in this matter - - culminating in an Interim Decision of the Commissioner dated September 9, 1993 - - concerned the Applicant's request for a variance from the liability requirements of 6 NYCRR 373-2.8(h). A hearing on this request was averted when the Applicant secured an insurance certificate which Staff found would satisfy these requirements.

The variance request having been withdrawn, Staff then prepared and took comments on a combined draft Part 373 and HSWA permit. A permit condition addressing corrective action for off-site contamination was negotiated with the Applicant, and the matter was rescheduled for public comment and an opportunity to raise issues bearing on permit issuance.

Notice Publication

The April 7, 1995 public hearing notice was published in the Department's Environmental Notice Bulletin on April 19, 1995. On that same date it was published as a legal notice in South Bay's

Newspaper, a weekly that is circulated in the area of the facility. At the time of its release, the notice was sent to local officials, including the Town of Babylon Environmental Conservation Commission, which had previously requested (and received) a copy of the draft permit.

Legislative Hearing

As announced in the notice, a legislative hearing was held at 10 a.m. on May 19, 1995, to receive public comments on the permit application and the combined draft Part 373 and HSWA permit. The hearing was held at the law offices of Robert Del Gadio in EAB Plaza, Uniondale. Mr. Del Gadio is the Applicant's attorney.

No members of the public appeared or offered oral statements at the legislative hearing. As the Administrative Law Judge assigned to this matter, I received no written comments before or at the hearing session.

Issues Conference

Also as announced in the hearing notice, an issues conference was held immediately after the legislative hearing. Appearing at this conference on behalf of DEC Staff was Benjamin A. Conlon of the Department's Division of Environmental Enforcement. Appearing for the Applicant was David W. Denenberg, Esq., of Mr. Del Gadio's office.

The purpose of the conference was to narrow and define what issues concerning the permit application and draft permit would require adjudication. At the conference DEC Staff said that the proposed project would meet all applicable state requirements if carried out in accordance with the draft permit it had prepared. (This two-volume permit was marked as hearing exhibits 5-A and 5-B.) The Applicant indicated its agreement with all permit terms, including Special Condition No. 7, which had been the subject of negotiations. No issues were proposed by either DEC Staff or the Applicant.

The issues conference was also scheduled to entertain petitions for party status by members of the interested public. No petitions were received prior to the filing deadline and no late filings were presented at the conference itself.

Subject to the Applicant's confirming the size of a settling tank (for the purpose of identifying it in the final permit) Staff is prepared to issue its draft permit as authority for the facility's continued operation.

Order of Disposition

No issues having been proposed for adjudication, this matter is remanded to DEC Staff for final permit issuance.

TO: Benjamin A. Conlon, Esq.
Division of Environmental Enforcement
NYSDEC - Room 609
50 Wolf Road
Albany, New York 12233

David W. Denenberg, Esq.
Law Offices of Robert G. Del Gadio
EAB Plaza
Uniondale, New York 11556-0150

Pride

SOLVENTS AND CHEMICAL CO. OF N.Y., INC.

6 LONG ISLAND AVENUE • HOLTSVILLE, NEW YORK 11742
TEL. (516) 758-0200

N.Y.S. Department of Environmental Conservation
S.U.N.Y. Building 40
Stony Brook, N.Y. 11790-2356

Attention: Agnes Gara

Dear Agnes,

I am writing to you with regard to our in process settling tank which is part of our reclamation facility located at 78-88 Lamar Street, West Babylon, N.Y. I understand the maximum storage capacity of this tank was not reported to you correctly. I have investigated this personally and have determined the correct maximum storage capacity to be sixty hundred and fifty (650) gallons. The error was caused due to a miscalculation when converting square inches to gallons.

I apologize for any inconvenience that this may have caused and I ask you to please do not hesitate to call me if I can be of any further assistance.

Sincerely,

Arthur W. Dhom Jr.
President

AWD/11

Post-it™ brand fax transmittal memo 7671

To Isaac	From
Co.	
Dept.	
Fax # 485-	

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

DEC PERMIT NUMBER UPA No: 1-4720-0029[illegible]/00002-0	PERMIT Under the Environmental Conservation Law	EFFECTIVE DATE June 22, 1995
FACILITY/PROGRAM NUMBER(S) EPA ID No: NYD057722258		EXPIRATION DATE(S) June 21, 2005

TYPE OF PERMIT ■ New ☐ Renewal ☐ Modification ☐ Permit to Construct ■ Permit to Operate

- ☐ Article 15, Title 5: Protection of Waters
- ☐ Article 15, Title 15: Water Supply
- ☐ Article 15, Title 15: Water Transport
- ☐ Article 15, Title 15: Long Island Wells
- ☐ Article 15, Title 27: Wild, Scenic and Recreational Rivers
- ☐ 6NYCRR 608: Water Quality Certification
- ☐ Article 17, Titles 7, 8: SPDES
- ☐ Article 19: Air Pollution Control
- ☐ Article 23, Title 27: Mined Land Reclamation
- ☐ Article 24: Freshwater Wetlands
- ☐ Article 25: Tidal Wetlands
- ■ Article 27, Title 7; 6NYCRR 360: Solid Waste Management
- ☐ Article 27, Title 9; 6NYCRR 373: Hazardous Waste Management
- ☐ Article 34: Coastal Erosion Management
- ☐ Article 36: Floodplain Management
- ☐ Articles 1, 3, 17, 19, 27, 37; 6NYCRR 380: Radiation Control
- ☐ Other:

PERMIT ISSUED TO Pride Solvents and Chemicals Co., Inc.			TELEPHONE NUMBER (516) 643-480[illegible] not in service
ADDRESS OF PERMITTEE 78-88 Lamar Street West Babylon, New York 11704			
CONTACT PERSON FOR PERMITTED WORK Mr. Arthur Dhom			TELEPHONE NUMBER (516) 643-480[illegible] not in service
NAME AND ADDRESS OF PROJECT/FACILITY Pride Solvents & Chemicals Co., Inc. 78-88 Lamar Street			
LOCATION OF PROJECT/FACILITY West Babylon, NY 11704			
COUNTY Suffolk	TOWN West Babylon	WATERCOURSE N/A	NYTM COORDINATES

DESCRIPTION OF AUTHORIZED ACTIVITY

Operation of a commercial hazardous waste container storage and solvent reclamation facility. The total storage capacity is 19,800 gallons (360 fifty five gallon drums) of halogenated used solvents received from off-site (F001 & F002) screenings, sludge and still bottoms generated during on-site reclamation (F001 & F002) in an indoor container storage area. The reclamation of used solvents is carried out in (1) one settling tank (650 gallons; (2) one distillation tank (600 gallons); (3) three distillate storage tanks (total storage capacity 2775 gallons). The maximum hourly rate of the distillation unit is 150 gallons.

By acceptance of this permit, the permittee agrees that the permit is contingent upon strict compliance with the ECL, all applicable regulations, the General Conditions specified (see page 2) and any Special Conditions included as part of this permit.

PERMIT ADMINISTRATOR: Roger Evans	ADDRESS Bldg. 40, SUNY, Room 219, Stony Brook, NY 11790-2356		
AUTHORIZED SIGNATURE Roger Evans		DATE June 22, 1995	Page 1 of 480

GENERAL CONDITIONS

Inspections

1. The permitted site or facility, including relevant records, is subject to inspection at reasonable hours and intervals by an authorized representative of the Department of Environmental Conservation (the Department) to determine whether the permittee is complying with this permit and the ECL. Such representative may order the work suspended pursuant to ECL 71-0301 and SAPA 401(3). A copy of this permit, including all referenced maps, drawings and special conditions, must be available for inspection by the Department at all times at the project site. Failure to produce a copy of the permit upon request by a Department representative is a violation of this permit.

Permit Changes and Renewals

2. The Department reserves the right to modify, suspend or revoke this permit when:
   a) the scope of the permitted activity is exceeded or a violation of any condition of the permit or provisions of the ECL and pertinent regulations is found;
   b) the permit was obtained by misrepresentation or failure to disclose relevant facts;
   c) new material information is discovered; or
   d) environmental conditions, relevant technology, or applicable law or regulation have materially changed since the permit was issued.

3. The permittee must submit a separate written application to the Department for renewal, modification or transfer of this permit. Such application must include any forms, fees or supplemental information the Department requires. Any renewal, modification or transfer granted by the Department must be in writing.

4. The permittee must submit a renewal application at least:
   a) 180 days before expiration of permits for State Pollutant Discharge Elimination System (SPDES), Hazardous Waste Management Facilities (HWMF), major Air Pollution Control (APC) and Solid Waste Management Facilities (SWMF); and
   b) 30 days before expiration of all other permit types.

5. Unless expressly provided for by the Department, issuance of this permit does not modify, supersede or rescind any order or determination previously issued by the Department or any of the terms, conditions or requirements contained in such order or determination.

Other Legal Obligations of Permittee

6. The permittee has accepted expressly, by the execution of the application, the full legal responsibility for all damages, direct or indirect, of whatever nature and by whomever suffered, arising out of the project described in this permit and has agreed to indemnify and save harmless the State from suits, actions, damages and costs of every name and description resulting from this project.

7. This permit does not convey to the permittee any right to trespass upon the lands or interfere with the riparian rights of others in order to perform the permitted work nor does it authorize the impairment of any rights, title, or interest in real or personal property held or vested in a person not a party to the permit.

8. The permittee is responsible for obtaining any other permits, approvals, lands, easements and rights-of-way that may be required for this project.

ADDITIONAL GENERAL CONDITIONS FOR ARTICLE 27 (Title 9 - 6NYCRR Part 373 Hazardous Waste Management Permit)

9. All activities authorized by this permit must be in strict conformance with the approved plans submitted by the applicant or his agent as part of the permit application.
Such approved plans were prepared by See Special Condition item 1 on _____.

SPECIAL CONDITIONS

1. The permit is based on the information submitted in the permit application attached to the permittee's letter dated January 27, 1986 and as modified by subsequent amendments dated May 15, 1986 through December 1993. The permit is based on the assumption that the information submitted by the permittee in the above documents are complete and accurate and that the facility will be operated as specified in the above application and as modified. Any inaccuracies or incompleteness found in the information may be grounds for the termination or modification of this permit and potential enforcement action.

2. The Permittee must comply with all terms and conditions of this permit. This permit consists of the conditions contained herein (including those in any attachments) and the applicable regulations contained in 6NYCRR (Parts 370 through 373-2 , 376 and 621 and 624). The Permittee must inform DEC of any deviation from or changes in the information contained in the application which would affect the Permittee's ability to comply with the regulations or permit conditions.

3. The Permittee is responsible to verify that the Quality Control/ Assurance Program (QA/QC) used by laboratories contracted by the Permittee to carry out analysis of the waste streams conform to the QA/QC procedures approved in this permit and thus ensure the validity of the analytical data provided by these contract laboratories.

4. Only laboratories which are certified by the New York State Department of Health Environmental Approval Program must be used for conducting analysis required by this permit.

5. If any other containerized liquids including hazardous substances and any TCLP wastes not regulated by this permit are to be stored in the hazardous waste storage areas permitted by this permit, then the total volume of all containerized liquids and hazardous wastes must not exceed the authorized storage volume of the permitted storage areas.

6. Storage of hazardous substances, if any, in storage areas permitted by this permit must be in clearly marked designated areas separated from the storage areas of hazardous waste.

SPECIAL CONDITIONS

For Article 27 (Title 9 - 6NYCRR Part 373 Hazardous Waste Management Permit

7. The permittee shall undertake the following corrective action:

a. The Division of Hazardous Substances Regulation will handle all remedial activities and procedures to be conducted on-site at the facility under this permit in accordance with the requirements set forth in Module III.

b. Corrective action for off-site contamination shall be handled by the Division of Hazardous Waste Remediation who will address all remedial activities concerning off-site contamination under ECL Article 27 Title 13.

However, if the Department determines that permittee is responsible for off-site contamination and if the Department determines that negotiations have failed to result in an appropriate off-site remedial investigation and/or remediation being undertaken by the responsible parties, then the Department shall require the permittee to undertake off-site corrective action under 6NYCRR Part 373-2.6 and in accordance with requirements set forth in Module III of this permit.

8. The Permittee must operate the facility in strict accordance with modules and attachments to this permit as specified below:

Module I	Standard Conditions
Module II	General Facility Conditions
Module III	Corrective Action Requirements
Module IV	Waste Minimization Requirements
Module V	Land Disposal Restrictions
Module VI	Storage in Containers
Module VII	Storage in Tanks
Attachment I	Waste Analysis Plan
Attachment II	Security,Inspection,preparedness and prevention
Attachment III	Personnel Training
Attachment IV	Contingency Plan
Attachment V	Closure Plan
Attachment VI	Management of Waste in Containers
Attachment VII	Management of Waste in Tanks
Attachment VIII	Location and Engineering Drawings

MODULE I - STANDARD CONDITIONS

A. EFFECT OF PERMIT

The Permittee must comply with all terms and conditions of this permit. This permit consists of the conditions contained herein (including those in any attachments) and the applicable regulations contained in 6 NYCRR Parts 370 through 374, 376, 621 and 624. Applicable regulations are those which are in effect on the date of issuance of this permit.

The Permittee is allowed to reclaim hazardous waste solvents and store them in accordance with the conditions of this permit. Any storage, treatment, or disposal of hazardous waste not authorized in this permit is prohibited unless exempt from 6 NYCRR Part 373. Issuance of this permit does not convey property rights of any sort or any exclusive privilege; nor does it authorize any injury to persons or property, any invasion of other private rights, or any infringement of Federal, State or local laws or regulations. Compliance with the terms of this permit does not constitute a defense to any other law providing for protection of public health or the environment.

B. PERMIT ACTIONS

This permit may be modified, revoked, or suspended for cause as specified in 6 NYCRR 621.14. The filing of a request for a permit modification, revocation and reissuance, or suspension; or the notification of planned changes or anticipated noncompliance on the part of the Permittee does not stay the applicability or enforceability of any permit condition.

C. SEVERABILITY

The provisions of this permit are severable, and if any provision of this permit, or the application of any provision of this permit to any circumstance is held invalid, the application of such provision to other circumstances and the remainder of this permit shall not be affected thereby.

D. DUTIES AND REQUIREMENTS

(1) Duty to Comply. The Permittee shall comply with all conditions of this permit. Any permit noncompliance constitutes a violation of the ECL Article 27, Title 9 and is grounds for enforcement action; permit suspension, revocation, or modification; or denial of a permit renewal application.

(2) Duty to Reapply. If the Permittee wishes to continue an activity allowed by this permit after the expiration date of this Permit, the permittee shall submit a complete application for a new permit at least 180 days before this permit expires and shall obtain a new permit.

(3) Need to Halt or Reduce Activity Not a Defense. It shall not be a defense for the Permittee in an enforcement action that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with the conditions of this permit.

(4) Duty to Mitigate. The Permittee shall take all steps to minimize or correct any adverse impact on human health or the environment resulting from noncompliance with this permit.

(5) Proper Operation and Maintenance. The Permittee shall at all times properly operate and maintain all facilities and systems of treatment and control (and related appurtenances) which are installed or used by the Permittee to achieve compliance with the conditions of this permit. Proper operation and maintenance includes, but is not limited to, effective performance, adequate funding, adequate operator staffing and training, and adequate process and laboratory controls, including appropriate quality assurance/quality control procedures. This provision requires the operation of back-up or auxiliary facilities or similar systems only when necessary to achieve compliance with the conditions of this permit.

(6) Inspection and Entry. The Permittee shall allow the Commissioner, or an authorized representative, including authorized EPA representatives, upon the presentation of

credentials and other documents as may be required by law to:

(a) Enter at reasonable times upon the Permittee's premises where a regulated activity is located or conducted or areas subject to corrective action pursuant to Module III of this permit, or where records must be kept under the conditions of this permit;

(b) Have access to and copy, at reasonable times, any records that must be kept under the conditions of this permit, including any and all confidential data;

(c) Inspect at reasonable times any facilities, equipment (including monitoring and control equipment), practices, or operations regulated or required under this permit; and

(d) Sample or monitor, at reasonable times, for the purposes of assuring permit compliance or as otherwise authorized by the ECL, any substances or parameters at any location.

(7) Duty to Provide Information. The Permittee shall furnish to the Commissioner, within a reasonable time, any relevant information which the Commissioner may request to determine whether cause exists for modifying, revoking and reissuing, or suspending this permit, or to determine compliance with this permit. The Permittee shall also furnish to the Commissioner, upon request, copies of records required to be kept by this permit.

(8) Twenty-four Hour Reporting. The Permittee shall report to the Commissioner any non-compliance which may endanger human health or the environment. Any such information shall be reported orally within 24 hours from the time the Permittee becomes aware of the circumstances. This report shall include the following:

(a) Information concerning the release of any hazardous waste or constituent which may cause endangerment to public drinking water supplies.

(b) Any information of a release or discharge of hazardous waste or of a fire or explosion at the facility, which could threaten the environment or human health.

(c) (i) Name, address, and telephone number of the operator;

(ii) Name, address, and telephone number of the facility;

(iii) Date, time, and type of incident;

(iv) Name and quantity of materials involved;

(v) The extent of injuries, if any;

(vi) An assessment of actual or potential hazard to the environment and human health inside and outside the facility, where this is applicable; and

(vii) Estimated quantity and disposition of recovered material that resulted from the incident.

A written submission shall also be provided to the Commissioner within five days of the time the Permittee becomes aware of the circumstances. The written submission shall contain a description of the noncompliance and its cause; the periods of noncompliance (including exact dates and times); whether the noncompliance has been corrected; and if not, the anticipated time it is expected to continue; and steps taken or planned to reduce, eliminate, and prevent recurrence of the noncompliance (See Permit Condition D(4) of Module I). The Permittee need not comply with the five day written notice requirement if the Commissioner waives the requirement and the permittee submits a written report within 15 days of the time the permittee becomes aware of the circumstances.

The oral reports required above may be made by contacting the National Response Center 24-hour toll free number at (800) 424-8802 and the New York State 24-hour oil and hazardous material spill notification number,(800) 457-7362, or any designated telephone number which may subsequently replace the ones listed above.

(9) Unmanifested Waste Report. A report must be submitted to the Commissioner within 2 days of receipt of unmanifested waste and include the information listed in 6 NYCRR 372.4(c).

(10) Manifest Discrepancy Report. If a significant discrepancy (as defined by 6 NYCRR Part 372.4(b)(1)) in a manifest is discovered, the Permittee must attempt to reconcile the discrepancy. If not resolved within 15 days, the Permittee must submit a written report to the Commissioner. The report must include a copy of the manifest and must meet the information requirements of 6 NYCRR Part 372.4(b)(5).

(11) Additional Noncompliance Reporting. The Permittee shall report all instances of noncompliance (including release of hazardous waste, fire or explosion) not required to be reported under Module I, Condition D.(8) or (17). Such noncompliance shall be reported at the time monitoring reports are submitted. The reports shall contain the information listed in Module I, Condition D. (8)(c)(i-vii).

(12) Anticipated Noncompliance. The Permittee shall give advance notice to the Commissioner of any planned changes in the permitted facility or activity which may result in noncompliance with permit requirements. Compliance with Permit Condition D(3) of Module I is still effective in this situation.

(13) Other Information. Whenever the Permittee becomes aware that he failed to submit any relevant facts in the permit application, or submitted incorrect information in a permit application or in any report to the Commissioner, the Permittee shall immediately submit such facts or information.

(14) Compliance Schedules. The Permittee must comply with the compliance schedules in this permit. Reports of

compliance or noncompliance with, or any progress reports on, interim and final requirements (other than submission of specific documents) shall be submitted no later than 14 days following each schedule date.

(15) Annual Report. The Permittee shall submit an annual report covering facility activities during the calendar year in accordance with the requirements of 6 NYCRR 373-2.5(e).

(16) Monitoring and Records.

(a) Samples and measurements taken for the purpose of monitoring shall be representative of the monitored activity. The methods used to obtain a representative sample of the waste to be analyzed must be the appropriate method from Appendix 19 and Appendix 35 of 6 NYCRR Part 371 and 376 respectively or an equivalent method approved by the Commissioner. Laboratory Methods must be those specified in Test Methods for Evaluating Solid Waste: Physical & Chemical Methods, EPA Publication SW-846, Third Edition, First Update 1990 or later approved revisions, or an equivalent method, as specified in the Waste Analysis Plan (see Attachment I).

(b) The Permittee shall retain records of all monitoring information, including all calibration and maintenance records and all original chart recordings for continuous monitoring instrumentation, copies of all reports and records required by this permit, certification required by 6 NYCRR Part 373-2.5(c)(2)(ix), and records of all data used to complete the application for this permit until closure certification of the facility is approved by DEC. For land disposal facilities, the monitoring data required under 6 NYCRR Part 373-2.6 must be kept throughout the post-closure care period. (See also Module II, Condition L.2).

(c) Records of monitoring information shall specify:

(i) The dates, exact place, and times of sampling or measurements;

(ii) The individuals who performed the sampling or measurements;

(iii) The dates analyses were performed;

(iv) The individual(s) who performed the analyses;

(v) The sampling techniques or methods used;

(vi) The analytical techniques or methods used; and

(vii) The results of such analyses.

(d) The Permittee shall conduct a quality assurance program to ensure that the monitoring data are technically accurate and statistically valid. The quality assurance program shall be in accordance with Chapter One and applicable subsections of Test Methods for Evaluating Solid Waste: Physical/ Chemical Methods, EPA Publication SW-846, Third Edition, First Update, 1990 or later approved revisions, or equivalent methods approved by the Department.

(17) Monitoring Reports. Monitoring results must be reported at the intervals specified elsewhere in this permit.

(18) Reporting Planned Changes. The Permittee shall give notice to the Commissioner as soon as possible of any planned physical alterations or additions to the permitted facility. See Module I Condition I.

(19) Certification of Construction or Modification.

Not Applicable

(20) Transfer of Permits. This permit may be transferred to a new owner or operator only if it is modified or revoked and reissued pursuant to 6 NYCRR 373-1.6(a)(12)(iii) and 6 NYCRR 373-1.7(a). Before transferring ownership or operation of the facility during its operating life, the Permittee shall notify the new owner or operator in writing of the requirements of 6 NYCRR Part 373.

E. SIGNATORY REQUIREMENT

All reports or other information requested by the Commissioner shall be signed and certified as required by 6 NYCRR 373-1.4(a)(5).

F. CONFIDENTIAL INFORMATION

The permittee may claim confidential any information required

to be submitted by this permit in accordance with 6 NYCRR 370.1(b). All documentation which the Permittee believes justifies its claim of confidentiality must be submitted in accordance with 6 NYCRR Part 616 with any such claim of confidentiality.

G. DOCUMENTS TO BE SUBMITTED PRIOR TO OPERATION

Not Applicable

H. DOCUMENTS TO BE MAINTAINED AT THE FACILITY

The Permittee shall maintain at the facility, until closure is completed and certified by an independent registered professional engineer, a copy of this permit and the following documents, amendments, revisions and modifications to these documents:

(1) Waste Analysis Plan as required by 6 NYCRR 373-2.2(e);

(2) Personnel training documents and records as required by 6 NYCRR 373-2.2(h)(4);

(3) Contingency plan as required by 6 NYCRR 373-2.4(d);

(4) Closure plan as required by 6 NYCRR 373-2.7(c);

(5) Annually adjusted cost estimate for facility closure as required by 6 NYCRR 373-2.8(c);

(6) Operating record as required by 6 NYCRR 373-2.5(c);

(7) Inspection schedules as required by 6 NYCRR 373-2.2(g)(2);

(8) Assessment of existing tank systems integrity as required by 6 NYCRR 373-2.10(b); and

I. PERMIT MODIFICATIONS

The permit may be modified for cause as allowed under 6 NYCRR 373-1.7 and 621.14. Modifications shall be requested in writing as required by 6 NYCRR 621.13 and 621.14. Requests for modifications shall be submitted to the Regional Permit Administrator for approval and permit modification.

J. ALL REPORTS AND SUBMITTALS

(1) (a) All reports and submittals required by Module III, Corrective Action Requirements to be submitted to the Commissioner shall be sent to the following addressees:

- New York State Department of Environmental Conservation
  50 Wolf Road
  Albany, New York 12233-7252

Attention: Chief, Bureau of Eastern Hazardous Waste Programs
Division of Hazardous Substances Regulation

- New York State Department of Environmental Conservation

  Region 1

  NYSDEC, Building 40, SUNY at Stony Brook,
  Stony Brook NY 11794

Attention: Regional Hazardous Substances Engineer

(b) All reports and submittals required by Module IV, Waste Minimization Requirements to be submitted to the Commissioner shall be sent to the following addressee:

Three (3) copies to:

- New York State Department of Environmental Conservation
  50 Wolf Road
  Albany, New York 12233-7252

Attention: Chief, Bureau of Eastern Hazardous Waste Programs
Division of Hazardous Substances Regulation

One copy to:

- New York State Department of Environmental Conservation

  Region 1

  NYSDEC, Building 40, SUNY at Stony Brook
  Stony Brook, NY 11794

Attention: Regional Hazardous Substances Engineer

(c) All other reports and submittals required by the permit to be submitted to the Commissioner shall be sent to the following addressees:

- New York State Department of Environmental Conservation
  50 Wolf Road

Albany, New York 12233-7252

Attention: Chief, Bureau of Eastern Hazardous Waste Programs
Division of Hazardous Substances Regulation

- New York State Department of Environmental Conservation

  Region 1

  NYSDEC, Building 40, SUNY at Stony Brook
  Stony Brook NY 11794

Attention: Regional Hazardous Substances Engineer

(2) All plans, reports, and schedules required by the terms of this Permit are, upon approval by the Department, incorporated by reference into this Permit. Upon incorporation, the provisions of each such document shall be binding upon Permittee and have the same legal force and effect as the requirements of this Permit.

(3) Permittee shall submit plans and reports required by this Permit to the Department for review and comment. If the Department determines that any plan or report required by this Permit is deficient (in whole or in part), Permittee shall either promptly respond to the comments or make revisions to the submission consistent with the Department's comments. Within a reasonable time frame specified by the Department, a final plan or report shall be submitted to the Department for approval. Extensions of the due date for submittals may be granted by the Department based on the Permittee's documentation that sufficient justification for the extensions exists.

K. DEFINITIONS

For the purpose of this permit, terms used herein shall have the same meaning as those in 6 NYCRR 370 through 374 and 376, unless this permit specifically states otherwise. Where terms are not otherwise defined, the meaning associated with such terms shall be as defined by a standard dictionary reference or the generally accepted scientific or industrial meaning of the term.

(1) Action Levels. For purposes of this Permit action levels are hazardous constituent concentrations that are protective of human health or the environment. Where available, action levels are based on appropriate promulgated standards established for a specific environmental medium. When such promulgated standards

are not available, action levels are media specific, hazardous constituent concentrations derived from non-promulgated human health-based levels or environmental health-based levels. The latter levels being protective of aquatic life or wildlife. An action level may be set at the background level for a hazardous constituent for which data are inadequate to set a human health or environmental health-based level.

(2) Areas of Concern (AOC). Pursuant to the authority granted by 6 NYCRR 373-1.6(c)(2), an area of concern has been defined for purposes of this Permit to mean an area at the facility, or an off-site area, which is not at this time known to be a solid waste management unit

(SWMU), where hazardous waste and/or hazardous constituents are present, or are suspected to be present as a result of a release from the facility. The term shall include areas of potential or suspected contamination as well as actual contamination. Such area(s) may require study and a determination of what, if any, Corrective Action may be necessary. All permit references to and conditions for SWMUs shall apply to areas of concern.

(3) Commissioner. For purposes of this Permit "Commissioner" shall mean the Commissioner of the New York State Department of Environmental Conservation (Department), his designee or authorized representative.

(4) Environment. Pursuant to ECL Article 27, Title 9, Section 27.0901, environment means any water, water vapor, any land including land surface or subsurface, air, fish, wildlife, biota and all the natural resources.

(5) Facility. All contiguous land, structures, other appurtenances, and improvements on the land used for treating, storing, or disposing of hazardous waste. A facility may consist of several treatment, storage, or disposal operation units (e.g., one or more landfills, surface impoundments or combination of them). For the purpose of implementing corrective action, "facility" means all contiguous property under the control of the owner or operator seeking a
6 NYCRR Part 373 permit.

(6) Hazardous Constituents. Those constituents listed in Appendix 23 to 6 NYCRR 371 or any constituent listed in

(7) Hazardous Waste. Pursuant to ECL Article 27, Title 9, Section 27.0901, hazardous waste means a solid waste, or combination of solid wastes, which because of its quantity, concentration, or physical, chemical, or infectious characteristics may: cause, or significantly contribute to, an increase in mortality or an increase in serious irreversible, or incapacitating reversible, illness; or pose a substantial present or potential hazard to human health or the environment when improperly treated, stored, transported, or disposed of, or otherwise managed.

(8) Release. For purposes of this Permit release includes, but is not limited to, any spilling, leaking, pumping, pouring, emitting, emptying, discharging, injecting, escaping, leaching, dumping or disposing into the environment of any hazardous waste, including hazardous constituents, unless expressly authorized under the terms of this Permit or otherwise permitted under law (e.g., SPDES permitted discharges).

(9) Solid Waste Management Unit (SWMU). For purposes of this permit includes any discernible waste management unit at which solid wastes have been placed at any time, irrespective of whether the unit was intended for the management of hazardous or solid wastes as those terms are defined in 6 NYCRR Part 371 and 6 NYCRR Part 373-2. These units include, but are not limited to: landfills, surface impoundments, waste piles, land treatment units, tanks, elementary neutralization units, transfer stations, container storage areas, incinerators, injection wells, recycling units, and closed and abandoned units. Certain areas associated with production processes which have become contaminated as a result of routine and systematic releases of wastes or hazardous constituents from wastes, are also considered SWMU's.

MODULE II - GENERAL FACILITY CONDITIONS

A. DESIGN AND OPERATION OF FACILITY

The Permittee shall maintain and operate the facility to minimize the possibility of a fire, explosion, or any unplanned sudden or non-sudden release of hazardous waste or hazardous waste constituents to air, soil, or surface water.

The Permittee is authorized to reclaim and store only the hazardous wastes identified in Attachment I - Waste Analysis Plan and referred in Module VI, Condition A, and Module VII, Condition A. Acceptance of hazardous waste other than this is prohibited without prior approval from the Commissioner in the form of a permit which authorizes such activity.

B. REQUIRED NOTICES

(1) The Permittee shall notify the Commissioner in writing at least four weeks in advance of the date the Permittee expects to receive hazardous waste from a foreign source, as required by 6NYCRR 372.5(1). Notice of subsequent shipments of the same waste from the same source is not required.

(2) When the Permittee is to receive hazardous waste from an off-site source, (except when the generator is a subsidiary of a Permittee's parent company) he must inform the generator in writing that he has the appropriate permits for, and will accept, the waste the generator is shipping. The Permittee shall keep a copy of this written notice as part of the operating record [6NYCRR 373-2.2(d)(2)].

C. GENERAL WASTE ANALYSIS

Except as specifically provided otherwise in Module III of this permit, the Permittee shall comply with 373-2.2(e), follow the procedures described in the waste analysis plan, Attachment I, and conduct a quality assurance program as specified in Module I, Condition D.(16)(d).

The Permittee shall verify its waste analysis as part of the quality assurance program. The quality assurance program will be in accordance with current EPA practices (Test Methods for Evaluating Solid Waste: Physical/Chemical Methods SW-846, Third Edition, First Update 1990 or later approved revisions) or equivalent methods approved by the Department, and ensure that the Permittee maintains proper functional instruments, uses approved sampling and analytical methods, as specified in 6NYCRR Part 371, Appendices 19, 20 and 21, and 6 NYCRR Part 376 Appendix 35, assures the validity of sampling and analytical procedures and performs correct calculations. As required by ECL Article 3-0119, any laboratory (permittee or contract laboratory) used by the Permittee to perform analysis pursuant to this permit must be

certified by the New York State Department of Health Environmental Laboratory Approval Program (ELAP) in the appropriate categories of analysis, if ELAP issues certifications in such categories. If the Permittee uses a contract laboratory to perform analysis required by this permit, then the Permittee shall inform the laboratory in writing that it must operate under the waste analysis conditions set forth in this permit.

D. SECURITY

The Permittee shall comply with the security provisions of 6NYCRR 373-2.2(f) and Attachment II.

E. GENERAL INSPECTION REQUIREMENTS

The Permittee shall comply with 373-2.2(g) and follow the inspection schedule, Attachment II. The Permittee shall remedy any deterioration or malfunction discovered by an inspection as required by 6NYCRR 373-2.2(g)(3). Records of inspections shall be kept as required by 6NYCRR 373-2.2(g)(4).

F. PERSONNEL TRAINING

The Permittee shall conduct personnel training as required by 6NYCRR 373-2.2(h)(1), (2), and (3). This training program shall follow the attached outline, Attachment III. The Permittee shall maintain training documents and records as required by 6NYCRR 373-2.2(h)(4) and (5).

G. GENERAL REQUIREMENTS FOR IGNITABLE, REACTIVE, OR INCOMPATIBLE WASTE

Not Applicable

H. LOCATION STANDARDS

Not Applicable

I. PREPAREDNESS AND PREVENTION

(1) Required Equipment. At a minimum, the Permittee shall equip the facility with the equipment set forth in the contingency plan, Attachment IV and as required by 6NYCRR 373-2.3(c).

(2) Testing and Maintenance of Equipment. The Permittee shall test and maintain the equipment specified in the above permit condition as necessary to assure its proper operation in time of emergency, as set forth in the Inspection Schedule (Attachment II) and as required by 6NYCRR 373-2.3(d).

(3) Access to Communications or Alarm System. The Permittee shall maintain access to the communications or alarm system as required by 6NYCRR 373-2.3(e), and in accordance with Attachment IV.

(4) Required Aisle Space. At a minimum, the Permittee shall maintain a two and half feet of aisle space between each row of pallets and from the wall, to allow the unobstructed movement of personnel, fire protection equipment, spill control equipment, and decontamination equipment to any area of the facility in an emergency as required by 6NYCRR 373-2.3(f) and to provide access for inspections as required by 6NYCRR 373-2.9(e).

(5) Arrangements with Local Authorities. The Permittee shall attempt to make arrangements with State and local authorities as required by 6NYCRR 373-2.3(g). If State or local officials refuse to enter into preparedness and prevention arrangements with the Permittee, the Permittee must document this refusal in the operating record, and a copy of all correspondence sent to State and local authorities while attempting to meet this requirement should be included in the operating record.

J. CONTINGENCY PLAN

(1) Implementation of Plan. The Permittee shall comply with 6NYCRR 373-2.4 and follow the contingency plan, Attachment IV. The Permittee shall immediately carry out the provisions of the contingency plan, Attachment IV, and follow the emergency procedures described by 6NYCRR 373-2.4(g) whenever there is a fire, explosion, or release of hazardous waste or constituents.

(2) After any event requiring implementation of the contingency plan, the Permittee shall not resume hazardous waste management in the affected area until all equipment used during the contingency has been cleaned, recharged or replaced, as appropriate.

(3) Copies of Plan. The Permittee shall comply with the requirements of 6NYCRR 373-2.4(d).

(4) Amendments to Plan. The Permittee shall review and immediately amend, if necessary, the contingency plan as required by 6NYCRR 373-2.4(e).

(5) Emergency Coordinator. The Permittee shall comply with the requirements of 6NYCRR 373-2.4(f) concerning the emergency coordinator.

K. MANIFEST SYSTEM

The Permittee shall comply with the manifest requirements of 6NYCRR Part 372.

L. RECORDKEEPING AND REPORTING

(1) Operating Record. The Permittee shall maintain a written operating record at the facility in accordance with the applicable portions of 6NYCRR 373-2.5(c).

(2) Availability, Retention, and Disposition of Records. All records, including plans, must be made available to the DEC in accordance with 6NYCRR 373-2.5(d)(1). The retention period for all records is extended automatically during any unresolved enforcement action regarding the facility or as requested by the Commissioner. A copy of records of waste disposal locations and quantities under 6NYCRR 373-2.5(c)(2) must be submitted to the Commissioner and local land authority upon closure of the facility as required by 6NYCRR 373-2.5(d)(3). See Module I, Condition D.16(b).

(3) Annual Report. See Permit Condition D(15) of Module I.

M. CLOSURE

(1) Performance Standard. The Permittee shall close the facility as required by 6NYCRR 373-2.7(b) and in accordance with the closure plan, Attachment V.

(2) Amendment to Closure Plan. The Permittee shall amend the closure plan whenever necessary in accordance with 6NYCRR 373-2.7(c)(3).

(3) Notification of Closure and Partial Closure. The Permittee shall notify the Commissioner at least 60 days prior to the date he expects to begin closure or partial closure of any hazardous waste management unit or facility, as required by 6NYCRR 373-2.7(c)(4)(i).

(4) Time Allowed for Closure. Within 90 days after receiving the final volume of hazardous waste, the Permittee shall treat or remove from the site all hazardous waste and shall complete closure activities in accordance with 6NYCRR 373-2.7(d) and the schedule specified in the closure plan, Attachment V.

(5) Disposal or Decontamination of Equipment, Structures and Soils. During the partial and final closure periods, all contaminated equipment, structures, and soils must be properly disposed of or decontaminated unless otherwise specified in 6NYCRR 2.10(h), 2.11(f), 373-

2.12(h), 373-2.13(h), or 373-2.14(g). By removing any hazardous waste or hazardous constituents during partial and final closure, the Permittee may become a generator of hazardous waste and must handle that waste in accordance with all applicable requirements of 6NYCRR Part 372.

(6) Certification of Closure and Partial Closure. Within 60 days of completion of final closure of the facility or within 60 days of partial closure of any hazardous waste management unit, the Permittee shall submit to the Commissioner certifications by the Permittee and by an independent New York State registered professional engineer that the facility (or the hazardous waste management unit) has been closed in accordance with the specifications in the approved closure plan as required by 6NYCRR 373-2.7(f).

N. GENERAL POST-CLOSURE REQUIREMENTS

Not Applicable

O. COST ESTIMATE FOR FACILITY CLOSURE

The Permittee's most recent closure cost estimate, prepared in accordance with 6NYCRR 373-2.8(c)(1) and specified in Attachments V.

(1) The Permittee must adjust the closure cost estimate for inflation within 60 days prior to each anniversary of the date on which the initial financial instruments were established, as required by 6NYCRR 373-2.8(c)(2).

(2) The Permittee must revise the closure cost estimate whenever there is a change in the facility's closure plans as required by 6NYCRR 373-2.8(c)(3).

(3) The Permittee must keep at the facility the latest closure cost estimate as required by 6NYCRR 373-2.8(c)(4).

P. FINANCIAL ASSURANCE FOR FACILITY CLOSURE

The Permittee shall demonstrate continuous compliance with 6NYCRR 373-2.8(d) or, when applicable, with 6NYCRR 373-2.8(f) or (g) by providing documentation of financial assurance to the Commissioner, in accordance with the wording in 6NYCRR 373-2.8(j), in at least the amount of the cost estimates required by Module II, Condition O. Changes in financial assurance mechanisms must be approved by the Commissioner pursuant to 6NYCRR 373-2.8(d).

Q. LIABILITY REQUIREMENTS

The Permittee shall demonstrate continuous compliance with the requirements of 6NYCRR 373-2.8(h) and the documentation requirements of 6NYCRR 373-2.8(j), including requirements to have and maintain liability coverage for sudden and accidental occurrences in the amount of at least $1 million per occurrence with an annual aggregate of at least $2 million, exclusive of legal defense costs, by providing documentation of the liability mechanisms to the Commissioner.

R. INCAPACITY OF OWNERS OR OPERATORS, GUARANTORS, OR FINANCIAL INSTITUTIONS

The Permittee shall comply with 6NYCRR 373-2.8(i) whenever necessary.

MODULE III - CORRECTIVE ACTION REQUIREMENTS FOR SOLID WASTE MANAGEMENT UNITS AND AREAS OF CONCERN
PRIDE SOLVENTS & CHEMICALS

A. APPLICABILITY

1. Statute and Regulations. Article 27, Title 9, Section 27-0913, and 6NYCRR 373-2.6(1) requires corrective action, including Corrective Action beyond the facility boundary where necessary to protect human health and the environment, for all releases of hazardous wastes, including hazardous constituents, from any solid waste management unit ("SWMU") at a storage, treatment or disposal facility seeking a 6NYCRR Part 373 permit, regardless of the time at which waste was placed in such unit. Pursuant to 6NYCRR 373-1.6(c)(2) the Commissioner may impose permit conditions as the Commissioner determines necessary to protect human health and the environment (i.e., Areas of Concern (AOC(s))).

2. Summary of Corrective Action Process. Corrective action implementation authorized by 6NYCRR 373-2.6 includes: (a) the RCRA Facility Assessment ("RFA"); (b) the RCRA Facility Investigation ("RFI"); and (c) Corrective Measures ("CM"). The RFA is a three phase process that includes: a Preliminary Review ("PR"); a Visual Site Inspection ("VSI"); and a Sampling Visit ("SV"). The PR is a review of all available information on the individual SWMU(s) and AOC(s). During the PR, and in subsequent phases of the RFA, all of the media (i.e., soil, groundwater, surface water/sediment, air and subsurface gas) that could potentially be impacted by release(s) of hazardous waste, including hazardous constituents, are evaluated. Based on this evaluation, the SWMU(s)/AOC(s) will be characterized as to release potentials.

   Following the PR, a VSI is conducted during which all of the SWMU(s)/AOC(s) either previously or newly discovered, are observed. While performing this reconnaissance, any signs of spills or leakage, stained soil, stressed vegetation, unit deterioration, or any other conditions that may be indicative of a release are assessed. By means of these observations and the findings of the PR, the Commissioner may require the facility to conduct a Sampling Visit (SV) at the unit(s)/area(s) where the release(s) would be suspected.

   The SV can involve any or all of the previously described media at any given SWMU and or Area of Concern (AOC). For those units/areas where releases are clearly

demonstrated in the PR and/or VSI, the SV can be avoided leaving the unit(s)/area(s) to be addressed in the RFI.

The RFA includes preparing the RFA report. This report includes the findings of the various RFA activities and recommendations for further action at those units and areas with demonstrated releases of hazardous wastes, including hazardous constituents. In some cases, where an immediate threat to human health or the environment exists, interim corrective measures may be required.

If the RFA concludes that there is a need for further investigative work the Permittee shall be required to pursue phase two of corrective action, an RFI. The purpose of the RFI is to determine the nature, extent, direction and rate of migration of hazardous wastes, including hazardous constituents, in soils, groundwater, surface water/sediment, subsurface gas and/or air. From these multimedia analyses, the types and concentrations of contaminants present, the boundaries of any contamination (e.g., plumes), and the rate and direction of contaminant movement should be determined in each of the impacted media. Sufficient data shall be generated during the RFI to allow proper assessment of corrective measure alternatives. This may require bench and/or pilot studies to be implemented as part of the RFI. Once all analyses are reviewed, a RFI report is prepared that provides a summation of the data and recommendations for any needed corrective measures.

The culmination of the Corrective Action Program is Corrective Measures ("CM"). The initial stage of the corrective measures phase is the preparation of a Corrective Measures Study ("CMS"). A CMS may be required if concentrations of hazardous constituents in an aquifer, in surface water/sediment, in soils, or in air exceed their corresponding action levels. Such a study may also be required if individual concentrations of hazardous constituents are at or below their action levels, but they still may pose a threat to human health or the environment due to site-specific exposure conditions. The CMS will address alternative corrective measure strategies that are technologically feasible and reliable and which effectively mitigate and minimize damage to, and provides adequate protection of human health and the environment. The Permittee will develop the site-specific CMS using target clean-up levels chosen by the Commissioner to be protective of human health and the environment. Where available, they may be promulgated standards. Where promulgated standards are not available, the Commissioner may use health-based levels, based on Risk-Specific Doses ("RSD") for carcinogens and Reference Doses ("RFD") for systemic

toxicants, or concentration levels protective of the environment, that have undergone scientific review. The CMS report should discuss the alternative corrective measure strategies studied, addressing technical, institutional, public health, and environmental issues, and develop the conceptual engineering for the alternative action proposed by the facility. The CMS may not require extensive evaluation of a number of remedial alternatives where a solution is straight forward or only few solutions exist. Such situations could require the Permittee to submit a highly focused CMS.

Following completion of the CMS, the Commissioner will select the corrective measure(s) from the corrective measure alternatives evaluated in the CMS. The Commissioner will then initiate a permit modification for the selected corrective measure(s). Subsequent to the permit modification, the owner or operator of the facility will be required to demonstrate financial assurance for completing the approved corrective measure(s).

Permit modification for the approved corrective measure(s) will initiate the final stage of corrective measures, Corrective Measures Implementation ("CMI"). The CMI will address the final design, construction, operation, maintenance, and monitoring of the corrective measure or measures selected.

3. Solid Waste Management Units and Areas of Concern. The conditions of this Module apply to:

(a) All the SWMUs and AOCs listed in this Module individually or in combinations;

(b) Any additional SWMU(s) and AOCs identified during the course of groundwater monitoring, field investigations, environmental audits or other means as described in Module Condition C. below; and

(c) The following known SWMUs and AOCs located on-site:

SWMU No:	SWMU	Location*
1	Aboveground tanks	# 17-28
2	Underground tanks	# 1-16
3	Waste Solvents Container Storage Areas	K
4	Virgin Materials Container Storage Area	L

SWMU No:	SWMU	Location*
5	Prior Outside container storage area	M
6	Stormwater Drywells	#s 1-13**
7	Solvent Recysling Area	N

* See Figure 1
** See Figure 2

EPA issued a Part B Permit, and Module III directed Pride to conduct a site-wide hydrogeological investigation. This investigation, which took place in 1991 and 1993, was to determine if releases of hazardous waste or hazardous waste constituents to the environment had occurred. The investigation that was performed provided preliminary site characterization, and preliminary soil and ground water contamination data. Five monitoring wells, one shallow upgradient, one deep upgradient, and three shallow downgradient, were installed in 1991. These wells have been sampled several times. A soil gas survey as well as borehole geophysics were also performed during this investigation. Preliminary data indicates contamination originating on-site. Further investigation is needed to determine the origin and extent of the contamination. See Module III, condition E.5.a.

B. **STANDARD CONDITIONS FOR CORRECTIVE ACTION**

1. Work Plans. All work plans submitted pursuant to this Module shall include:

   (a) Quality Assurance/Quality Control protocols to ensure that data generated is valid and supported by documented procedures;

   (b) Other plans, specifications and protocols, as applicable;

   (c) A schedule for starting specific tasks, completing the work and submitting progress and final reports; and

   (d) Plans for the treatment, storage, discharge or disposal of wastes to be generated by activities described therein.

2. Quality Assurance/Quality Control

   (a) Any laboratory to be used pursuant to such work plans required by this Module must be approved by the Commissioner prior to work plan implementation.

Certification by the New York State Department of Health Environmental Laboratory Approval Program in the relevant analytical services is required.

(b) The minimum Quality Assurance/Quality Control data and information, that shall be delivered with all sample analyses required by this Module, are tabulated in Appendix III-A of this Permit Module.

3. Health/Safety Plans. The Permittee shall develop, according to applicable Federal, State and local requirements, and submit to the Commissioner, health and safety plans that will be implemented to ensure that the health and safety of project personnel, plant personnel and the general public are protected. These plans are not subject to approval by the Commissioner.

4. Guidance Documents. When preparing the submissions described in this Permit Module, the Permittee shall take account of applicable guidance documents issued by the U.S. Environmental Protection Agency and the New York State Department of Environmental Conservation in a manner reflecting reasonable technical considerations.

5. Prior Submittals. The Permittee may have already submitted portions of information, plans, or reports required by this Permit Module and its Appendices to the Commissioner pursuant to the terms of previous applications, consent orders, or plans. For those items the Permittee contends were submitted to the Commissioner, the Permittee may cite the specific document(s) and page(s) it believes adequately addresses each of the individual items requested by this Permit Module and its Appendices. The references, by document(s) and page(s), shall be placed in the appropriate sections of the submittals that require the referenced information and data. If the Commissioner, after a file search, determines that it does not possess any of the referenced information, plans, or reports that the Permittee claims were previously submitted, the Commissioner will notify the Permittee and the Permittee shall submit the referenced documents within the time frame specified within the notification.

6. Compliance Schedule For Interim Corrective Measures.

(a) If at any time it is determined by the Commissioner that a release or, based on site-specific circumstances, a threatened release of hazardous wastes, including hazardous constituents from a SWMU, a combination of SWMUs, or an AOC poses a threat to human health or the environment, or that such condition jeopardizes the Permittee's ability

to comply with any governmental permit, a draft interim corrective measures study shall be submitted to the Commissioner for approval within thirty (30) calendar days of notice of such a determination. This study shall consider, among other relevant factors, the character, the extent, direction, the rate of release, the proximity to population, the exposure pathways, the effects of delayed action, and the evaluations of appropriate interim corrective measures. Upon approval of the study by the Commissioner, the Permittee shall implement the required interim corrective measures as specified by the Commissioner. Nothing herein shall preclude the Permittee from taking immediate action to address the conditions described herein and promptly notifying the Commissioner.

(b) In the event the Permittee discovers, a release or, based on site-specific circumstances, a threatened release of hazardous waste, including hazardous constituents, from a SWMU, or a combination of SWMUs, that poses a threat to human health or the environment, the Permittee shall identify interim corrective measures to mitigate this threat. The Permittee shall immediately summarize the nature and magnitude of the actual or potential threat and nature of the interim measures being considered and notify the Commissioner. Within thirty (30) calendar days of notifying the Commissioner, the Permittee shall submit to the Commissioner, for approval, an interim corrective measures work plan for the interim measures. The Permittee shall implement the measures specified by the Commissioner. Nothing herein shall preclude the Permittee from taking immediate action to address the conditions described herein and promptly notifying the Commissioner.

(c) The following factors may be considered by the Commissioner or the Permittee in determining the need for interim corrective measures:

(i) Time required to develop and implement a final corrective measure;

(ii) Actual and potential exposure of human and environmental receptors;

(iii) Actual and potential contamination of drinking water supplies and sensitive ecosystems;

(iv) The potential for further degradation of

any impacted medium;

(v) Presence of hazardous waste, including hazardous constituents, in containers that may pose a threat of release;

(vi) Presence and concentration of hazardous waste, including hazardous constituents, in soils that have the potential to migrate to groundwater or surface water;

(vii) Weather conditions that may affect the current levels of contamination;

(viii) Risks of fire, explosion, or potential for exposure to hazardous wastes, including hazardous constituents, as a result of an accident or failure of container or handling system; and

(ix) Other situations that may pose threats to human health and the environment.

7. Determination of No Further Action.

(a) Based on the results of an RFI for a particular SWMU, or combination of SWMUs, and/or AOC, and other relevant information, the Permittee may submit an application to the Commissioner for a permit modification under 6NYCRR 373-1.7(b) and 621.13 to terminate the subsequent corrective action requirements of this Module. This permit modification application must contain information demonstrating no release(s) of hazardous wastes, including hazardous constituents, from the SWMU(s) and/or AOC(s) that pose a threat to human health or the environment, as well as information required in 6NYCRR 373-1 and 621.4(n), which incorporates by reference 6NYCRR 373-1 and 373-2.

If, based upon review of the Permittee's request for a permit modification, the results of the RFI, and other information, including comments received during the forty-five (45) calendar day public comment period required for permit modifications, the Commissioner determines that the release(s) or the suspected release(s) investigated either are non-existent or do not pose a threat to human health or the environment, the Commissioner may grant the requested modification.

(b) A determination of no further action shall not preclude the Commissioner from implementing the

following actions:

(i) Modifying this Permit at a later date to require the Permittee to perform such investigations as necessary to comply with the requirements of this Permit Module and its Appendices if new information or subsequent analysis indicates that there are, or are likely to be, releases from SWMUs/AOCs that may pose a threat to human health or the environment; and

(ii) Requiring continual or periodic monitoring of air, soil, groundwater, or surface water/sediment or subsurface gas, if necessary, to protect human health and the environment, when site-specific circumstances indicate the release(s) of hazardous waste, including hazardous constituents, are likely to occur from any SWMU(s) and/or AOC(s).

8. Compliance Schedule For Reporting.

(a) The Permittee shall submit, to the Commissioner, signed progress reports, as specified in approved work plans pursuant to this Permit, of all activities (i.e., SWMU Assessment, Interim Measures, RCRA Facility Investigation, Corrective Measures Study) conducted pursuant to the provisions of the Corrective Action Compliance Schedules of this Permit Module, beginning no later than thirty (30) calendar days after the Permittee is first required to begin implementation of any requirement herein. These reports shall contain:

(i) A description of the work completed during the reporting periods

(ii) Summaries of all findings made during the reporting period, including summaries of laboratory data;

(iii) Summaries of all changes made during the reporting period;

(iv) Summaries of all contacts made with representatives of the local community and public interest groups during the reporting period;

(v) Summaries of all problems or potential problems encountered during the reporting

period and actions taken to rectify problems;

(vi) Changes in personnel conducting or managing the corrective action activities during the reporting period;

(vii) Projected work for the next reporting period; and

(viii) Copies of daily reports, inspection reports, laboratory/monitoring data, etc., generated during the reporting period.

(b) Upon request, copies of other relevant reports and data not identified in Module Condition B.8.(a) shall be made available to the Commissioner.

(c) The Commissioner may require the Permittee to conduct new or more extensive assessments, investigations, or studies, based upon information provided in the progress reports referred to in Module Condition B.8(a) above, or upon other supporting information.

(d) All plans and schedules required by the conditions of this Permit Module and Appendix III-D are upon approval of the Commissioner, incorporated into this Permit by reference and become an enforceable part of this Permit. Any noncompliance with such approved plans and schedules shall constitute noncompliance with this Permit. Extensions of the due dates for submittals may be granted by the Commissioner in accordance with the permit modification processes stipulated in Module Condition E.14. of this Permit Module.

9. Compliance with Governmental Requirements. During investigative activities, interim corrective measures, and final corrective measures, (including, but not limited to, equipment decommissioning, excavation and unit demolition) required under this Module, the Permittee shall ensure that the transportation, treatment, storage, discharge, and disposal of all contaminated materials generated as a result of such activities (including, but not limited to, soils, sediments, liquids, tanks, pipes, pumps, rubble, debris, and structural materials) are performed in an environmentally sound manner pursuant to all applicable Federal, State and local requirements and that is protective of public health and the environment. Nothing in this Module shall be construed to require the Permittee to proceed in a manner which is in violation

of any such requirements.

10. Notifications.

(a) Notification of groundwater contamination. If at any time the Permittee discovers that hazardous constituents in groundwater that may have been released from a solid waste management unit or area of concern at the facility have migrated beyond the facility boundary in concentrations that exceed action levels, the Permittee shall, within fifteen (15) calendar days of discovery, provide written notice to the Commissioner and any person who owns or resides on the land which overlies the contaminated groundwater.

(b) Notification of air contamination. If at any time the Permittee discovers that hazardous constituents in air that may have been released from a solid waste management unit or area of concern at the facility have or are migrating to areas beyond the facility boundary in concentrations that exceed action levels, and that residences or other places at which continuous, long-term exposure to such constituents might occur are located within such areas, the Permittee shall, within fifteen (15) calendar days of such discovery;

(i) Provide written notification to the Commissioner, and

(ii) Initiate any actions that may be necessary to provide notice to all individuals who have or may have been subject to such exposure.

(c) Notification of residual contamination. If hazardous wastes or hazardous constituents in solid waste management units or areas of concern, or which have been released from solid waste management units or areas of concern, will remain in or on the land, including groundwater, after the term of the permit has expired, the Commissioner may require the Permittee to record, in accordance with State law, a notation in the deed to the facility property or in some other instrument which is normally examined during title search that will, in perpetuity, notify any potential purchaser of the property of the types, concentrations, and locations of such hazardous wastes or hazardous constituents. The Commissioner may require such notice as part of the corrective measures selection process.

C. **COMPLIANCE SCHEDULE FOR ASSESSMENT OF NEWLY IDENTIFIED SWMUS AND AOCS.**

1. Notification of Assessment. The Permittee shall notify the Commissioner, in writing, of any additional SWMU(s) and/or AOC(s) not listed in this Module, which are identified during the course of groundwater monitoring, field investigations, environmental audits, or other means within fifteen (15) calendar days after discovery.

2. SWMU/AOC Assessment Report. Within thirty (30) calendar days after notifying the Commissioner, the Permittee shall submit a SWMU/AOC Assessment Report. This Report must provide, at a minimum, the following information for each newly identified SWMU/AOC:

   (a) Type of unit/area;

   (b) Location of each unit/area on a topographic map of appropriate scale;

   (c) Dimensions, capacities, and structural descriptions of the unit/area (supply available engineering drawings);

   (d) Function of unit/area;

   (e) Dates that the unit/area was operated;

   (f) Description of the wastes that were placed or spilled at the unit/area;

   (g) Description of any known releases from the unit/area (to include groundwater data, soil analyses, air monitoring data, and/or surface water/sediment data);

   (h) The results of any sampling and analysis required for the purpose of determining whether releases of hazardous wastes, including hazardous constituents, have occurred, are occurring, or are likely to occur from the unit/area; and

   (i) Whether this unit/areas, individually or in combination with other units/areas described in Module Condition A.3. is a significant source of contaminant release.

3. SWMU/AOC Sampling and Analysis Plan. Within thirty (30) calendar days after submittal of the SWMU/AOC Assessment Report required in Module Condition C.2., the Permittee shall submit to the Commissioner for approval a Plan in

accordance with the most recent version of the NYS RCRA Quality Assurance Project Plan Guidance, for any sampling and analysis of groundwater, land surface and subsurface strata, surface water/sediment or air, as necessary to determine whether a release of hazardous waste, including hazardous constituents, from such unit(s) and/or area(s) has occurred, is likely to have occurred, or is likely to occur. The SWMU/AOC Sampling and Analysis Plan must demonstrate that the sampling and analyses program, if applicable, is capable of yielding representative samples and must include parameters sufficient to identify migration of hazardous waste, including hazardous constituents, from the newly-discovered SWMU(s) and/or AOC(s) to the environment.

4. Subsequent Assessment Actions. Following submission of the SWMU/AOC Assessment Sampling and Analysis Plan set forth in Module Condition C.3., subsequent activities for the Plan shall proceed in accordance with the following schedule:

   (a) Meeting between the Permittee, the U.S. Environmental Protection Agency (Agency) and the New York State Department of Environmental Conservation (Department) to discuss Plan comments, as appropriate; and

   (b) Submission of a revised Plan to the Commissioner for approval within thirty (30) calendar days of the above-described meeting. (If the above referenced meeting is determined not to be necessary, the Permittee shall submit a revised Plan to the Commissioner, according to a schedule specified by the Department, not to exceed forty-five (45) calendar days after Permittee's receipt of Plan comments from the Commissioner); and

   (c) Begin implementation of the SWMU/AOC Sampling and Analysis Plan within thirty (30) calendar days following written approval from the Commissioner for the Plan.

5. SWMU/AOC Sampling and Analysis Report. Within thirty (30) calendar days of receipt by the Permittee of validated analytical data generated under the approved SWMU/AOC Sampling and Analysis Plan, the Permittee shall follow reporting requirements in the approved Plan and submit a SWMU/AOC Sampling and Analysis Report to the Commissioner. The Report shall describe all results obtained from the implementation of the approved Plan.

6. Assessment Conclusions. Based on the results of the SWMU/AOC Sampling and Analysis Report, the Commissioner

shall determine the need for further investigations at the specific unit(s) covered in the SWMU/AOC Assessment Report. If the Commissioner determines that such investigations are needed, the Commissioner shall, by written notification, require the Permittee to prepare and submit for approval a RCRA Facility Investigation Work Plan in accordance with Module Condition E.5. et. seq..

D. **COMPLIANCE SCHEDULE AND NOTIFICATION REQUIREMENTS FOR NEWLY-DISCOVERED RELEASES AT SWMUS AND AOCS.**

The Permittee shall notify the Commissioner, in writing, of any release(s) of hazardous wastes, including hazardous constituents, discovered during the course of groundwater monitoring, field investigation, environmental auditing, or other activities no later than fifteen (15) calendar days after discovery. Such newly-discovered release(s) may be from the newly-identified unit(s)/area(s), from the unit(s)/area(s) for which, based on the findings of the RFA, the Commissioner had previously determined that no further investigation was necessary, or from the unit(s)/area(s) investigated as part of an RFI. Based on the information provided in the notification, the Commissioner shall determine the need for further investigation of the release(s). If the Commissioner determines that such investigations are needed, the Commissioner shall, by written notification, require the Permittee to prepare a RCRA Facility Investigation Work Plan in accordance with Module Condition E.5. et. seq..

E. **CORRECTIVE ACTION REQUIREMENTS.**

1. No Action Requirement.

(a) On the basis of the RCRA Facility Assessment report dated March 1988, the Commissioner has determined that there is no evidence at this time of the release(s) of hazardous waste(s) and/or constituent(s) that threaten human health or the environment from the following SWMU(s) and/or AOC(s) identified in Module Condition A.3:

SWMU No:	SWMU	Location
1	Aboveground tanks	#s17-28
4	Virgin materials Container Storage Area	L
7	Solvent Recycling Area	N

Refer to Figure 1

(b) The Permittee need not undertake corrective action

at any aforementioned SWMU(s) and/or AOC(s) identified in Module Condition E.1.(a) as long as there is no evidence of the release(s) of hazardous waste(s) or constituent(s) from the SWMU(s) and/or AOC(s) threatening human health or the environment. This permit condition does not apply to any other stipulation specified in other Modules or Conditions of this Permit.

(c) A determination of no further action shall not preclude the Commissioner from modifying this Permit at a later date to require further investigations, studies, monitoring, or corrective measures, if new information or subsequent analysis indicates the release(s) or likelihood of release(s) from SWMU(s) and/or AOC(s) identified in Module Condition E.1.(a) that could pose a threat to human health or the environment.

2. Compliance Schedule For RCRA Facility Assessment ("RFA") Sampling Visit Work Plan .

Not Applicable

3. Compliance Schedule For RFA-SV Work Plan Implementation.

Not Applicable

4. Compliance Schedule For RFA-Sampling Visit Report.

Not Applicable

5. Compliance Schedule For RCRA Facility Investigation ("RFI") Work Plan.

(a) On the basis of the RCRA Facility Assessment the RCRA Facility Assessment Report dated March 1988, the Commissioner has determined that there has been a release of hazardous waste and/or constituents from the following SWMU(s), or combination of SWMU(s), and/or AOC(s) identified in Module Condition A.3. that require the implementation of an RFI:

SWMU No:	SWMU	Location
2	Underground tanks	#s1-16
3	Waste solvent container storage area	K
5	Prior Outside container storage area	M
6	Stormwater Drywells	+#s1-13

Refer to Figures 1 & 2

(b) On the basis of the RCRA Facility Assessment Report dated March 1988 the Commissioner has determined that there has been a release of hazardous waste and/or constituents from the following inaccessible SWMU(s) and/or AOC(s) identified in Module Condition A.3.:

None Identified

(c) The Permittee shall submit to the Commissioner for approval a RCRA Facility Investigation Task I Report on Current Conditions, a Task II Report on Pre-Investigation Evaluation of Corrective Measures Technologies, and a Work Plan that meets the RFI Scope of Work included in Appendix III-B for the inaccessible SWMU(s) and/or AOC(s) identified in Module Condition E.5.(b)and/or identified pursuant to Module Condition C.6. no later than one-hundred and eighty (180) calendar days prior to the date when the SWMU(s) and/or AOC(s) become accessible for such an investigation. The RFI Work Plan shall be prepared in accordance with the provisions of Module Conditions E.5.(f)(i) through (iv). Accessibility to the SWMU(s) and/or AOC(s) shall be considered achievable when the impediment to the RFI (e.g. building, utilities) is demolished, abandoned, or to be altered in a manner that would allow access to the SWMU(s) and/or AOC(s).

(d) Within sixty (60) calendar days after the effective date of this Permit for the SWMU(s) and/or AOC(s) identified in Module Condition E.5.(a), the Permittee shall submit to the Commissioner for approval a RCRA Facility Investigation Task I Report on Current Conditions required by the RFI Scope of Work included in Appendix III-B of this Permit Module. A Task I Report shall be submitted for approval within sixty (60) calendar days after the written notification by the Commissioner that an RFI is required pursuant to Module Conditions C.6., D. and/or E.4(b).

(e) Within ninety (90) calendar days of the effective date of this Permit for the SWMU(s) and/or AOC(s) identified in Module Condition E.5.(a), the) Permittee shall submit to the Commissioner for approval a RCRA Facility Investigation Task II Report on the Pre-Investigation Evaluation of Corrective Measures Technologies required by the RFI Scope of Work included in Appendix III-B of this Permit Module. A Task II

Report shall be submitted for approval within ninety (90) calendar days after the written notification by the Commissioner that an RFI is required pursuant to Module Conditions C.6, D. and/or E.4.(b).

(f) Within one-hundred and twenty (120) calendar days of the effective date of this Permit for the SWMU(s) and/or AOC(s) identified in Module Condition E.5.(a), the Permittee shall submit for approval a Work Plan to the Commissioner to address those units, releases of hazardous waste, including hazardous constituents, and media of concern which require the further investigations. A RFI Work Plan shall be submitted within ninety (90) calendar days after written notification by the Commissioner that an RFI is required pursuant to Module Conditions C.6., D., and/or E.4.(b).

(i) The Work Plan shall describe the objectives of the investigation and the overall technical and analytical approach to completing all actions necessary to characterize the nature, direction, rate, movement, and concentration of releases of hazardous waste, including hazardous constituents, from specific units or groups of units and areas, and their actual or potential receptors. The Work Plan shall detail all proposed activities and procedures to be conducted at the facility and/or off-site, the schedule for implementing and completing such investigations, the qualifications of personnel performing or directing the investigations, including contractor personnel, and the overall management of the RFI.

(ii) The Work Plan shall discuss sampling and data collection quality assurance and data management procedures, including formats for documenting and tracking data and other results of investigations, and health and safety procedures.

(iii) The Work Plan must, at a minimum, address all necessary activities or include descriptions to meet the requirements specified in Tasks III through V of the Scope of Work for a RCRA Facility Investigation included in Appendix III-B and its attachments to this Permit Module.

(iv) The Permittee may determine that any of the items required by Tasks III through V of the Scope of Work in Appendix III-B of this Permit Module have already been submitted or completed, and therefore, the resubmittal of those items are not necessary for completing the RFI of this Permit. The Permittee shall request, within thirty (30) calendar days of the effective date of this Permit, and/or within thirty (30) calendar days of any notification by the Commissioner that an RFI is required that the Commissioner review for approval the Permittee's determination. At the time of the request, the Permittee must provide the following information: (1) description of the items and/or summary of findings; (2) description of investigations addressing the items, documents/reports of the investigations with dates, and summary of the findings; and (3) copies of the documents/reports.

Upon the Commissioner's approval of any previously performed items, the Permittee may delete these from the RFI Work Plan. However, upon disapproval of items, all activities necessary for the items must be included in the RFI Work Plan.

(g) Following submission of the RFI Work Plan set forth in Module Condition E.5.(f), subsequent activities for the Plan shall proceed in accordance with the following schedule:

(i) Meeting between the Permittee and the Department to discuss Plan comments, as appropriate; and

(ii) Submission of a revised Plan to the Commissioner for approval within thirty (30) calendar days of the above-described meeting. (If the above-referenced meeting is determined not to be necessary, the Permittee shall submit a revised Plan to the Commissioner, according to a schedule specified by the Department, not to exceed forty-five (45) calendar days after Permittee's receipt of Plan comments from the Commissioner).

(h) The Commissioner shall review, for approval as part of the RFI Work Plan, any plans developed pursuant to Module Condition C.6, addressing further investigations of newly-identified SWMUs and/or AOCs, or Module Condition D, addressing newly discovered releases from units and/or areas. The Commissioner shall modify the Compliance Schedule of this Permit Module according to the permit modification procedures stipulated in Module Condition E.14. of this Permit Module to incorporate these units and areas and releases into the RFI Work Plan.

6. Compliance Schedule For RCRA Facility Investigation Work Plan Implementation No later than thirty (30) calendar days after written notification by the Commissioner approving the RFI Work Plan, the Permittee shall begin implementation of the RFI according to the schedules specified in the RFI Work Plan. The RFI shall be conducted in accordance with the approved RFI Work Plan.

7. Compliance Schedule For RCRA Facility Investigation Final Report And Summary Report

(a) Within sixty (60) calendar days of receipt by the Permittee of validated analytical data generated under the approved RFI Work Plan, the Permittee shall submit to the Commissioner for approval the RFI Final and Summary Reports (Task VII of the Scope of Work for an RFI in Appendix III-B of this Permit Module). The RFI Final Report must contain adequate information to support further corrective action decisions at the facility and/or off-site, should such actions be necessary. The RFI Final Report shall describe the procedures, methods, and results of all facility investigations of SWMUs and AOCs and their releases, including information on the type and extent of contamination at the facility and/or off-site, sources and migration pathways, and actual or potential receptors. It shall present all information gathered under the approved RFI Work Plan. The RFI final report will include a comparison of media specific hazardous constituents with their corresponding action levels. The Summary Report shall describe more briefly the procedures, methods, and results of the RFI.

(b) Following submission of the Reports set forth in Module Condition E.7.(a), subsequent activities for the Report shall proceed in accordance with the following schedule:

(i) Meeting between the Permittee and the Department to discuss Report comments, as appropriate; and

(ii) Submission of a revised Report to the Commissioner for approval within forty-five (45) calendar days of the above-described meeting. (If the above-referenced meeting is determined not to be necessary, the Permittee shall submit a revised Report to the Commissioner, according to a schedule specified by the Department, not to exceed forty-five (45) calendar days after Permittee's receipt of Report comments from the Commissioner).

(c) After the Commissioner approves the RFI Final Report and Summary Report, the Permittee shall mail the approved Summary Report to all individuals on the facility mailing list established by the Permittee, within thirty (30) calendar days of receipt of approval.

(d) A report summarizing the testing program required by Task VI of the Scope of Work for RFI in Appendix III-B of this Permit Module shall be submitted, as a separate document, at the same time as the RFI Final Report.

8. Compliance Schedule For Current Interim Corrective Measures

Not Applicable

9. Compliance Schedule For Corrective Measures Study ("CMS") Scope of Work.

(a) Should a CMS be required, the Commissioner shall notify the Permittee in writing. This notice shall identify the hazardous constituent(s) which have exceeded the action level(s) as well as those which have been determined to threaten human health and the environment given site-specific exposure conditions or due to additive exposure risk. The notification shall specify target cleanup levels for hazardous constituents detected in each medium of concern, and may also specify corrective measure alternatives to be evaluated by the Permittee during the CMS.

(b) The Commissioner may require a Corrective Measures Study ("CMS") under the following conditions:

(i) If the concentrations of hazardous constituents in groundwater, surface water/sediment, soil, or air exceed their corresponding individual action levels; or

(ii) If the concentrations of hazardous constituents in groundwater, surface water/sediment, soil, or air do not exceed their corresponding individual action levels, but additive exposure risk due to the presence of multiple constituents is not protective of human health; or

(iii) If the concentrations of hazardous constituent in groundwater, surface water/sediment, soil, or air do not exceed corresponding individual action levels, but still pose a threat to human health or the environment, given site-specific exposure conditions.

(c) Corrective Measures Study - Not required at the time of issuance of the permit.

(d) The CMS will be considered complete upon completion of Tasks I through IV required by the CMS Scope of Work included in Appendix III-C of this Permit Module. Within sixty (60) calendar days after a notification required by Module Condition E.9.(a), the Permittee shall complete Task I and submit to the Commissioner a Task I report and documents, if any, relevant to other Tasks.

(e) The Permittee shall submit for approval a CMS Plan to the Commissioner within sixty (60) calendar days after a notification required by Module Condition E.9.(a)

(i) The CMS Plan shall provide:

(1) A description of the general approach to investigating and evaluating potential corrective measure;

(2) A definition of the overall objectives of the study;

(3) The specific plans for evaluating corrective measure to ensure compliance with corrective measure standards;

(4) The schedules for conducting the

study; and

(5) The proposed format for the presentation of information.

(ii) The CMS Plan must address, at a minimum, all necessary activities to complete Tasks II and III required by the CMS Scope of Work included in Appendix III-C of this Permit Module.

(f) Following submission of the CMS Plan set forth in Module Condition E.9.(e), subsequent activities for the Plan shall proceed in accordance with the following schedule:

(i) Meeting between the Permittee and the Department to discuss Plan comments, as appropriate; and

(ii) Submission of a revised Plan to the Commissioner for approval within thirty (30) calendar days of the above-described meeting. (If the above-referenced meeting is determined not to be necessary, the Permittee shall submit a revised Plan to the Commissioner, according to a schedule specified by the Department, not to exceed forty-five (45) calendar days after Permittee's receipt of Plan comments from the Commissioner).

10. Compliance Schedule For Corrective Measures Study Implementation. No later than thirty (30) calendar days after the Permittee has received written approval from the Commissioner for the CMS Plan, the Permittee shall begin to implement the CMS according to the schedules specified in the CMS Plan. The CMS shall be conducted in accordance with the approved Plan submitted pursuant to Module Condition E.9..

11. Compliance Schedule For Corrective Measures Study Final Report.

(a) Within forty-five (45) calendar days after the completion of the CMS, the Permittee shall submit for approval a CMS Final Report (Task IV) to the Commissioner. The CMS Final Report shall:

(i) Summarize the results of the investigations and, if applicable, of any bench-scale or pilot tests conducted;

(ii) Provide a detailed description of the corrective measures evaluated and include an evaluation of how each corrective measure alternative meets the standards set forth in Module Condition E.12(a).

(iii) Present all information gathered under the approved CMS Plan; and

(iv) Contain any additional information to support the Commissioner in the corrective measure selection decision-making process, described under Module Condition E.12.

(b) The CMS Final Report (Task IV) must address, at a minimum, all items necessary to demonstrate completion of Tasks II and III required by the CMS Scope of Work included in Appendix III-C of this Permit Module.

(c) Following submission of the CMS Report set forth in Module Condition E.11(a), subsequent activities for the Report shall proceed in accordance with the following schedule:

(i) Meeting between the Permittee and the Department to discuss the Report comments, as appropriate; and

(ii) Submission of a revised Report to the Commissioner for approval within thirty (30) calendar days of the above-described meeting. (If the above referenced meeting is determined not to be necessary the Permittee shall submit a revised Report to the Commissioner, according to a schedule specified by the Department, not to exceed forty-five (45) calendar days after Permittee's receipt of Report comments from the Commissioner.)

(d) As specified under Module Condition E.9.(a), based on preliminary results and the CMS Final Report, the Commissioner may require the Permittee to evaluate additional corrective measures or particular elements of one or more proposed corrective measures.

12. Corrective Measure(s) Selection.

(a) Based on the results of the documents submitted

under Module Condition E.7. for the RFI, under Module Condition E.11. for the CMS, and any further evaluations of additional corrective measures under this study, the Commissioner shall select the corrective measure(s) that at a minimum will meet the following standards:

(i) Be protective of human health and the environment;

(ii) Attain media cleanup standards selected by the Commissioner during the corrective measures selection process;

(iii) Control the source(s) of release(s) so as to reduce or eliminate, to the maximum extent practicable, further releases of hazardous waste, including hazardous constituents, that might pose a threat to human health and the environment; and

(iv) Meet all applicable waste management requirements.

(b) In selecting the corrective measure(s) which meets the standards for corrective measures established under Module Condition E.12.(a), the Commissioner shall consider the following evaluation factors, as appropriate:

(i) Long-term reliability and effectiveness. Any potential corrective measure(s) may be assessed for the long-term reliability and effectiveness it affords, along with the degree of certainty that the corrective measure(s) will prove successful. Factors that shall be considered in this evaluation include:

(1) Magnitude of residual risks in terms of amounts and concentrations of hazardous waste, including hazardous constituents, remaining following implementation of the corrective measure(s), considering the persistence, toxicity, mobility and propensity to bioaccumulate of such hazardous wastes, including hazardous constituents:

(2) The type and degree of long-term management required, including

monitoring and operation and maintenance;

(3) Potential for exposure of humans and environmental receptors to remaining hazardous wastes, including hazardous constituents, considering the potential threat to human health and the environment associated with excavation, transportation, redisposal or containment;

(4) Long-term reliability of the engineering and institutional controls, including uncertainties associated with land disposal of untreated hazardous wastes, including hazardous constituents, and their residuals; and

(5) Potential need for replacement of the corrective measure(s).

(ii) Reduction of toxicity, mobility or volume. A potential corrective measure(s) may be assessed as to the degree to which it employs treatment that reduces toxicity, mobility or volume of hazardous wastes, including hazardous constituents. Factors that shall be considered in such assessments include:

(1) The treatment processes the corrective measure(s) employs and materials it would treat;

(2) The amount of hazardous wastes, including hazardous constituents, that would be destroyed or treated;

(3) The degree to which the treatment is irreversible;

(4) The residuals that will remain following treatment, considering the persistence, toxicity, mobility and propensity to bioaccumulate of such hazardous wastes, including hazardous constituents; and

(5) All concentration levels of hazardous waste, including hazardous

constituents, in each medium that the corrective measure(s) must achieve to be protective of human health and the environment.

(iii) The short-term effectiveness of a potential corrective measure(s) may be assessed considering the following:

(1) Magnitude of reduction of existing risks;

(2) Short-term risks that might be posed to the community, workers, or the environment during implementation of such a corrective measure(s), including potential threats to human health and the environment associated with excavation, transportation, and redisposal or containment; and

(3) Time until full protection is achieved.

(iv) Implementability. The ease or difficulty of implementing a potential corrective measure(s) may be assessed by considering the following types of factors:

(1) Degree of difficulty associated with constructing the technology;

(2) Expected operational reliability of the technologies;

(3) Need to coordinate with and obtain necessary approvals and permits from other agencies;

(4) Availability of necessary equipment and specialists;

(5) Available capacity and location of needed treatment, storage and disposal services; and

(6) Requirements for removal, decontamination, closure, or post-closure of units, equipment, devices or structures that will be used to implement the corrective measure(s).

(v) Cost. The types of costs that may be

assessed include the following:

(1) Capital costs;

(2) Operation and maintenance costs;

(3) Net present value of capital and operation and maintenance costs; and

(4) Potential future corrective measure costs.

13. Permit Modification for Corrective Measure(s).

(a) Based on information the Permittee submits in the RFI and Summary Reports, under Module Condition E.7, the CMS Final Report under Module Condition E.11., and other information, the Commissioner will select the corrective measure(s) and initiate a permit modification to this Permit, pursuant to 6NYCRR 373-1.7(b) and 6NYCRR 621.14. The modification will specify the selected corrective measure(s) and include, at a minimum the following:

(i) Description of all technical features of the corrective measure(s) that are necessary for achieving the standards for corrective measures established under Module Condition E.12.(a), including length of time for which compliance must be demonstrated at specified points of compliance;

(ii) All media cleanup standards for hazardous constituents, selected by the Commissioner, that the corrective measure(s) must achieve to be protective of human health and the environment;

(iii) All requirements for achieving compliance with these cleanup standards;

(iv) All requirements for complying with the standards for management of wastes;

(v) Requirements for removal, decontamination, closure or post-closure of units, equipment, devices or structures that will be used to implement the corrective measure(s);

(vi) A schedule for initiating and completing

all major technical features and milestones of the corrective measure(s); and

(vii) Requirements for submission of reports and other information.

(b) Within thirty (30) calendar days after this Permit has been modified, the Permittee shall demonstrate in writing to the Commissioner financial assurance for completing the approved corrective measures.

14. Modification of the Compliance Schedules.

(a) If at any time the Permittee determines that modification of any Compliance Schedule of this Permit Module, including Appendix III-D, is necessary because such schedules cannot be met, the Permittee must:

(i) Notify the Commissioner in writing within fifteen (15) calendar days of such determination; and

(ii) Provide an explanation why the current schedule cannot be met.

(b) The Commissioner shall notify the Permittee in writing of the final decision regarding the Permittee's proposed modification to the Compliance Schedule.

(c) Modifications to the Compliance Schedule pursuant to their procedure does not constitute a reissuance of this Permit.

(d) All other modifications to this Permit Module must be made in accordance with Module I, Condition I, of this Permit.

15. Corrective Action Through Post-Closure.

Not Applicable

16. Corrective Action Through Closure

Not Applicable

17. Corrective Action Through Orders-on-Consent

Not Applicable

373 Appendix III-A

COMPONENTS REQUIRED FOR RCRA ANALYTICAL DATA SUBMITTED TO NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION*

PRIDE SOLVENTS & CHEMICAL CO., INC.
WEST BABYLON, NEW YORK
EPA.I.D.NO:057722258

A Report Narrative should accompany each submission, summarizing the contents, data and QA/QC results and all relevant circumstances of the work.

A. Parameter requested.

B. Sample Number or Numbers, Matrix, and:

1. Date and time collected;
2. Date extracted and/or digested;
3. Date and time analyzed; and
4. Chain of custody report and/or form, including confirmation of unbroken chain of custody, intact sample packaging and container seals and adequate temperature and/or other preservation.

C. Results [b,c,f]

1. Sample Results;
2. Duplicate;
3. Blanks[a];
4. Matrix Spike; matrix spike duplicate; blank spike; and
5. Surrogate recoveries, if applicable.

D. Supporting QA/QC[b]

1. Methodology;
2. Method detection limits, instrument detection limits[c];
3. Linear curves[d];
4. Percent solids for soils, sludges, sediments, and where otherwise applicable;
5. Calculations[d];
6. Cleanup procedures;
7. Data validation procedures, results, and completed data validation checklists; and
8. Documentation which illustrates how blank water is determined to be analyte-free.

In addition to submitting the above, all sample data and its QA/QC data as specified in SW-846, 3rd edition, Chapter 1,

must be maintained accessible to NYSDEC either in hard copy or on magnetic tape or disk (computer data files). The data, if requested by NYSDEC, should be formatted as described in SW-846, 3rd edition, Chapter 1. This requirement may be changed in the future to mandate computer data files, accessible to NYSDEC on request.

This does not obviate the requirement to do the QA/QC specified in each individual EPA-approved method.

* Components for RCRA submissions for non-contract Lab Protocols.
  If CLP, then CLP deliverables are required, unless otherwise stated in the approved plan.

a The data should include all blanks (trip, equipment rinse, method and instrument blanks) as specified in the sampling and analysis plan, guidance and regulation.

b Supporting QA/QC should be specific to the RCRA samples analyzed.

c Every effort practicable must be made to achieve detection limits below regulatory limits and comparable to or better than the Practical Quantification Limits specified in the EPA-approved methods. In no case, will reporting limits above the specified PQL's be accepted without extensive and complete documentation to the Department.

d These may not need to be submitted if adequate QA/QC summaries validating the data, including calibration control charts, correlation coefficients, etc., are submitted. The Report Narrative should describe the data validation and explain discrepancies. The supporting data should be provided to NYSDEC upon request, without restriction. Calibration data must include date and time of analysis.

e Frequencies of blanks, duplicates, spikes, surrogates, calibrations, standard reference materials, etc., should be as stated in the approved sampling and analysis plan, the approved analytical methods and the SW-846 3rd edition, Chapter 1, requirements. If there are any perceived conflicts, these should be resolved with NYSDEC in advance of sampling.

Spiking for metals, organics or other parameters must be done before sample preparation (i.e. before digestions, extractions etc.) unless otherwise stated in the approved plan. Furnace analysis for metals will still require post-digestion spikes on all samples analyzed by this technique.

373 Appendix III-B

Scope of Work For A RCRA Facility Investigation

PRIDE SOLVENTS & CHEMICALS CO., INC.
WEST BABYLON, NEW YORK
EPA.I.D.NO:057722258

I. INTRODUCTION

The Permittee shall undertake a RCRA Facility Investigation ("RFI") that should include the development of several component plans and supporting reports relevant to the specific investigations to be undertaken pursuant to this Permit. Component plans and reports must be prepared and submitted in accordance with the Compliance Schedules in Module Condition III-E. and Appendix III-D of this Permit Module.

The purpose of this RFI is to characterize the nature, extent, direction, rate, movement and concentration of releases of hazardous waste and/or constituents from Solid Waste Management Units and Areas of Concern at the facility including areas off-site impacted by the release(s) from the facility and to gather all necessary data to support the Corrective Measures Study. The Permittee shall furnish all personnel, materials, and services necessary for, or incidental to, performing the RCRA Facility Investigation.

The information presented in this Appendix shall serve as guidance for developing component plans and supporting reports to accomplish the intended purpose. This guidance is comprehensive, but can be tailored to meet site specific circumstances. The Permittee should consult with the Department on any significant deviations from this guidance prior to implementation.

The RFI Scope of Work includes several tasks:

Task I: A report on the Description of Current Conditions.

Task II: A report on the Pre-Investigation Evaluation of Corrective Measures.

Task III: RFI Management Plans including:

A. The Project Management Plan;
B. The Data Management Plan;
C. The Quality Assurance Project Plan;
D. The Health and Safety Plan; and
E. The Community Relations Plan.

Task IV: The Facility Investigation.

Task V: Investigative Analysis.

Task VI: Laboratory, Bench Scale, and Pilot Studies.

Task VII: Reports.

The report on Description of Current Conditions should comprise all available and relevant information and data on the facility's background, SWMU(s) and AOC(s) characterization, nature and extent of contamination, potential receptors, and prevailing corrective action implementation. Data and information gathered during any previous investigations, remediations, or inspections and other relevant data should be included in the submittal. That information and data may then be used to focus subsequent field investigations and development of the respective work plans for the SWMU(s) and AOC(s) to be investigated as part of this Permit. If the Permittee maintains that relevant information and data has been submitted, the Permittee should cite such submittal(s). The Permittee shall refer to Module Condition III.B.5. on addressing prior submittals.

The report on Pre-Investigation Evaluation of Corrective Measures will identify potential technologies that may be considered by the Permittee for subsequent implementation. These alternative technologies will focus the RFI to collect the necessary data for their proper evaluation.

The RFI Management Plans shall provide the necessary information that will assure that the following objectives are met:

- Proper management of all aspects of the RFI project including tracking of project milestones. Schedules and tracking methods shall be established for RFI tasks and report submittals (Project Management Plan);

- Satisfactory presentation of data and results developed by the RFI. Data management procedures shall be established to effectively process data such that relevant data descriptions are readily accessible and accurately maintained (Data Management Plan);

- Generation of valid data during the RFI investigation. QA/QC procedures shall be established to describe and document data quality (Quality Assurance Project Plan);

- Implementation of appropriate health and safety measures during the RFI. Health and safety procedures shall be established to ensure the health and safety of the investigative team(s) and the general public during the

RFI (Health and Safety Plan); and

- Provision for informing the community of the results of the RFI (Community Relations Plan).

The Facility Investigation shall focus on procedures and techniques that will be utilized during field investigations to characterize the environmental setting and the contaminant release(s) from the SWMU(s) and AOC(s). Characterization of the environmental setting will be necessary to determine monitoring locations and to aid in defining the boundaries of the contaminated unit(s) and area(s). The Permittee shall characterize each environmental media, as deemed necessary by the Department, to provide information that can be used to determine the rate and extent of the contaminant release(s). Characterization of the contaminant release(s) from the SWMU(s) and AOC(s) will be necessary to determine the nature, extent, direction, rate, movement and concentration of the contaminant plume(s).

Since a potentially broad spectrum of situations involving information on a specific release(s) may exist at the beginning of the RFI, a flexible, phased approach for the release investigation may be necessary. The Permittee may begin with an evaluation of existing data and propose the collection of additional data as necessary to characterize the release. The Permittee may consider incorporating appropriate screening techniques, i.e., soil gas, geophysical methods, as the initial phase of field investigation for the RFI.

Based on existing data and/or data collected by appropriate screening techniques, the Permittee may develop a conceptual model of the release. This model may then be used to plan and develop subsequent investigations. The Permittee shall then develop work plans for the subsequent investigative program(s), as deemed necessary by the Department, utilizing conventional monitoring techniques capable of release(s) verification and/or characterization.

An Investigative Analysis shall be carried-out on the data generated by the Facility Investigation. The analysis shall focus on the quality of data generated and on establishing the nature, extent, direction, rate, movement and concentration of contamination.

Laboratory and/or Bench Scale Studies shall be performed to assess corrective measure technologies that may be applicable for remediating the SWMU(s), the AOC(s), and the environmental contamination investigated by the Permittee. The information gathered from such studies will assist the Permittee in selecting the alternative technologies for evaluation during the Corrective Measures Study.

Progress reports on the Facility Investigation and Laboratory Bench Scale Studies shall be submitted quarterly in addition to a final RFI Report and Summary Report.

II. TASK I: DESCRIPTION OF CURRENT CONDITIONS

The Permittee shall submit a report for Task I containing available and relevant information and data on the facility's background, SWMU(s), AOC(s), contamination, receptors, and remediation undertaken pertinent to the specific SWMU(s) and AOC(s) to be investigated as part of this Permit.

A. Facility Background

The Permittee shall summarize the regional location, pertinent boundary features, general facility physiography, geology, hydrogeology, and historical use of the facility for the treatment, storage or disposal of solid and hazardous waste. The information shall include:

1. Map(s) depicting the following:

   (a) General geographic location;

   (b) Property lines, with the owners of all adjacent property clearly indicated;

   (c) Topography and surface drainage depicting all waterways, wetlands, floodplains, water features, drainage patterns, and surface-water containment areas;

   (d) All above and underground tanks, buildings, utilities, paved areas, easements, rights-of-way, and other features;

   (e) All known past and present solid or hazardous waste treatment, storage or disposal areas;

   (f) All process sewers;

   (g) Surrounding land uses (residential, commercial, agricultural, recreational); and

   (h) The locations of all production, withdrawal, and groundwater monitoring wells at the facility and within the vicinity of the facility. These wells shall be clearly labeled and ground and top of casing elevations and construction details included (these elevations and details may be included as an attachment).

All maps shall be consistent with the requirements set forth in 6NYCRR Subpart 373-1.5(a)(2)(xix) and be of sufficient detail and accuracy to locate and report all current and future work performed at the site.

2. A history and description of ownership and operation, solid and hazardous waste generation, treatment, storage and disposal activities at the facility.

3. Approximate dates or periods and description of past product, raw material, and waste spills; identification of the materials spilled; the amount spilled; the location where spilled; and a description of the response actions conducted (local, state, or federal response units or private parties), including any inspection reports or technical reports generated as a result of the response.

B. SWMU and AOC Characterization

The Permittee shall submit available and relevant information that will characterize the wastes, the SWMU(s) and the AOC(s) where wastes have been placed, collected or removed including: type; quantity; physical state; disposition (containment or nature of deposits); and facility characteristics affecting the release(s) (e.g., facility security, and engineered barriers). The information should include:

1. SWMU and AOC Characteristics:

   (a) Location of unit/area (located on facility map);
   (b) Type of unit/area;
   (c) Design features;
   (d) Operating practices (past and present);
   (e) Period of operation;
   (f) Age of unit/area; and
   (g) General physical conditions.

2. Waste Characteristics:

   (a) Type of waste placed in the unit/area:

      (i) Hazardous classification (e.g., flammable, reactive, corrosive, oxidizing or reducing agent);

      (ii) Quantity; and

      (iii) Chemical composition (e.g., Appendix VIII hazardous constituents).

(b) Physical and chemical characteristics of waste and its constituents:

(i) Physical state (solid, liquid, gas);

(ii) Physical description (e.g., powder, oily sludge);

(iii) Temperature;

(iv) pH;

(v) General chemical class (e.g., acid, base, solvent);

(vi) Molecular weight;

(vii) Density;

(viii) Boiling point;

(ix) Viscosity;

(x) Solubility in water;

(xi) Cohesiveness of the waste;

(xii) Vapor pressure;

(xiii) Flash point; and

(xiv) Other relevant properties.

(c) Migration and dispersal characteristics of the waste constituents and procedures used in making the determination:

(i) Sorption;

(ii) Biodegradability, bioconcentration, biotransformation;

(iii) Photodegradation rates;

(iv) Hydrolysis rates;

(v) Chemical transformations; and

(vi) Volatilization rates.

C. Nature, Extent, Direction, Rate, Movement and Concentration of Contamination

The Permittee shall submit available and relevant information on the nature, extent, direction, rate, movement and concentration of the release(s) from the SWMU(s) and the AOC(s). This information and data should include:

1. Summary of available monitoring data and qualitative information on locations and levels of contamination at the facility and within the vicinity of the facility if contamination has migrated off-site.

2. Summary of all potential contaminant migration pathways including available information on geology, hydrogeology, physiography, hydrology, water quality, meteorology, and air quality.

D. Potential Receptors

The Permittee shall submit available and relevant information describing the human populations and environmental systems that are susceptible to exposure by the contaminant release(s) from the SWMU(s) and the AOC(s). Data on observable effects or bioassays for ecosystems should accompany this submittal if available. The information shall include:

1. Local uses and possible future uses of groundwater:

   (a) Type of use (e.g., drinking water source: municipal or residential, agricultural, domestic/non-potable, and industrial);

   (b) Location of groundwater users including wells and discharge areas (identify on a map); and

   (c) The well(s) pump rate(s) and the well(s) depth(s).

2. Local uses and possible future uses of surface waters draining from the facility:

   (a) Domestic and municipal (e.g. potable and lawn/gardening watering);

   (b) Recreational (e.g. swimming, fishing);

   (c) Agricultural;

   (d) Industrial; and

   (e) Environmental (e.g. fish and wildlife propagation).

3. Human use of or access to the facility and adjacent lands, including, but not limited to:

   (a) Recreation;

   (b) Hunting;

   (c) Residential;

   (d) Commercial;

   (e) Zoning; and

   (f) Relationship between population locations and prevailing wind direction.

4. A description of the biota in surface water bodies on, adjacent to, or affected by the facility.

5. A description of the ecology overlying and adjacent to the facility.

6. A demographic profile of the people who use or have access to the facility and adjacent land, including, but not limited to: age; sex; and sensitive subgroups.

7. A description of any endangered or threatened species near the facility.

E. Corrective Action Implementation

The Permittee shall submit documentation on corrective measures (remedial measures) undertaken on-site or off-site at the facility. Remedial actions should include any interim corrective measures, RCRA closures, State or Federal Superfund activities. This documentation shall include:

1. Objectives of the remediation and how it is mitigating a potential threat to human health and the environment and/or is consistent with and integrated into any long term solution at the facility;

2. Design, construction, operation, and maintenance requirements;

3. Schedules for design, construction and monitoring; and

4. Schedule for progress reports.

III. TASK II: PRE-INVESTIGATION EVALUATION OF CORRECTIVE MEASURES

The Permittee shall submit a report for Task II that identifies the potential corrective measure technologies that may be used on-site or off-site for the containment, treatment, remediation, and/or disposal of contamination. This report shall also identify any field data that needs to be collected in the facility investigation to facilitate the evaluation and selection of the final corrective measure or measures (e.g., compatibility of waste and construction materials, information to evaluate effectiveness, treatability of wastes, etc.).

IV. TASK III: RFI MANAGEMENT PLANS

The Permittee shall submit RFI Management Plans as part of the RFI Work Plan. The Plans shall address the methods and procedures necessary to manage the RFI, to describe data developed by the RFI, to gather and ensure valid RFI data, to protect the health and safety of investigators and the general public, and to keep the community informed about the RFI.

A. Project Management Plan

The Permittee shall prepare a Project Management Plan that shall include a discussion of the management approach, schedules, and personnel utilized during the RFI. That Plan shall include a description of qualifications of personnel performing or directing the RFI, including contractor personnel. This Plan shall also document the overall management approach to the RCRA Facility Investigation that will assure adherence to tasks and reporting schedules. The schedule for completing the RFI should reflect the schedules set forth in Module Condition III-E. and Appendix III-D. The schedule shall reflect dates for submittal of various RFI Work Plan components, dates for starting and accomplishing specific tasks associated with the RFI, and dates for reporting information from specific tasks to the Department.

B. Data Management Plan

The Permittee shall prepare a Data Management Plan to document and track investigation data and results. This Plan shall identify and set up data documentation materials and procedures, project file requirements, and project-related progress reporting procedures and documents. The Plan shall also provide the format to be used to present the raw data and conclusions of the investigation.

1. Data Record

The data record shall include, but not be limited to the following:

(a) Unique sample or field measurement code;

(b) Sampling or field measurement location and sample or measurement type;

(c) Sampling or field measurement raw data;

(d) Laboratory analysis ID number;

(e) Property or component measured; and

(f) Result of analysis (e.g., concentration).

2. Tabular Displays

The following data shall be presented in tabular displays:

(a) Unsorted (raw) data;

(b) Results for each medium, or for each constituent monitored;

(c) Data reduction for statistical analysis;

(d) Sorting of data by potential stratification factors (e.g., location, soil layer, topography); and

(e) Summary data.

3. Graphical Displays

The following data shall be presented in graphical formats (e.g., bar graphs, line graphs, area or plan maps, isopleth plots, cross-sectional plots or transects, three dimensional graphs, etc.):

(a) Display sampling location and sampling grid;

(b) Indicated boundaries of sampling area, and areas where more data are required;

(c) Display levels of contamination at each sampling location;

(d) Display geographical extent of contamination;

(e) Display contamination levels, averages, and

maxima;

(f) Illustrate changes in concentration in relation to distance from the source, time, depth or other parameters; and

(g) Indicate features affecting intramedia transport and show potential receptors.

C. Quality Assurance Project Plan (QAPjP)

The Permittee shall prepare a QAPjP to document each phase of investigative work and all sampling and monitoring procedures to be implemented during the RFI. The following activities shall be covered in the QAPjP: sampling, field measurements and sample analysis performed during the investigations. This Plan shall ensure that all information, data, and resulting decisions are technically sound, statistically valid, and properly documented. The QAPjP(s) shall be developed in accordance with the following guidance documents, "RCRA Quality Assurance Project Plan Guidance," "SW-846," and "Technical Enforcement Guidance Document." The Plan shall address all of the sixteen (16) essential QA/QC elements stipulated in the "RCRA Quality Assurance Project Plan Guidance." A summary of the QA/QC elements that shall be in the Plan is found in the subsequent paragraphs.

1. Data Quality Objectives

The QAPjP shall include, but not be limited to the following:

(a) Description of the intended uses for the data, and the necessary level of precision and accuracy for these intended uses;

(b) Description of methods and procedures to be used to assess the precision, accuracy and completeness of the measurement data;

(c) Description of the rational used to assure that the data accurately and precisely represent a characteristic of a population, parameter variations at a sampling point, a process condition or an environmental condition; and

(d) Description of the measures to be taken to assure that data sets can be compared to each other.

2. Sampling and Field Measurements

The QAPjP shall include, but not be limited to the following:

(a) Sampling and field measurement locations, depths, etc.;

(b) Collecting all necessary ancillary data;

(c) Conditions under which sampling and field measurements should be conducted;

(d) Media to be sampled and addressed by field measurements (e.g., groundwater, air, soil, sediment, etc.);

(e) Parameters to be measured and where;

(f) The frequency of sampling and field measurements and length of sampling period;

(g) The types of sample (e.g., composites vs. grabs) and number of samples to be collected;

(h) Measures to be taken to prevent contamination of the sampling equipment and cross contamination between sampling points;

(i) Documenting field sampling and measurement operations and procedures, including;

(i) Documentation of procedures for preparation of reagents or supplies which become an integral part of the sample (e.g., filters, and adsorbing reagents);

(ii) Procedures and forms for recording raw data and the exact location, time, and specific considerations associated with sample and data acquisition;

(iii) Documentation of specific sample preservation method;

(iv) Calibration of field devices;

(v) Collection of replicate samples and measurements;

(vi) Submission of field-biased blanks, where appropriate;

(vii) Potential interferences present at the facility;

(viii) Construction materials and techniques, associated with monitoring wells and piezometers;

(ix) Field equipment listing and sample containers;

(x) Sampling and field measurement order; and

(xi) Decontamination procedures.

(j) Selecting appropriate sample containers;

(k) Sample preservation; and

(l) Chain-of-Custody, including:

(i) Standardized field tracking reporting forms to establish sample custody in the field prior to and during shipment; and

(ii) Pre-prepared sample labels containing all information necessary for effective sample tracking.

3. Sample Analysis

The QAPjP shall include, but not be limited to the following:

(a) Chain-of-custody procedures, including:

(i) Identification of a responsible party to act as sample custodian at the laboratory facility authorized to sign for incoming field samples, obtain documents of shipment, and verify the data entered onto the sample custody records;

(ii) Provision for a laboratory sample custody log consisting of serially numbered standard lab-tracking report sheets; and

(iii) Specification of laboratory sample custody procedures for sample handling, storage, and disbursement

for analysis.

(b) Sample storage procedures and storage times;

(c) Sample preparation methods;

(d) Analytical procedures, including:

(i) Scope and application of the procedure;

(ii) Sample matrix;

(iii) Potential interferences;

(iv) Precision and accuracy of the methodology; and

(v) Method detection limits.

(e) Calibration procedures and frequency;

(f) Data reduction, validation and reporting;

(g) Internal quality control checks, laboratory performance and systems audits and frequency, including:

(i) Method blank(s);

(ii) Laboratory control sample(s);

(iii) Calibration check sample(s);

(iv) Replicate sample(s);

(v) Matrix-spikes sample(s);

(vi) "Blind" quality control sample(s);

(vii) Control charts;

(viii) Surrogate samples;

(ix) Zero and span gases; and

(x) Reagent quality control checks.

(h) Preventive maintenance procedures and schedules;

(i) Corrective action (for laboratory problems); and

(j) Turnaround time.

D. Health and Safety Plan

The Permittee shall prepare a Health and Safety Plan for the protection of the investigative team(s), workers, and general public which may be exposed to hazards.

1. The Health and Safety Plan shall include, but not be limited to the following:

   (a) Facility description including availability of resources such as roads, water supply, electricity and telephone service;

   (b) Describe the known hazards and evaluate the risks associated with the incident and with each activity conducted;

   (c) List key personnel and alternates responsible for site safety, response operations, and for protection of public health;

   (d) Delineate work areas;

   (e) Describe levels of protection to be worn by personnel in work areas;

   (f) Establish procedures to control site access;

   (g) Describe decontamination procedures for personnel and equipment;

   (h) Establish site emergency procedures;

   (i) Address emergency medical care for injuries and toxicological problems;

   (j) Describe requirements for an environmental surveillance program;

   (k) Specify any routine and special training required for responders; and

   (l) Establish procedures for protecting workers from weather-related problems.

2. The Facility Health and Safety Plan shall be consistent with:

   (a) NIOSH Occupational Safety and Health Guidance Manual for Hazardous Waste Site Activities (1985);

(b) EPA Order 1440.1 - Respiratory Protection;

(c) EPA Order 1440.3 - Health and Safety Requirements for Employees engaged in Field Activities;

(d) Facility Contingency Plan;

(e) EPA Standard Operating Safety Guide (1984);

(f) OSHA regulations particularly in 29 CFR §§ 1910 and 1926;

(g) State, local, and other federal agency (e.g., DOD, DOE) regulations; and

(h) Other EPA guidance as provided.

E. Community Relations Plan

The Permittee shall prepare a plan on disseminating information to the public regarding investigation activities and results. The plan should identify who will be notified and will receive summary RFI reports.

V. TASK IV: THE FACILITY INVESTIGATION

The Permittee shall submit a workplan that shall address the techniques and procedures necessary to characterize the environmental setting at and within the vicinity of the facility and the media-specific contamination resulting from the release(s) by the SWMU(s) and the AOC(s). The part of the workplan that addresses field sampling and measurement activities shall meet the sampling plan requirements stipulated in the "RCRA Quality Assurance Project Plan Guidance."

A. Environmental Setting

The Permittee shall submit an appropriate plan on collecting information to supplement existing information on the environmental setting at the facility and in the vicinity of the facility. Sufficient information shall be collected by the Permittee to characterize only those environmental media impacted by the release(s) from the SWMU(s) and the AOC(s):

1. Hydrogeology

The Permittee shall conduct a program to characterize the hydrogeologic conditions at the facility and the off-site areas where contamination has migrated. The program shall provide relevant information on geology and hydrogeology that should

include, but not be limited to the following facts:

(a) A description of the regional and facility specific geologic and hydrogeologic characteristics which affect groundwater flow both beneath and within the vicinity of the facility, including:

(i) Regional and facility specific geomorphology and stratigraphy: description of strata including strike and dip, identification of stratigraphic contacts;

(ii) Structural geology: description of local and regional structural features (e.g., folds, faults, joints, and fractures);

(iii) Identification and characterization of areas and amounts of recharge and discharge;

(iv) Regional and facility specific groundwater flow patterns; and

(v) Characterize seasonal variations in the groundwater flow regime.

(b) An analysis of any topographic features that might influence the groundwater flow system.

(c) Based on field data, tests, and cores, a representative and accurate classification and description of the hydrogeologic units which may be part of the migration pathways (i.e., the aquifers and any intervening saturated and unsaturated units), including:

(i) Hydraulic conductivity and porosity (total and effective);

(ii) Lithology, grain size, sorting, degree of cementation;

(iii) An interpretation of hydraulic interconnections between saturated zones; and

(iv) The attenuation capacity and mechanisms of the natural earth materials (e.g., ion exchange capacity, organic carbon content, mineral content etc.).

(d) Based on field studies and cores, structural geology and hydrogeologic cross sections, a description of the extent (depth, thickness, lateral extent) of hydrogeologic units which may be part of the migration pathways, including:

(i) Sand and gravel deposits in unconsolidated deposits;

(ii) Zones of fracturing or channeling in consolidated or unconsolidated deposits;

(iii) Zones of higher permeability or low permeability that might direct and restrict the flow of contaminants;

(iv) The uppermost aquifer: geologic formation, group of formations, or part of a formation capable of yielding a significant amount of groundwater to wells or springs; and

(v) Water-bearing zones above the first confining layer that may serve as a pathway for contaminant migration including perched zones of saturation.

(e) Based on data obtained from groundwater monitoring wells and piezometers installed upgradient and downgradient of the potential contaminant source, a representative description of water level or fluid pressure monitoring including:

(i) Water-level contour and/or potentiometric maps;

(ii) Hydrologic cross sections showing vertical gradients;

(iii) The flow system, including the vertical and horizontal components of flow; and

(iv) Any temporal changes in hydraulic gradients, for example, due to tidal or seasonal influences.

(f) A description of man-made influences that may affect the hydrogeology, identifying:

(i) Active and inactive local water-supply

and production wells with an approximate schedule of pumping; and

(ii) Man-made hydraulic structures (sewers, pipelines, French drains, ditches, unlined ponds, septic tanks, outfalls, retention areas, etc.).

2. Soils

The Permittee shall conduct a program to characterize the soil and rock units above the water table in the vicinity of the contaminant release(s). The program shall provide relevant information on soil characterization that should include, but not be limited to the following facts:

(a) SCS soil classification;
(b) Surface soil distribution;
(c) Soil profile, including ASTM classification of soils;
(d) Transects of soil stratigraphy;
(e) Hydraulic conductivity (saturated and unsaturated);
(f) Relative permeability;
(g) Bulk density;
(h) Porosity;
(i) Soil sorptive capacity;
(j) Cation exchange capacity (CEC);
(k) Soil organic content;
(l) Soil pH;
(m) Particle size distribution;
(n) Depth of water table;
(o) Moisture content;
(p) Effect of stratification on unsaturated flow;
(q) Infiltration;
(r) Evapotranspiration;
(s) Storage capacity; and
(t) Mineral content.

3. Surface Water and Sediment

The Permittee shall conduct a program to characterize the surface-water bodies in the vicinity of the contaminant release(s). The program shall provide relevant information on surface water and sediment characterization that should include, but not be limited to the following facts:

(a) Description of the temporal and permanent surface-water bodies including:

(i) For lakes and estuaries: location, elevation, surface area, inflow-

outflow characteristics, depth, temperature stratification, and volume;

(ii) For impoundments: location, elevation, surface area, depth, volume, inflow-outflow characteristics, freeboard, and purpose of impoundment;

(iii) For rivers, streams, ditches, drains, swamps and channels: location, elevation, flow, velocity, depth, width, inflow-outflow characteristics, seasonal fluctuations, and flooding tendencies (i.e., 100 year event);

(iv) Drainage patterns; and

(v) Evapotranspiration.

(b) Description of the chemistry of the surface water. This includes determining the pH, total dissolved solids, total suspended solids, biological oxygen demand, alkalinity, conductivity, dissolved oxygen profiles, nutrients (NH_3, NO_3^-/NO_2, PO_4^{-3}), chemical oxygen demand, total organic carbon, and specific contaminant concentrations.

(c) Description of sediment characteristics including:

(i) Deposition area;

(ii) Thickness profile; and

(iii) Physical and chemical parameters (e.g., grain size, density, organic carbon content, ion exchange capacity, and pH).

4. Air

The Permittee shall conduct a program to characterize the climate at the facility and in the vicinity of the facility when contamination migrates off-site. The program shall provide relevant information on climatic conditions that should include, but not be limited to the following facts:

(a) A description of the following parameters:

(i) Annual and monthly rainfall averages;

(ii) Monthly temperature averages and extremes;

(iii) Wind speed and direction;

(iv) Relative humidity/dew point;

(v) Atmospheric pressure;

(vi) Evaporation data;

(vii) Development of inversions; and

(viii) Climate extremes that have been known to occur in the vicinity of the facility, including frequency of occurrence.

(b) A description of topographic and man-made features which affect air flow and emission patterns, including:

(i) Ridges, hills or mountain areas;

(ii) Canyons or valleys;

(iii) Surface-water bodies (e.g., rivers, lakes, bays, etc.);

(iv) Wind breaks and forests;

(v) Buildings; and

(vi) Existing man-made air emission sources (e.g., industrial processes, residences, etc.).

B. Contamination Characterization Plan

The Permittee shall submit a workplan on collecting analytical data to supplement existing data on groundwater, soils, surface water, sediment, air and subsurface gas contamination. This data shall be sufficient to define the nature, extent, origin, direction, and rate of movement of contaminant plume(s) in the environmental medium impacted by the release(s) from the SWMU(s) and AOC(s).

1. Groundwater Contamination

The Permittee shall conduct a program to characterize any plume(s) of contamination at the facility and any plume(s) that have migrated off-site. The program shall provide relevant

information on groundwater contamination that should include, but not be limited to the following facts:

(a) A description of the horizontal and vertical extent of any immiscible or dissolved plume(s);

(b) The horizontal and vertical direction of contamination movement;

(c) The velocity of contaminant movement;

(d) The horizontal and vertical concentration profiles of contaminant constituents in the plume(s);

(e) An evaluation of factors influencing the plume movement, specific contaminant movement, and specific contaminant transformation (e.g., physical, chemical, biological, etc.); and

(f) An extrapolation of future contaminant movement.

2. Soil Contamination

The Permittee shall conduct a program to characterize the contamination of the soil and rock units above the water table in the vicinity of the contaminant release(s). The program shall provide relevant information on soil contamination that should include, but not be limited to the following facts:

(a) A description of the vertical and horizontal extent of contamination.

(b) A description of relevant contaminant chemical properties within the contaminant source area and plume. This includes contaminant solubility, speciation, adsorption, leachability, exchange capacity, biodegradability, hydrolysis, photolysis, oxidation and other factors that might affect contaminant migration and transformation.

(c) Specific contaminant concentrations.

(d) The velocity and direction of contaminant movement.

(e) An extrapolation of future contaminant movement.

3. Surface-Water and Sediment Contamination

The Permittee shall conduct a program to characterize the contamination in surface-water bodies resulting from the contaminant release(s) at the facility. The program shall provide relevant information on surface water and sediment contamination that shall include, but not be limited to the following facts:

(a) A description of the horizontal and vertical extent of any immiscible or dissolved plume(s) originating from the facility, and the extent of contamination in underlying sediments;

(b) The horizontal and vertical direction of contaminant movement;

(c) The contaminant velocity;

(d) An evaluation of the physical, biological and chemical factors influencing contaminant movement;

(e) An extrapolation of future contaminant movement; and

(f) The toxicity of the sediment and adjacent water column to aquatic life.

4. Air Contamination

The Permittee shall conduct a program to characterize the particulate and gaseous contaminants released into the atmosphere. The program shall provide relevant information on air emissions that should include, but not be limited to the following facts:

(a) A description of the horizontal and vertical direction and velocity of contaminant movement;

(b) The rate and amount of the release; and

(c) The chemical and physical composition of the contaminant(s) released, including horizontal and vertical concentration profiles.

5. Subsurface Gas Contamination

The Permittee shall conduct a program to

characterize subsurface gas contamination in the soil. The program shall provide relevant information on subsurface gas contamination that should include, but not be limited to the following facts:

(a) A description of the horizontal and vertical extent of subsurface gas migration;

(b) The chemical composition of the gases being emitted;

(c) The rate, amount, and density of the gases being emitted; and

(d) Horizontal and vertical concentration profiles of the subsurface gases emitted.

VI. TASK V: INVESTIGATION ANALYSIS

The Permittee shall prepare an analysis and summary of all facility investigations and their results. The objective of this task shall be to ensure that the investigation data are sufficient in quality (e.g., quality assurance procedures have been followed) and quantity to describe the nature, rate, and extent of contamination, potential threat to human health and/or the environment, and to support the Corrective Measures Study.

A. Data Analysis

The Permittee shall analyze all facility investigation data outlined in Task IV and prepare a report on the nature, rate, and extent of contamination at the facility including sources and migration pathways. The report shall describe the nature and extent of contamination (qualitative/ quantitative) in relation to background levels indicative for the area.

B. Protection Standards

The Permittee shall identify all relevant and applicable standards and action levels (e.g., health based guidance values) for the protection of human health and the environment.

VII. TASK VI: LABORATORY AND BENCH SCALE STUDIES

The Permittee shall conduct laboratory and/or bench scale studies to determine the applicability of a corrective measure technology or technologies to facility conditions. The Permittee shall analyze the technologies, based on literature review, vendor contracts, and past experience to

determine the testing requirements.

The Permittee shall develop a testing plan identifying the type(s) and goal(s) of the study(s), the level of effort needed, and the procedures to be used for data management and interpretation.

Upon completion of the testing, the Permittee shall evaluate the testing results to assess the technology or technologies with respect to the site-specific questions identified in the test plan.

The Permittee shall prepare a report summarizing the testing program and its results, both positive and negative.

VIII. TASK VII: REPORTS

A. Progress Reports

The Permittee shall provide signed progress reports as required by Condition B.8.(a) of Module III of this Permit.

B. Draft and Final Reports

The Permittee shall prepare a RCRA Facility Investigation ("RFI") Report as required by Condition E.7 of Module III of this Permit. The RFI Report shall present all information gathered under the approved RFI Workplan.

373 Appendix III-C

SCOPE OF WORK FOR A CORRECTIVE MEASURE STUDY

PRIDE SOLVENTS & CHEMICALS CO., INC.
WEST BABYLON, NEW YORK
EPA.I.D.NO:057722258

I. PURPOSE

The purpose of this Corrective Measure Study (CMS) is to develop and evaluate the corrective action alternative or alternatives and to recommend the corrective measure or measures to be taken. The Permittee will furnish the personnel, materials, and services necessary to prepare the corrective measure study, except as otherwise specified.

The information presented in this Appendix shall serve as guidance for developing component plans and supporting reports to accomplish the intended purpose. This guidance is comprehensive, but can be tailored to meet site specific circumstances. The Permittee should consult with the Department on any significant deviations from this guidance prior to implementation.

II. SCOPE

The Corrective Measure Study consists of four tasks:

Task I: Identification and Development of the Corrective Measure Alternative or Alternatives

A. Description of Current Situation
B. Establishment of Corrective Action Objectives
C. Screening of Corrective Measures Technologies
D. Identification of the Corrective Measure Alternative or Alternatives

Task II: Evaluation of the Corrective Measure Alternative or Alternatives

A. Technical/Environmental/Human Health/Institutional
B. Cost Estimate

Task III: Justification and Recommendation of the Corrective Measure or Measures

A. Technical

B. Human Health
C. Environmental

Task IV: Reports

A. Progress
B. Final

III. TASK I: IDENTIFICATION AND DEVELOPMENT OF THE CORRECTIVE ACTION ALTERNATIVE OR ALTERNATIVES

Based on the results of the RCRA Facility Investigation and consideration of the identified Preliminary Corrective Measure Technologies (Task II of Appendix III-B), the Permittee shall identify, screen, and develop the alternative or alternatives for removal, containment, treatment and/or other remediation of the contamination based on the objectives established for the corrective action.

A. Description of Current Situation

The Permittee shall submit an update to the information describing the current situation at the facility and the known nature and extent of the contamination as documented by the RCRA Facility Investigation Report. The Permittee shall provide an update to information presented in Task I of the RFI to the Commissioner regarding previous response activities and any interim measures which have or are being implemented at the facility. The Permittee shall also make a facility-specific statement of the purpose for the response, based on the results of the RCRA Facility Investigation ("RFI"). The statement of purpose should identify the actual or potential exposure pathways that should be addressed by corrective measures.

B. Establishment of Corrective Action Objectives

The Permittee, in conjunction with the Department, shall establish site specific objectives for the corrective action. These objectives shall be based on public health and environmental criteria, information gathered during the RFI, EPA and New York State guidance, and the requirements of any applicable federal and state statutes. At a minimum, all corrective actions concerning groundwater releases from regulated units must be consistent with, and as stringent as, those required under 6NYCRR 373-2.6.

C. Screening of Corrective Measure Technologies

The Permittee shall review the results of the RFI and reassess the technologies specified in Task II and identify additional technologies which are applicable at the facility. The Permittee shall screen the preliminary corrective measure technologies identified in Task II of the RFI and any supplemental technologies to eliminate those that may prove infeasible to implement, that rely on technologies unlikely to perform satisfactorily or reliably, or that do not achieve the corrective measure objective within a reasonable time period. This screening process focuses on eliminating those technologies which have severe limitations for a given set of waste and site-specific conditions. The screening step may also eliminate technologies based on inherent technology limitations. Site, waste, and technology characteristics which are used to screen inapplicable technologies are described in more detail below:

1. Site Characteristics

Site data should be reviewed to identify conditions that may limit or promote the use of certain technologies. Technologies whose use is clearly precluded by site characteristics should be eliminated from further consideration;

2. Waste Characteristics

Identification of waste characteristics that limit the effectiveness or feasibility of technologies is an important part of the screening process. Technologies clearly limited by these waste characteristics should be eliminated from consideration. Waste characteristics particularly affect the feasibility of in-situ methods, direct treatment methods, and land disposal (on/off-site); and

3. Technology Limitations

During the screening process, the level of technology development, performance record, and inherent construction, operation, and maintenance problems should be identified for each technology considered. Technologies that are unreliable, perform poorly, or are not fully demonstrated may be eliminated in the screening process. For example, certain treatment methods have been developed to a point where they can be implemented in the field

without extensive technology transfer or development.

D. Identification of the Corrective Measure Alternative or Alternatives

The Permittee shall develop the corrective measure alternative or alternatives based on the corrective action objectives and analysis of the Preliminary Corrective Measure Technologies, as presented in Task II of the RFI and as supplemented following the preparation of the RFI Final Report. The Permittee shall rely on engineering practice to determine which of the previously identified technologies appear most suitable. Technologies can be combined to form the overall corrective action alternative or alternatives. The alternative or alternatives developed should represent a workable number of option(s) that each appear to adequately address all problems and corrective action objectives. Each alternative may consist of an individual technology or a combination of technologies. The Permittee shall document the reasons for excluding technologies, identified in Task II, as supplemented in the development of the alternative or alternatives.

IV. TASK II: EVALUATION OF THE CORRECTIVE MEASURE ALTERNATIVE OR ALTERNATIVES

The Permittee shall describe each corrective measure alternative that passes through the Initial Screening in Task I of Appendix III-C and evaluate each corrective measure alternative and it's components. The evaluation shall be based on technical, environmental, human health and institutional concerns. The Permittee shall also develop cost estimates of each corrective measure.

A. Technical/Environmental/Human Health/Institutional

The Permittee shall provide a description of each corrective measure alternative which includes, but is not limited to the following: preliminary process flow sheets; preliminary sizing and type of construction for buildings and structures; and rough quantities of utilities required. The Permittee shall evaluate each alternative in the four following areas:

1. Technical

The Permittee shall evaluate each corrective measure alternative based on performance, reliability, implementability and safety.

(a) The Permittee shall evaluate performance based on the effectiveness and useful life of the corrective measure:

(i) Effectiveness shall be evaluated in terms of the ability to perform intended functions, such as containment, diversion, removal, destruction, or treatment. The effectiveness of each corrective measure shall be determined either through design specifications or by performance evaluation. Any specific waste or site characteristics which could potentially impede effectiveness shall be considered. The evaluation should also consider the effectiveness of combinations of technologies; and

(ii) Useful life is defined as the length of time the level of effectiveness can be maintained. Most corrective measure technologies, with the exception of destruction, deteriorate with time. Often, deterioration can be slowed through proper system operation and maintenance, but the technology eventually may require replacement. Each corrective measure shall be evaluated in terms of the projected service lives of its component technologies. Resource availability in the future life of the technology, as well as appropriateness of the technologies, must be considered in estimating the useful life of the project.

(b) The Permittee shall provide information on the reliability of each corrective measure including their operation and maintenance requirements and their demonstrated reliability:

(i) Operation and maintenance requirements include the frequency and complexity of necessary operation and maintenance. Technologies requiring frequent or complex operation and maintenance activities should be regarded as less reliable than technologies requiring little or straight forward operation and maintenance. The availability of labor

and materials to meet these requirements shall also be considered; and

(ii) Demonstrated and expected reliability is a way of measuring the risk and effect of failure. The Permittee should evaluate whether the technologies have been used effectively under analogous conditions; whether the combination of technologies have been used together effectively; whether failure of any one technology has an immediate impact on receptors; and whether the corrective measure has the flexibility to deal with uncontrollable changes.

(c) The Permittee shall describe the implementability of each corrective measure including the relative ease of installation (constructability) and the time required to achieve a given level of response:

(i) Constructability is determined by conditions both internal and external to the facility conditions and include such items as location of underground utilities, depth of water table, heterogeneity of subsurface materials, and location of the facility (i.e., remote location vs. a congested urban area). The Permittee shall evaluate what measures can be taken to facilitate construction under these conditions. External factors which affect implementation include the need for special permits or agreements, equipment availability, and the location of suitable off-site treatment or disposal facilities; and

(ii) Time has two components that shall be addressed: (1) the time it takes to implement a corrective measure; and (2) the time it takes to actually see beneficial results. Beneficial results are defined as the reduction of contaminants to some acceptable, pre-established level.

(d) The Permittee shall evaluate each corrective measure alternative with regard to safety. This evaluation shall include threats to the

safety of nearby communities and environments as well as those to workers during implementation. Among the factors to consider are fire, explosion, and exposure to hazardous substances.

2. Environmental

The Permittee shall perform an Environmental Assessment for each alternative. The Environmental Assessment shall focus on the facility conditions and pathways of contamination actually addressed by each alternative. The Environmental Assessment for each alternative will include, at a minimum, an evaluation of: the short and long term beneficial and adverse effects of the response alternative; any adverse effects on environmentally sensitive areas; and an analysis of measures to mitigate adverse effects.

3. Human Health

The Permittee shall assess each alternative in terms of the extent to which it mitigates short and long term potential exposure to any residual contamination and protects human health both during and after implementation of the corrective measure. The assessment will describe the levels and characterizations of contaminants on-site, potential exposure routes, and potentially affected populations. Each alternative will be evaluated to determine the level of exposure to contaminants and the reduction over time. For management of mitigation measures, the relative reduction of impact will be determined by comparing residual levels of each alternative with existing criteria, standards, or guidelines.

4. Institutional

The Permittee shall assess relevant institutional needs for each alternative. Specifically, the effects of Federal, State, and local environmental and public health standards, regulations, guidance, advisories, ordinances, or community relations on the design, operation, and timing of each alternative.

B. <u>Cost Estimate</u>

The Permittee shall develop an estimate of the cost of each corrective measure alternative (and for each phase

or segment of the alternative). The cost estimate shall include both capital, operation and maintenance costs.

1. Capital costs consist of direct (construction) and indirect (nonconstruction and overhead) costs.

   (a) Direct capital costs include:

      (i) Construction costs: Costs of materials, labor (including fringe benefits and worker's compensation), and equipment required to install the corrective measure;

      (ii) Equipment costs: Costs of treatment, containment, disposal and/or service equipment necessary to implement the action; these materials remain until the corrective action is complete;

      (iii) Land and site-development costs: Expenses associated with purchase of land and development of existing property; and

      (iv) Buildings and services costs: Costs of process and nonprocess buildings, utility connections, purchased services, and disposal costs.

   (b) Indirect capital costs include:

      (i) Engineering expenses: Costs of administration, design, construction supervision, drafting, and testing of corrective measure alternatives;

      (ii) Legal fees and license or permit costs: Administrative and technical costs necessary to obtain licenses and permits for installation and operation;

      (iii) Startup and shakedown costs: Costs incurred during corrective measure startup; and

      (iv) Contingency allowances: Funds to cover costs resulting from unforeseen circumstances, such as adverse weather conditions, strikes, and inadequate facility characterization.

2. Operation and maintenance costs are post-construction costs necessary to ensure continued effectiveness of a corrective measure. The Permittee shall consider the following operation and maintenance cost components;

   (a) Operating labor costs: Wages, salaries, training, overhead, and fringe benefits associated with the labor needed for post-construction operations;

   (b) Maintenance materials and labor costs: Costs for labor, parts, and other resources required for routine maintenance of facilities and equipment;

   (c) Auxiliary materials and energy: Costs of such items as chemicals and electricity for treatment plant operations, water and sewer service, and fuel;

   (d) Purchased services: Sampling costs, laboratory fees, and professional fees for which the need can be predicted;

   (e) Disposal and treatment costs: Costs of transporting, treating, and disposing of waste materials, such as treatment plant residues generated during operations;

   (f) Administrative costs: Costs associated with administration of corrective measure operation and maintenance not included under other categories;

   (g) Insurance, taxes, and licensing costs: Costs of such items as liability and sudden accidental insurance; real estate taxes on purchased land or rights-of-way; licensing fees for certain technologies; and permit renewal and reporting costs;

   (h) Maintenance reserve and contingency funds: Annual payments into escrow funds to cover (1) costs of anticipated replacement or rebuilding of equipment and (2) any large unanticipated operation and maintenance costs; and

   (i) Other costs: Items that do not fit any of the above categories.

V. TASK III: JUSTIFICATION AND RECOMMENDATION OF THE CORRECTIVE MEASURE OR MEASURES

The Permittee shall justify and recommend a corrective measure alternative using technical, human health, and environmental criteria. This recommendation shall include summary tables which allow the alternative or alternatives to be understood easily. Tradeoffs among health risks, environmental effects, and other pertinent factors shall be highlighted. The Commissioner will select the corrective measure alternative or alternatives to be implemented based on the results of Tasks II and III of Appendix III-C. At a minimum, the following criteria will be used to justify the final corrective measure or measures.

A. Technical

1. Performance - corrective measure or measures which are most effective at performing their intended functions and maintaining the performance over extended periods of time will be given preference;

2. Reliability - corrective measure or measures which do not require frequent or complex operation and maintenance activities and that have proven effective under waste and facility conditions similar to those anticipated will be given preference;

3. Implementability - corrective measure or measures which can be constructed and operated to reduce levels of contamination to attain or exceed applicable standards in the shortest period of time will be preferred; and

4. Safety - corrective measure or measures which pose the least threat to the safety of nearby residents and environments as well as workers during implementation will be preferred.

B. Human Health

The corrective measure or measures must comply with existing EPA and/or State criteria, standards, or guidelines for the protection of human health. Corrective measures which provide the minimum level of exposure to contaminants and the maximum reduction in exposure with time are preferred.

C. Environmental

The corrective measure or measures posing the least adverse impact (or greatest improvement) over the shortest period of time on the environment will be favored.

VI. TASK IV: REPORTS

A. Progress Reports

The Permittee shall provide the Commissioner with signed progress reports as required by Condition B.8.(a) of Module III of this Permit.

B. Corrective Measures Study ("CMS") Final Report

The Permittee shall prepare a CMS Final Report as required by Condition E.11. of Module III of this Permit. The CMS Final Report shall include all information gathered under the approved CMS Workplan. The CMS Final Report shall at a minimum include:

1. A description of the facility;

   (a) Site topographic map and preliminary layouts.

2. A summary of the corrective measure or measures;

   (a) Description of the corrective measure or measures and rationale for selection;

   (b) Performance expectations;

   (c) Preliminary design criteria and rationale;

   (d) General operation and maintenance requirements; and

   (e) Long-term monitoring requirements.

3. A summary of the RCRA Facility Investigation and impact on the selected corrective measure or measures;

   (a) Field studies (groundwater, surface-water, soil, air); and

   (b) Laboratory studies (bench scale, pilot scale).

4. Design and Implementation Precautions;

(a) Special technical problems;

(b) Additional engineering data required;

(c) Permits and regulatory requirements;

(d) Access, easements, right-of-way;

(e) Health and safety requirements; and

(f) Community relations activities.

5. Cost Estimates and Schedules;

(a) Capital cost estimate;

(b) Operation and maintenance cost estimate; and

(c) Project schedule (design, construction, operation).

373 Appendix III-D
Compliance Schedule

PRIDE SOLVENTS & CHEMICALS CO., INC.
WEST BABYLON, NEW YORK
EPA.I.D.NO:057722258

I. Compliance Schedule For Interim Corrective Measures.

A. Pursuant to Module Condition B.6.(a), Permittee shall submit for approval an interim corrective measures study within thirty (30) calendar days following the date of the notification by the Commissioner requiring implementation of interim corrective measures.

B. Pursuant to Module Condition B.6.(b), Permittee shall submit for approval an interim corrective measures work plan within thirty (30) calendar days after notifying the Commissioner of the actual or potential threat to human health or the environment.

II. Compliance Schedule For Reporting.

A. Pursuant to Module Condition B.8.(a), Permittee shall submit signed progress reports as specified in approved work plans of all activities conducted in accordance with the provisions of this Permit Module, beginning no later than thirty (30) calendar days after the Permittee is first required to begin implementation of any such requirement.

III. Compliance Schedule for Notification

A. Pursuant to Module III Condition B.10.(a), Permittee within fifteen (15) calendar days; after discovering facility releases of hazardous constituents in groundwater have migrated off-site, shall notify the Commissioner and off-site owners or residents on land overlying such contamination.

B. Pursuant to Module III Condition B.10.(b), Permittee within fifteen (15) calendar days; after discovering facility releases of hazardous constituents in air have or are migrated off-site, exceeding action levels, shall notify the Commissioner and off-site individuals subject to such long-term exposure.

IV. Compliance Schedule For Assessment of Newly Identified SWMUs and AOCs.

A. Pursuant to Module Condition C.1., Permittee shall

notify the Commissioner, in writing, of any additional SWMU(s) and/or AOC(s) within fifteen (15) calendar days after discovery.

B. Pursuant to Module Condition C.2., Permittee shall submit a SWMU/AOC Assessment Report within thirty (30) calendar days after notifying the Commissioner of any additional SWMU(s) and/or AOC(s).

C. Pursuant to Module Condition C.3., Permittee shall submit for approval a SWMU/AOC Sampling and Analysis Plan within thirty (30) calendar days after submittal of the SWMU/AOC Assessment Report.

D. Pursuant to Module Condition C.4.(b), Permittee shall submit for approval revisions of the SWMU/AOC Sampling and Analysis Plan within thirty (30) calendar days after meeting with the Department to discuss Plan comments or within forty-five (45) calendar days after Permittee's receipt of Plan comments when no meeting is scheduled.

E. Pursuant to Module Condition C.4.(c), Permittee shall begin to implement the SWMU/AOC Sampling and Analysis Plan within thirty (30) calendar days following written approval of the Plan.

F. Pursuant to Module Condition C.5., Permittee shall submit a SWMU/AOC Sampling and Analysis Report within thirty (30) calendar days of receipt by the Permittee of validated analytical data generated under in the approved SWMU/AOC Sampling and Analysis Plan.

V. Compliance Schedule And Notification Requirements For Newly-Discovered Releases At SWMUs and AOCs.

A. Pursuant to Module Condition D., Permittee shall notify the Commissioner, in writing, of any newly-discovered releases at SWMUs and/or AOCs, no later than fifteen (15) calendar days after such discovery.

VI. Compliance Schedule For RFA-Sampling Visit (SV) Work Plan.

Not Applicable

VII. Compliance Schedule For RFA-SV Work Plan Implementation.

Not Applicable

VIII. Compliance Schedule For RFA-SV Report.

Not Applicable

IX. Compliance Schedule For RCRA Facility Investigation ("RFI") Work Plan.

A. Pursuant to Module Condition E.5.(c)., Permittee shall submit for approval a RFI Task I and II reports and a Work Plan for the inaccessible SWMU(s) identified in Module Condition E.5.(b) and/or Module Condition C.6. no later than one-hundred and eighty (180) calendar days prior to the date when the SWMU(s) become accessible for such an investigation.

Waived 7/18/95

B. Pursuant to Module Condition E.5.(d)., Permittee shall submit for approval a RFI Task I Report for the SWMU(s) identified in Module Condition E.5.(a) within sixty (60) calendar days after the effective date of this Permit, if applicable, and within sixty (60) calendar days after written notification by the Commissioner than an RFI is required pursuant to Module Condition C.6, D., and/or E.4(b).

Extended to date of submission of final RFI

C. Pursuant to Module Condition E.5.(e)., Permittee shall submit for approval a RFI Task II Report for the SWMU(s) identified in Module Condition E.5.(a) within ninety (90) calendar days after the effective date of this Permit, if applicable, and within ninety (90) days after written notification by the Commissioner than an RFI is required pursuant to Module Condition C.6., D., and/or E.4(b).

Waived - deemed previously met 7/18/95

D. Pursuant to Module Condition E.5.(f)., Permittee shall submit for approval a RFI Work Plan for the SWMU(s) identified in Module Condition E.5.(a) within one-hundred and twenty (120) calendar days after the effective date of this Permit, if applicable, and within ninety (90) days after written notification by the Commissioner than an RFI is required pursuant to Module Condition C.6., D., and/or E.4(b).

E. Pursuant to Module Condition E.5(f)(iv), if the Permittee determines any items of Tasks III through V of the RFI Scope of Work have been submitted, the Permittee shall request within thirty (30) calendar days of the effective date of the Permit, and/or within thirty (30) calendar days of notification by the Commissioner, that the Commissioner review for approval the Permittee's determination.

F. Pursuant to Module Condition E.5.(g)(ii)., Permittee shall submit for approval revisions to the RFI Work Plan within thirty (30) calendar days after meeting with the Department to discuss Plan comments, or within forty-five (45) calendar days after Permittee's receipt of Plan comments when no meeting is scheduled.

X. Compliance Schedule For RFI Work Plan Implementation.

Extended to no later than 9/5/95

A. Pursuant to Module Condition E.6., Permittee shall begin to implement the RFI Work Plan within thirty (30) calendar days following written approval of the Plan.

XI. Compliance Schedule For RFI Final Report And Summary Report.

A. Pursuant to Module Condition E.7.(a)., Permittee shall submit for approval the RFI Final and Summary Reports within sixty (60) calendar days after receipt by the Permittee of validated analytical data generated under the approved work plan.

B. Pursuant to Module Condition E.7.(b)(ii), Permittee shall submit for approval revisions to the RFI Final and Summary Reports within forty-five (45) calendar days after meeting with the Department to discuss Report comments, or within forty-five (45) calendar days when no meeting is scheduled.

C. Pursuant to Module Condition E.7.(c), Permittee shall mail the approved Summary Report to all individuals on the facility mailing list within thirty (30) calendar days of receipt of Report approval.

XII. Compliance Schedule For Current Interim Corrective Measures.

Not Applicable

XIII. Compliance Schedule For Corrective Measures Study ("CMS") Scope of Work.

A. Pursuant to Module Condition E.9.(d), Permittee shall submit a Task I Report and documents within sixty (60) calendar days after the written notification by the Commissioner for a CMS.

B. Pursuant to Module Condition E.9.(e), Permittee shall submit for approval a CMS Plan within sixty (60) calendar days after the written notification by the Commissioner for a CMS.

C. Pursuant to Module Condition E.9.(f)(ii), Permittee shall submit for approval revisions to the CMS Plan within thirty (30) calendar days after meeting with the Department to discuss Plan comments, or within forty-five (45) calendar days when no meeting is scheduled.

XIV. Compliance Schedule For CMS Implementation.

A. Pursuant to Module Condition E.10., Permittee shall begin to implement the CMS Plan within thirty (30) calendar days following written approval of the Plan.

XV. Compliance Schedule For CMS Final Report.

A. Pursuant to Module Condition E.11.(a), Permittee shall submit for approval a CMS Final Report within forty-five (45) calendar days after completion of the CMS.

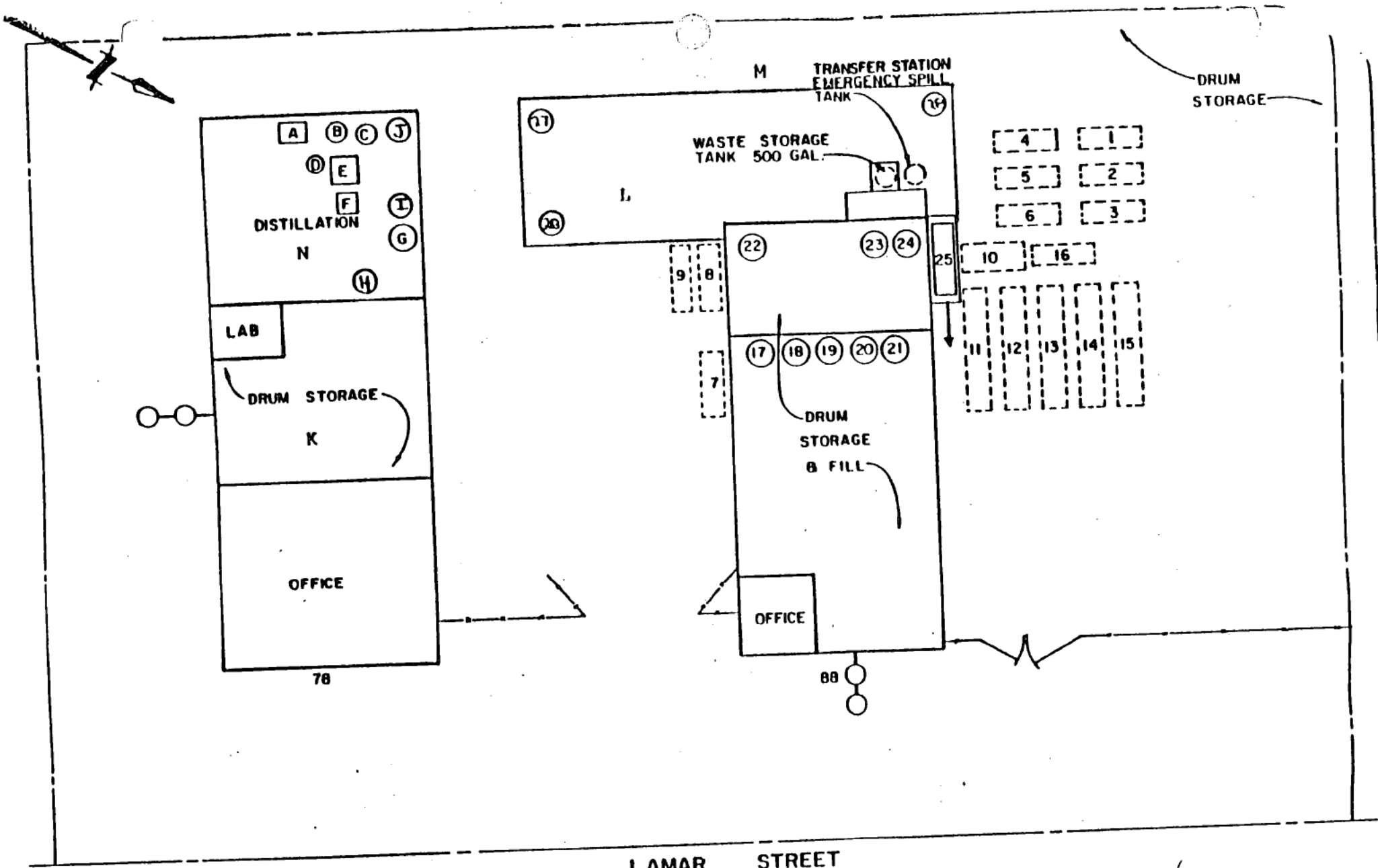
B. Pursuant to Module Condition E.11.(c)(ii), Permittee shall submit for approval revisions to the CMS Final Report within thirty (30) calendar days after meeting with the Department to discuss Report comments or within forty-five (45) calendar days when no meeting is scheduled.

XVI. Compliance Schedule For Financial Assurance for Corrective Measure(s)

A. Pursuant to Module Condition E.13.(b), Permittee shall demonstrate financial assurance for completing the approved corrective measure(s) within thirty (30) calendar days after this Permit has been modified.

XVII. Modification of the Compliance Schedules

A. Pursuant to Module Condition E.14.(a)(i), Permittee shall submit proposed modification of any Compliance Schedule within fifteen (15) calendar days of determining that a schedule cannot be met.



STORMWATER DRYWELL

SANITARY DISPOSAL

0 0 30

CHEMICAL FACILITY PLAN

Figure 1

PRIDE SOLVENT & CHEMICAL CO., INC.

WEST BABYLON, SUFFOLK CO., NEW YORK

EPA I.D. NO. NYD 057722258

MAY 1982

HOLZMACHER, McLENDON & MURRELL, P.C.

CONSULTING ENGINEERS, ENVIRONMENTAL SCIENTISTS and PLANNERS

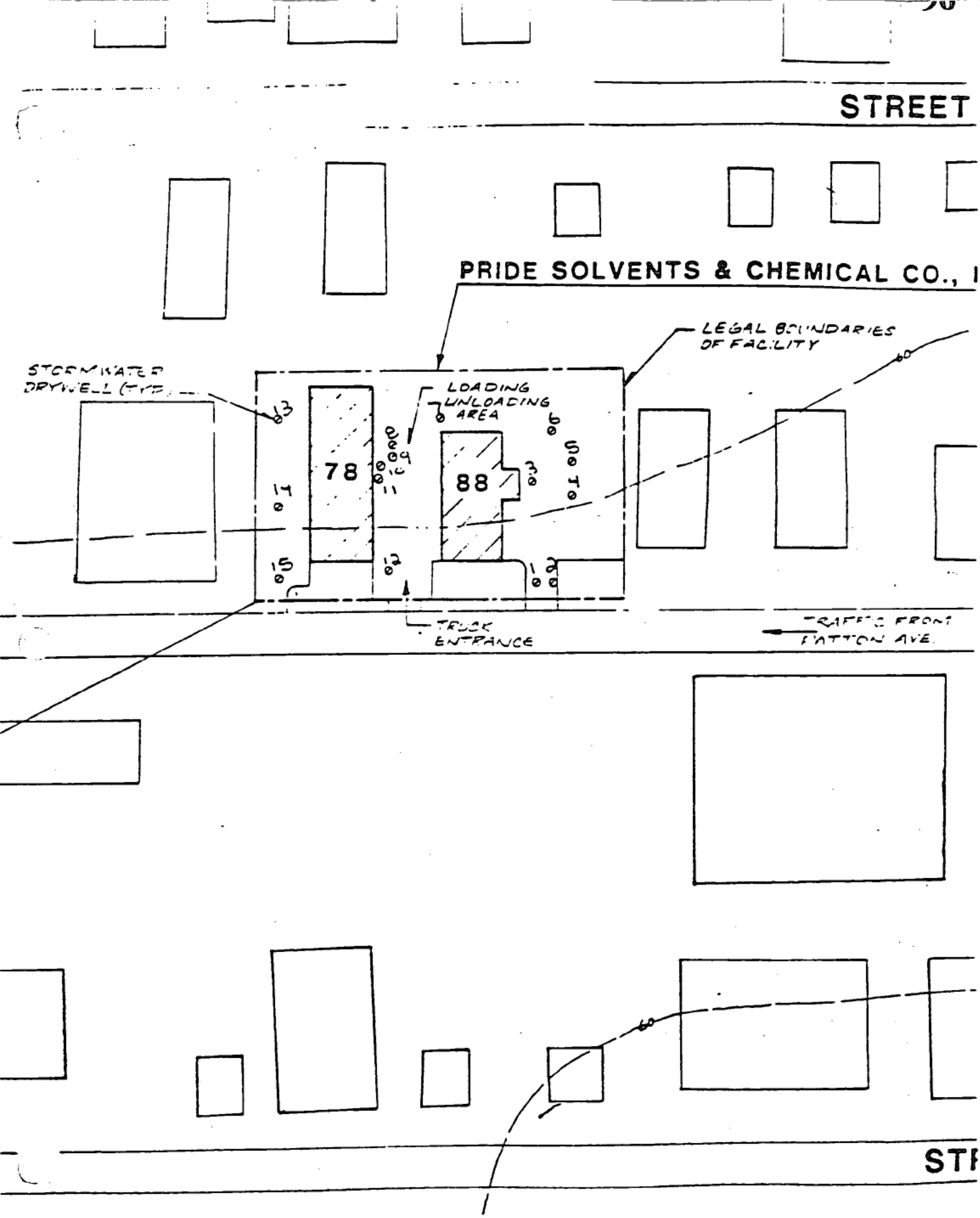

STREET
PRIDE SOLVENTS & CHEMICAL CO.,
LEGAL BOUNDARIES OF FACILITY
STORMWATER DRYWELL (TYP.)
LOADING UNLOADING AREA
78
88
TRUCK ENTRANCE
TRAFFIC FROM FATTON AVE.
STR

Figure 2

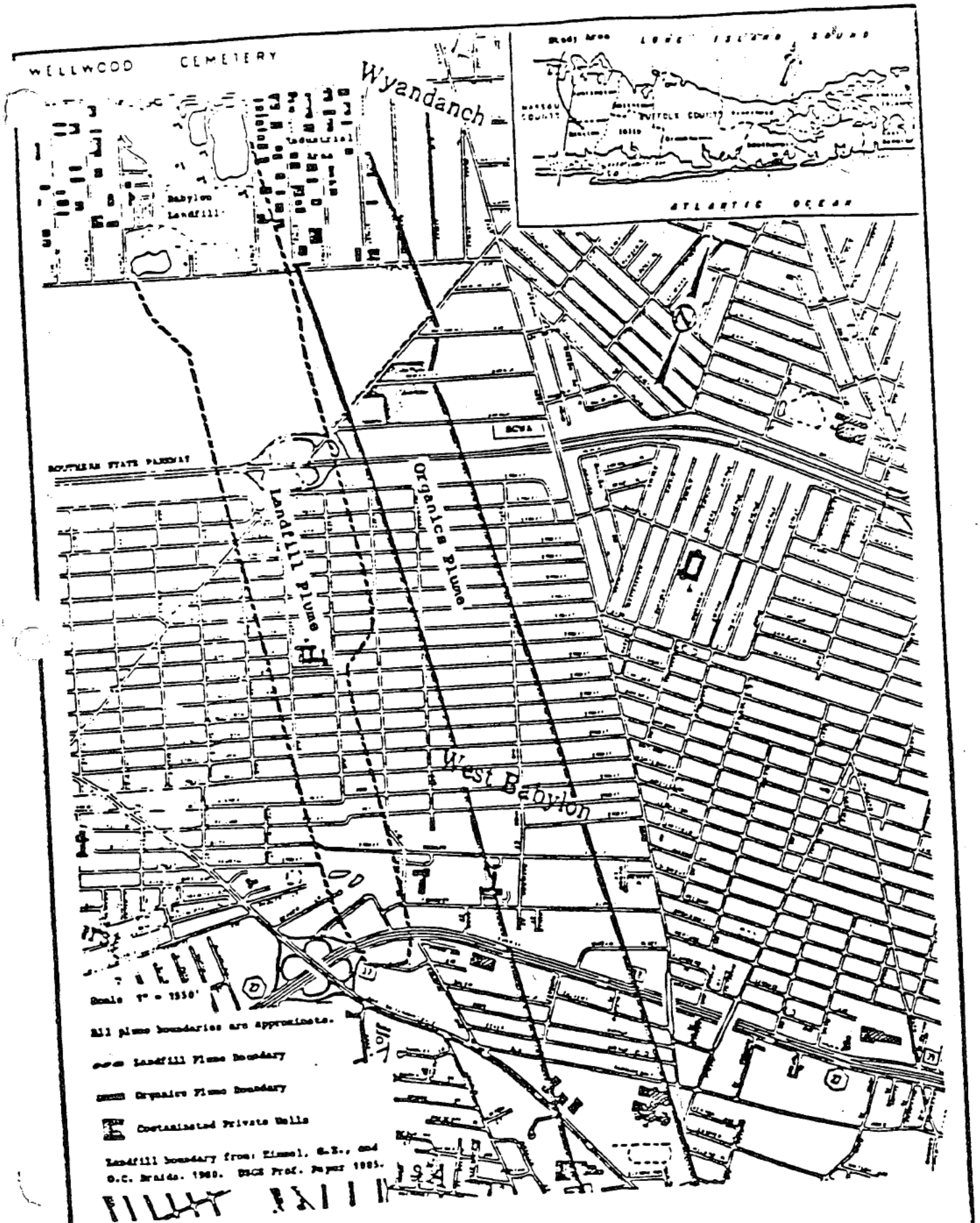

WELLWOOD CEMETERY
Wyandanch
Babylon Landfill
Industrial
SOUTHERN STATE PARKWAY
Landfill Plume
Organics Plume
West Babylon
Scale 1" = 1550'
All plume boundaries are approximate.
Landfill Plume Boundary
Organics Plume Boundary
Contaminated Private Wells
Landfill boundary from: Zimmel, G.E., and G.C. Braida. 1980. ESCE Prof. Paper 1985.
LONG ISLAND SOUND
NASSAU COUNTY
SUFFOLK COUNTY
ATLANTIC OCEAN

Figure 3

MODULE IV - WASTE REDUCTION REQUIREMENTS

The Permittee shall comply with the requirements of Article 27, Title 9, Section 27-0908 of the New York State Environmental Conservation Law.

All reports and submittals required by Section 27-0908 to be submitted to the Commissioner shall be sent to the following addresses:

Three (3) copies to:

New York State Department of Environmental Conservation
50 Wolf Road
Albany, NY 12233-7252

Attention: Chief, Bureau of Eastern Hazardous Waste Programs
Division of Hazardous Substances Regulation

One (1) copy to:

New York State Department of Environmental Conservation

Region 1

NYSDEC , Building 40, SUNY at Stony Brook
Stony Brook, New York, 11794

Attention: Regional Hazardous Substances Engineer

MODULE V - LAND DISPOSAL RESTRICTIONS *

A. BACKGROUND: 6 NYCRR Part 376 (Land Disposal Restrictions) prohibits the continued land disposal of untreated hazardous wastes beyond specified dates, unless the Commissioner authorizes an exemption from or extension to an effective date of an applicable restriction established under section 376.3 of this part, under the provisions of 6 NYCRR Parts 376.1(a)(4), 376.1(a)(5), 376.1(e) or 376.1(f).

Pursuant to 6 NYCRR Part 373-2.2(e) before an operator treats, stores or dispose of any hazardous waste, he must obtain a detailed chemical and physical analysis of a representative sample of the waste. At a minimum this analysis must contain all the information which must be known to treat store or dispose of the waste in accordance with the requirements of 6NYCRR Part 373-2 and 376 or the conditions of a permit issued under 6 NYCRR Part 373-1 and 621.

The Permittee shall comply with the waste analysis, notification, certification and record keeping requirements of 6 NYCRR Part 376.1(g) whenever generating, treating or managing a restricted waste.

B. STORAGE OF RESTRICTED WASTES: The Permittee may store such wastes to which the land disposal prohibition applies for up to one year unless the Department can demonstrate that such storage was not solely for the purpose of a accumulation of such quantities of hazardous waste as are necessary to facilitate proper recovery, treatment or disposal [6NYCRR Part 376.5(a)2].

The Permittee may store wastes to which the land disposal prohibition applies beyond one year; however, the Permittee bears the burden of proving that such storage was solely for the purpose of accumulation of such quantities of hazardous waste as are necessary to facilitate proper recovery, treatment or disposal [6NYCRR Part 376.5(b)(3)].

C. LAND DISPOSAL OF RESTRICTED WASTES: The land disposal of restricted waste is prohibited unless the applicable treatment standard is met, or the waste is exempt under 6 NYCRR Part 376.1(a)(3).

D. <u>THE RESTRICTION DATES:</u> The above restrictions become effective only from as specified under 6 NYCRR Part 376.3.

The Permittee is required to comply with the restrictions and applicable dates which are specified in 6 NYCRR Part 376 for all hazardous waste managed by the Permittee.

* 6 NYCRR Part 376 (Land Disposal Restrictions) is effective from January 31, 1992.

MODULE VI - STORAGE IN CONTAINERS

A. AUTHORIZED STORAGE AREA. WASTE TYPES AND STORAGE VOLUME.

The Permittee may store the following wastes in containers at the facility, subject to the terms of this permit:

AREA	WASTE TYPE	CONTAINER VOLUME	TOTAL AMOUNT OF DRUMMED WASTE
Drum Storage Area 2,200 Sq. Feet Indoor Storage	1,1,1-Trichloroethane F001 & F002 Trichloroethylene F001 & F002 Methylene Chloride F001 & F002 Tetrachloroethylene F001 & F002 Freon F001 & F002 N. Propyl Bromide Not Listed Sludge and still bottoms generated by on-site reclamation of solvents F001 & F002	55 Gallons DOT Class 17E	360 Drums 360 x 55 = 19,800 gallons

B. CONTAINMENT

The Permittee shall maintain the containment systems in accordance with the requirements of 6NYCRR 373-2.9 (f) and as specified in the attached plans and specifications, Attachment VI.

C. CONDITION OF CONTAINERS

If a container holding hazardous waste is not in good condition (e.g., severe rusting, apparent structural defects, deterioration of liner) or if it begins to leak, the Permittee shall transfer the hazardous waste for such container to a container that is in good condition or otherwise manage the waste in compliance with the conditions of this permit. Each such occurrence shall be recorded in the inspection log and maintained as part of the operating

MODULE VI - STORAGE IN CONTAINERS

A. AUTHORIZED STORAGE AREA, WASTE TYPES AND STORAGE VOLUME.

The Permittee may store the following wastes in containers at the facility, subject to the terms of this permit:

AREA	WASTE TYPE	CONTAINER VOLUME	TOTAL AMOUNT OF DRUMMED WASTE
Drum Storage Area 2,200 Sq.Feet Indoor Storage	1,1,1-Trichloroethane F001 & F002 Trichloroethylene F001 & F002 Methylene Chloride F001 & F002 Tetrachloroethylene F001 & F002 Freon F001 & F002 Sludge and still bottoms generated by on-site reclamation of solvents F001 & F002	55 Gallons DOT Class 17E	360 Drums 360 X 55 = 19,800 gallons

B. CONTAINMENT

The Permittee shall maintain the containment systems in accordance with the requirements of 6NYCRR 373-2.9(f) and as specified in the attached plans and specifications, Attachment VI.

C. CONDITION OF CONTAINERS

If a container holding hazardous waste is not in good condition (e.g., severe rusting, apparent structural defects, deterioration of liner) or if it begins to leak, the Permittee shall transfer the hazardous waste from such container to a container that is in good condition or otherwise manage the waste in compliance with the conditions of this permit. Each such occurrence shall be recorded in the inspection log and maintained as part of the operating

record as described in Module I, Condition H.(6). If any leaking container threatens human health or the environment, it must be reported as specified in Module I, Condition D.(8), (i.e., 24-hour reporting).

D COMPATIBILITY OF WASTE WITH CONTAINERS

The Permittee shall assure that the ability of the container to contain or store the waste is not impaired as required by 6NYCRR 373-2.9(c) and in accordance with Attachment I and VI.

E. MANAGEMENT OF CONTAINERS

The Permittee shall manage containers as required by 6NYCRR 373-2.9(d).

F. SPECIAL REQUIREMENTS FOR IGNITABLE OR REACTIVE WASTE

Not Applicable

G. SPECIAL REQUIREMENTS FOR INCOMPATIBLE WASTE

Not Applicable

H. TRANSFER OF SOLVENTS FROM CONTAINERS TO TANKS:

Any transfer of spent solvents from containers to storage and treatment tanks must be conducted only inside the secondary containment of such storage/treatment tanks. Any transfer of spent solvents from containers to containers must be conducted only inside the secondary containment of container storage area.

MODULE VII - STORAGE/TREATMENT IN TANKS

A. (1) Authorized Tanks and Wastes. The Permittee is authorized to use the following tanks to store and treat the following hazardous wastes in tanks and subject to the terms of this permit:

Tank	Capacity (Gallons)	Minimum Shell Thickness	Waste Description
Settling Tank	650	0.125 Carbon Steel	1,1,1-Trichloroethane F001 & F002
Distillation Tank	600	0.1766 304 Stainless Steel	Trichloroethylene F001 & F002
Distillate Storage Tank 1	2,000	0.125 Carbon Steel	Methylene Chloride F001 & F002
Distillate Storage Tank 2	500	0.125 Carbon Steel	Tetrachloroethylene F001 & F002
Distillate Storage Tank 3	275	0.125 Carbon Steel	Freon F001 & F002 N. Propyl Bromide Not Listed

(2) The Permittee is prohibited from adding additional hazardous waste tanks or from storing or treating ~~hazardous waste tanks or from storing or treating~~ hazardous wastes that are not identified in Permit Condition VII.A (1) without permit modifications.

B. (1) DESIGN & INSTALLATION OF NEW TANK SYSTEMS OR COMPONENTS

Not Applicable

For new, modified or replacement hazardous waste tank systems or components (such as the secondary containment system) not authorized by VII.A.(1) which the Permittee proposes to construct in the future, the Permittee must, prior to construction, submit to the Commissioner an application to modify this permit including design plans, specifications and a written assessment of the tank systems' structural integrity as required by 6NYCRR 373-2.10 (c) and obtain a permit modification.

For tank systems used to store or treat materials that are defined as hazardous waste in the future,

MODULE VII - STORAGE/ MENT IN TANKS

A. (1) Authorized Tanks and Wastes. The permittee is authorized to use the following tanks subject to the terms of this permit: to store and treat the following hazardous wastes

Tank	Capacity (gallons)	Minimum Shell Thickness	Waste Description
Settling Tank	650	0.125 Carbon Steel	1,1,1-Trichloroethane F001 & F002
Distillation Tank	600	0.1766 304 Stainless Steel	Trichloroethylene F001 & F002
Distillate Storage Tank 1	2000	0.125 Carbon Steel	Methylene Chloride F001 & F002
Distillate Storage Tank 2	500	0.125 Carbon Steel	Tetrachloroethylene F001 & F002
Distillate Storage Tank 3	275	0.125 Carbon Steel	Freon F001 & F002

(2) The Permittee is prohibited from adding additional hazardous waste tanks or from storing or treating hazardous wastes that are not identified in Permit Condition VII.A(1) without permit modifications.

B. (1) DESIGN AND INSTALLATION OF NEW TANK SYSTEMS OR COMPONENTS

Not Applicable

For new, modified or replacement hazardous waste tank systems or components [such as the secondary containment system] not authorized by VII.A.(1) which the Permittee proposes to construct in the future, the Permittee must, prior to construction, submit to the Commissioner an application to modify this permit including design plans, specifications and a written assessment of the tank systems' structural integrity as required by 6NYCRR 373-2.10(c) and obtain a permit modification.

For tank systems used to store or treat materials that are defined as hazardous waste in the future,

the Permittee must obtain a written assessment of the existing tank system integrity within 12 months from the date the waste is defined as hazardous [6NYCRR 373-2.10(b)(3)]. The assessment shall be certified by an independent, qualified, professional engineer registered in the State of New York (6NYCRR 373-2.10(b)).

(2) Secondary Containment and Leak Detection.

(a) Tanks With Secondary Containment System:

The Permittee shall maintain the secondary containment and leak detection systems in accordance with the requirements of 6NYCRR 373-2.10(d) and as specified in the attached plans and specifications, Attachment VII.

(b) Tanks Without Secondary Containment System:

For tank systems that store or treat materials that are defined as hazardous waste in the future, the Permittee shall design and construct the secondary containment system within the time specified in 6NYCRR 373-2.10(d)(1)(vi).

(3) Responses to Leaks or Spills and Disposition of Leaking or Unfit-for-Use Tank Systems. The Permittee must immediately remove from service any tank system or secondary containment system from which there has been a leak or spill or which is found to be leaking or unfit for use as a result of the leak test or assessment, and must satisfy the requirements of 6NYCRR 373-2.10(g) including the 24-hour notification and 30-day report to the Commissioner, containment of releases, repair of the system, and certification of major repairs by an independent, qualified, professional engineer registered in New York State. Examples of major repairs are: installation of an internal liner, repair of a ruptured tank or repair or replacement of a secondary containment vault.

C. GENERAL OPERATING REQUIREMENTS

(1) The Permittee shall operate the tank systems authorized in Condition VII A(1) as specified in Attachment VII.

(2) The Permittee shall not place hazardous wastes or treatment reagents in the tank system if they could cause the tank, its ancillary equipment, or a containment system to rupture, leak, corrode or otherwise fail [6NYCRR 373-2.10(e)(1)].

(3) The Permittee shall prevent spills and over flows from the tank or containment systems, as required by 6NYCRR 373-2.10(e)(2), and by the methods specified in Attachment VII.

D. SPECIAL REQUIREMENTS FOR IGNITABLE OR REACTIVE WASTES

Not Applicable

E. SPECIAL REQUIREMENTS FOR INCOMPATIBLE WASTES

Not Applicable

F. INSPECTION SCHEDULES

The Permittee shall perform inspections of the tank systems including the secondary containment systems, leak detection systems, and if applicable, cathodic protection systems, used to manage hazardous waste as described in 6NYCRR 373-2.10(f) and as specified in Attachment II. Documentation of all inspections must be placed in the operating record of the facility.

G. ADDITIONAL INSPECTION REQUIREMENTS FOR TANK SYSTEMS WITHOUT SECONDARY CONTAINMENT

Not Applicable

H. SPECIAL CONDITIONS FOR ON-GROUND TANKS WITH SECONDARY CONTAINMENT SYSTEMS

Not Applicable

I. CLOSURE AND POST CLOSURE CARE

(1) At closure of the tank system, the Permittee shall follow the procedures in the Closure Plan, Attachment VI. [6NYCRR 373-2.10(h)].

(2) If the Permittee demonstrates that not all contaminated soils can be practically removed or decontaminated at the time of closure then the Permittee shall close the tank system and perform post-closure care as required in 6NYCRR 373-2.10(h)(2).

1.0 INTRODUCTION/GENERAL INFORMATION

1.1 SCOPE

This Waste Analysis Plan has been prepared in conformance with the requirements of 6 NYCRR Subpart 373-2, Final Status Standards for Owners and Operators of Hazardous Waste Treatment, Storage and Disposal Facilities, Section 373-2.2, General Facility Standards. The plan identifies the types of hazardous wastes received, analytical tests performed, rationale for analytical tests, test methods, sampling methods and frequency of testing.

The plan is intended to ensure that all hazardous wastes accepted by Pride Solvents are compatible with the storage and reclamation activities conducted.

1.2 GENERAL INFORMATION

Facility Name:	Pride Solvents & Chemical Co., Inc.
Address:	78 & 88 Lamar Street West Babylon, NY 11704
Telephone No.:	(516) 643-4801 (516) 643-0041
Owner:	Pride Solvents & Chemical Co. Inc.
Operator:	Pride Solvents & Chemical Co., Inc.
EPA Ident. No.:	NYD 057722258

1.0 INTRODUCTION/GENERAL INFORMATION

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The plan is intended to ensure that all hazardous wastes accepted by Pride Solvents are compatible with the storage and reclamation activities conducted.

1.2 GENERAL INFORMATION

Facility Name:	Pride Solvents & Chemical Co., Inc.
Address:	78 & 88 Lamar Street West Babylon, N.Y. 11704
Telephone No:	(516) 643-4800
Owner:	Pride Solvents & Chemical Co., Inc.
Operator:	Pride Solvents & Chemical Co., Inc.
EPA Ident. No:	NYD 057722258

1.3 INTRODUCTION

The Pride Solvents facility is equipped to receive hazardous wastes from off-site sources, temporarily store the wastes on-site and reclaim the wastes for resale. The types of hazardous wastes accepted for reclamation are limited to a select group of chlorinated solvents and freon solvents. Waste solvents are accepted only from customers who purchase virgin solvent products from Pride Solvents.

Pride Solvents will accept for reclamation only waste chlorinated and fluorinated solvents with a minimum reclamation yield of 25 percent. All waste solvents accepted for reclamation must be of a single product. No mixtures will be accepted.

Waste solvents are received exclusively in 55-gallon drum containers. No bulk shipments are accepted.

1.4 TYPES OF WASTE

A listing and general description of the hazardous wastes accepted for reclamation by Pride Solvents is presented in Table 1, Waste Solvents.

Sample waste analyses for each type of waste solvent are provided in Appendix A.

1.5 WASTE GENERATION

A listing and general description of the hazardous wastes generated on-site as a result of Pride Solvents' reclamation activities is presented in Table 2, Waste Generation.

WASTE ANALYSIS PLAN

PRIDE SOLVENTS & CHEMICAL CO., INC.
78 & 88 LAMAR STREET
WEST BABYLON, NEW YORK

EPA ID. No. NYD 057722258

WASTE ANALYSIS PLAN

PRIDE SOLVENTS & CHEMICAL CO., INC.

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APPENDIX E - SAMPLE QC RECORD

TABLE 1

WASTE SOLVENTS

PRIDE SOLVENTS & CHEMICAL CO., INC.

Waste 1.1.1-Trichloroethane

General Description:	Spent halogenated solvent
Hazardous Characteristics:	Toxic
EPA Hazardous Waste No:	F001 and F002

Waste Trichloroethylene

General Description:	Spent halogenated solvent
Hazardous Characteristics:	Toxic
EPA Hazardous Waste No:	F001 and F002

Waste Methylene Chloride

General Description:	Spent Halogenated solvent
Hazardous Characteristics:	Toxic
EPA Hazardous Waste No:	F001 and F002

Waste Tetrachloroethylene

General Description:	Spent halogenated solvent
Hazardous Characteristics:	Toxic
EPA Hazardous Waste No:	F001 and F002

Waste Freon Solvents

General Description:	Spent halogenated solvents containing trichlorotrifluoroethane
Hazardous Characteristics:	Toxic
EPA Hazardous Waste No:	F001 and F002

Waste N. Propyl Bromide

General Description:	Spent halogenated hydrocarbon
Hazardous Characteristics:	None
EPA Hazardous Waste No:	Not Listed

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TABLE 1

WASTE SOLVENTS

PRIDE SOLVENTS & CHEMICAL CO., INC.

Waste 1,1,1-Trichloroethane

General Description: Spent halogenated solvent
Hazardous Characteristics: Toxic
EPA Hazardous Waste No: F001 and F002

Waste Trichloroethylene

General Description: Spent halogenated solvent
Hazardous Characteristics: Toxic
EPA Hazardous Waste No: F001 and F002

Waste Methylene Chloride

General Description: Spent halogenated solvent
Hazardous Characteristics: Toxic
EPA Hazardous Waste No: F001 and F002

Waste Tetrachloroethylene

General Description: Spent halogenated solvent
Hazardous Characteristics: Toxic
EPA Hazardous Waste No: F001 and F002

Waste Freon Solvents

General Description: Spent halogenated solvents containing trichlorotrifluoroethane

Hazardous Characteristics: Toxic
EPA Hazardous Waste No: F001 and F002

TABLE 2

WASTE GENERATION

CREENINGS

General Description:	Coarse and fine screenings containing waste halogenated solvents
Hazardous Characteristics:	Toxic
EPA Hazardous Waste No:	F001 and F002
Disposal Route:	Off-site, North American Environmental Corp.
Sampling & Analyses:	Off-site, Environmental Testing Laboratories, Inc.

SLUDGES & STILL BOTTOMS

General Description:	Sludges and still bottoms generated by the reclamation of waste halogenated solvents
Hazardous Characteristics:	Toxic
EPA Hazardous Waste No.:	F001 and F002
Disposal Route:	Off-site, North American Environmental Corp.
Sampling & Analyses:	Off-site, Environmental Testing Laboratories, Inc.

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TABLE 2

WASTE GENERATION

SCREENINGS

General Description:	Coarse and fine screenings containing waste halogenated solvents
Hazardous Characteristics:	Toxic
EPA Hazardous Waste No.:	F001 and F002
Disposal Route:	Off-site, General Chemical Co.
Sampling & Analyses:	Off-site, General Chemical Co.

SLUDGES & STILL BOTTOMS

General Description:	Sludges and still bottoms generated by the reclamation of waste halogenated solvents
Hazardous Characteristics:	Toxic
EPA Hazardous Waste No.:	F001 and F002
Disposal Route:	Off-site, General Chemical Co.
Sampling & Analyses	Off-site, General Chemical Co.

Wastes generated as a result of the solvent reclamation activities are segregated by the specific type of solvent being reclaimed, placed in 55-gallon drums, stored temporarily in Pride Solvents' indoor drum storage area and shipped off-site for disposal at North American Environmental Corporation's facility in Georgia, (Chemical Conservation of Georgia, EPA I.D.# GAD 093380814), Missouri (Chem-Met Services Inc., EPA I.D.# MID 096963194), or Alabama, (Fisher Industrial Services, EPA I.D. # ALD 981020894).

North American Environmental Corp. at all its facilities conduct routine fingerprint analyses on the screenings, sludges, and still bottoms generated by Pride Solvents. Environmental Testing Laboratories inc., Farmingdale, New York, performs complete TCLP tests prior to screenings, sludges, and still bottoms being shipped off-site.

1.6 OFF-SITE GENERATORS

Pride Solvents will conduct facility audits of each off-site customer/generator. The audits are intended to provide specific information on the waste solvents generated, expected contaminants and the operations and/or processes generating the waste solvent.

Facility audits will be performed by Pride Solvents' personnel for all new accounts and customers, at which time pre-shipment samples will be collected (see Section 5.1). Audits will be updated annually. A sample Customer/Generator Audit Form is provided in Appendix B.

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Wastes generated as a result of the solvent reclamation activities are segregated by the specific type of solvent being reclaimed, placed in 55-gallon drums, stored temporarily in Pride Solvents' indoor drum storage area and shipped off-site for disposal at General Chemical Co., Framingham, MA (EPA ID No. MAD 019371079).

General Chemical Co. conducts routine analyses on the screenings, sludges and still bottoms generated by Pride Solvents. The analyses include bench top distillation and GC analyses for organic constituents. Analytical results are used by General Chemical Co. to determine whether the wastes are processed for further reclamation or forwarded on to another TSDF for incineration.

Inasmuch as the screenings, sludges and still bottoms are analyzed by General Chemical Co., these waste streams are not analyzed by Pride Solvents.

1.6 OFF-SITE GENERATORS

Pride Solvents will conduct facility audits of each off-site customer/generator. The audits are intended to provide specific information on the waste solvents generated, expected contaminants and the operations and/or processes generating the waste solvent.

Facility audits will be performed by Pride Solvents' personnel for all new accounts and customers, at which time pre-shipment samples will be collected (see Section 5.1). Audits will be updated annually. A sample Customer/Generator Audit Form is provided in Appendix B.

2.0 WASTE ANALYSES

Pride Solvents shall perform analyses on each shipment of waste solvents received. The analytical tests are designed to provide sufficient information to temporarily store and then reclaim the waste solvents in a safe manner.

2.1 ANALYTICAL PARAMETERS

A description of the analytical parameters which apply to each of the waste solvents accepted by Pride Solvents is presented in Table 3, Waste Analyses.

TABLE 3

WASTE ANALYSES

PRIDE SOLVENTS & CHEMICAL CO., INC.

HAZARDOUS WASTE	PARAMETERS
Waste 1,1,1-Trichloroethane	Specific Gravity, Vapor Temp., Recoverable Yield, 1,1,1-Trichloroethane, Misc. Organic Contaminants
Waste Trichloroethylene	Specific Gravity, Vapor Temp., Recoverable Yield, Trichloroethylene, Misc. Organic Contaminants
Waste Methylene Chloride	Specific Gravity, Vapor Temp., Recoverable Yield, Methylene Chloride, Misc. Organic Contaminants
Waste Tetrachloroethylene	Specific Gravity, Vapor Temp., Recoverable Yield, Tetrachloroethylene, Misc. Organic Contaminants
Waste Freon Solvents	Specific Gravity, Vapor Temp., Recoverable Yield, Trichlorotrifluroethane, Misc. Organic Contaminants
Waste N. Propyl Bromide	Specific Gravity, Vapor Temp., Recoverable Yield, N. Propyl Bromide, Misc. Organic Compounds

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Waste Trichloroethylene	Specific Gravity, Vapor Temp., Recoverable Yield, Trichloroethylene, Misc. Organic Contaminants
Waste Methylene Chloride	Specific Gravity, Vapor Temp., Recoverable Yield, Methylene Chloride, Misc. Organic Contaminants
Waste Tetrachloroethylene	Specific Gravity, Vapor Temp., Recoverable Yield, Tetrachloroethylene, Misc. Organic Contaminants
Waste Freon Solvents	Specific Gravity, Vapor Temp., Recoverable Yield, Trichlorotrifluoroethane, Misc. Organic Contaminants

3.0 PARAMETERS AND RATIONALE

All of the waste solvents received by Pride Solvents are listed as hazardous wastes (F001 and F002) due to their toxicity (1,1,1-trichloroethane, trichloroethylene, methylene chloride, tetrachloroethylene and trichlorotrifluoroethane). Because there is no reason to believe the wastes will contain other toxic constituents in significant concentrations, the parameters and analytical tests are geared towards confirming the waste's identity and determining compatibility with the reclamation process.

Each of the analytical tests performed by Pride Solvents is designed to provide specific information which is utilized for the following purposes:

- Confirm the identity of the waste solvent.
- Confirm that the waste solvent was properly manifested by the generator and is compatible with its container.
- Confirm that the waste solvent is of a single product and has a minimum acceptable reclamation yield of 25 percent.
- Confirm that the waste solvent is compatible with the distillation unit for reclamation.

3.1 SPECIFIC GRAVITY

Specific gravity is the first test performed on all incoming waste and serves as an immediate indication of whether the waste material is a solvent acceptable for recovery.

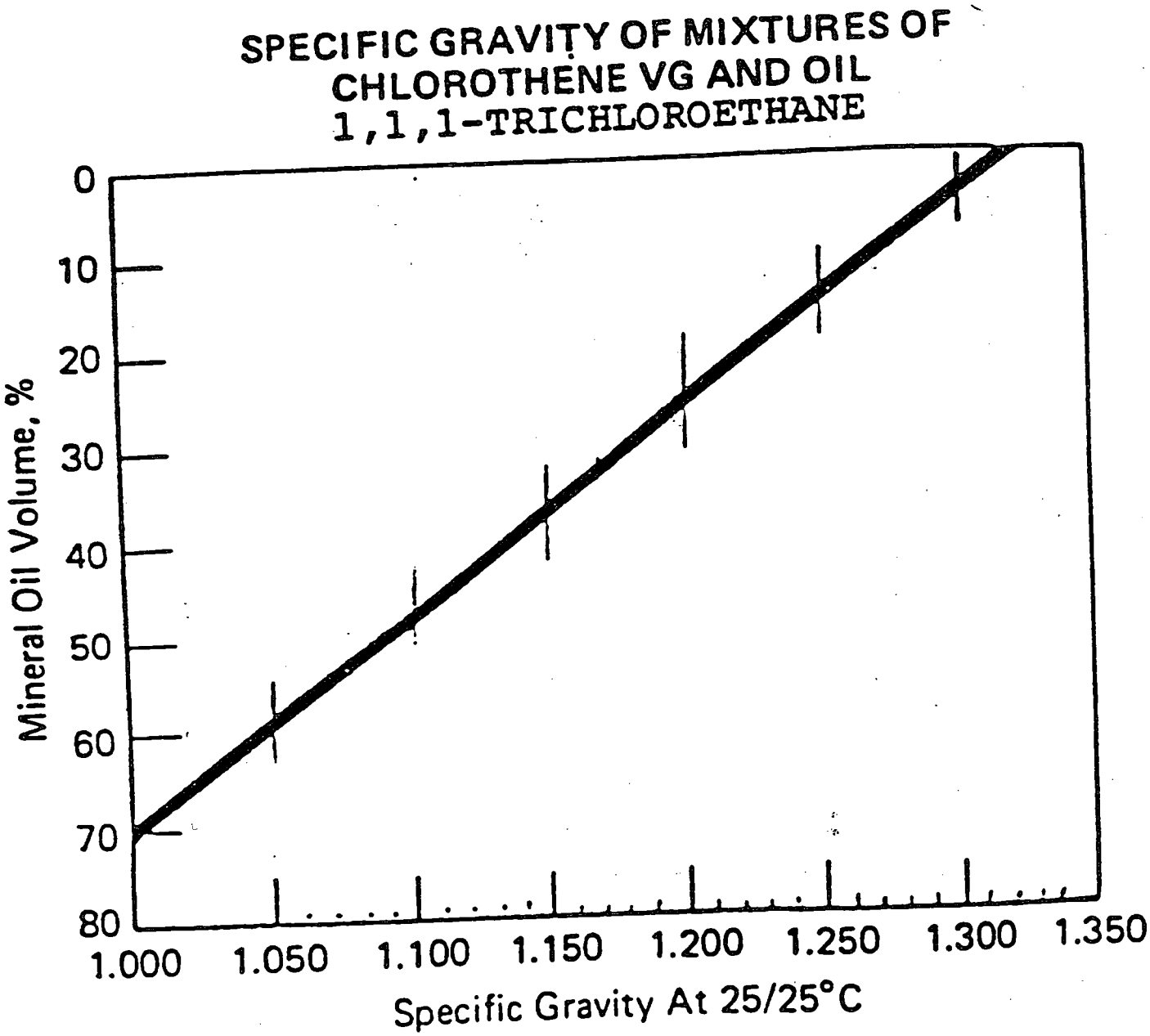
Specific gravity is measured using a calibrated hydrometer. The specific gravity of the waste material is compared against standard specific gravities of the particular solvent with varying mixtures of mineral oil. Graphs, plotting specific gravity versus mineral oil content for each solvent, are presented in Figures 1 through 5.

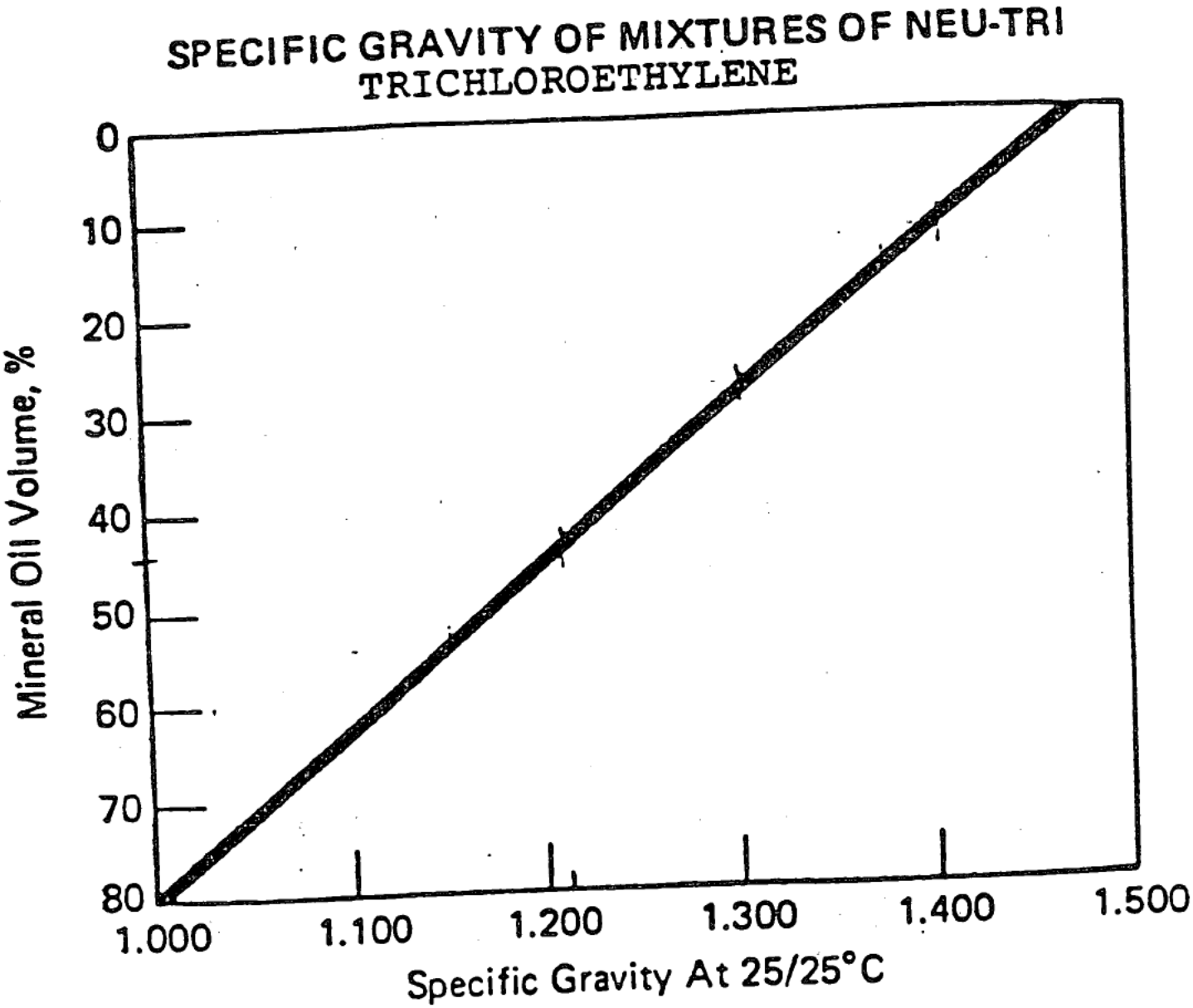
If the specific gravity of a waste solvent falls outside the allowable range for that particular solvent, the waste is suspect of being improperly manifested by the generator, containing a mixture of two or more different solvents or having a reclamation yield of less than 25 percent.

3.2 VAPOR TEMPERATURE

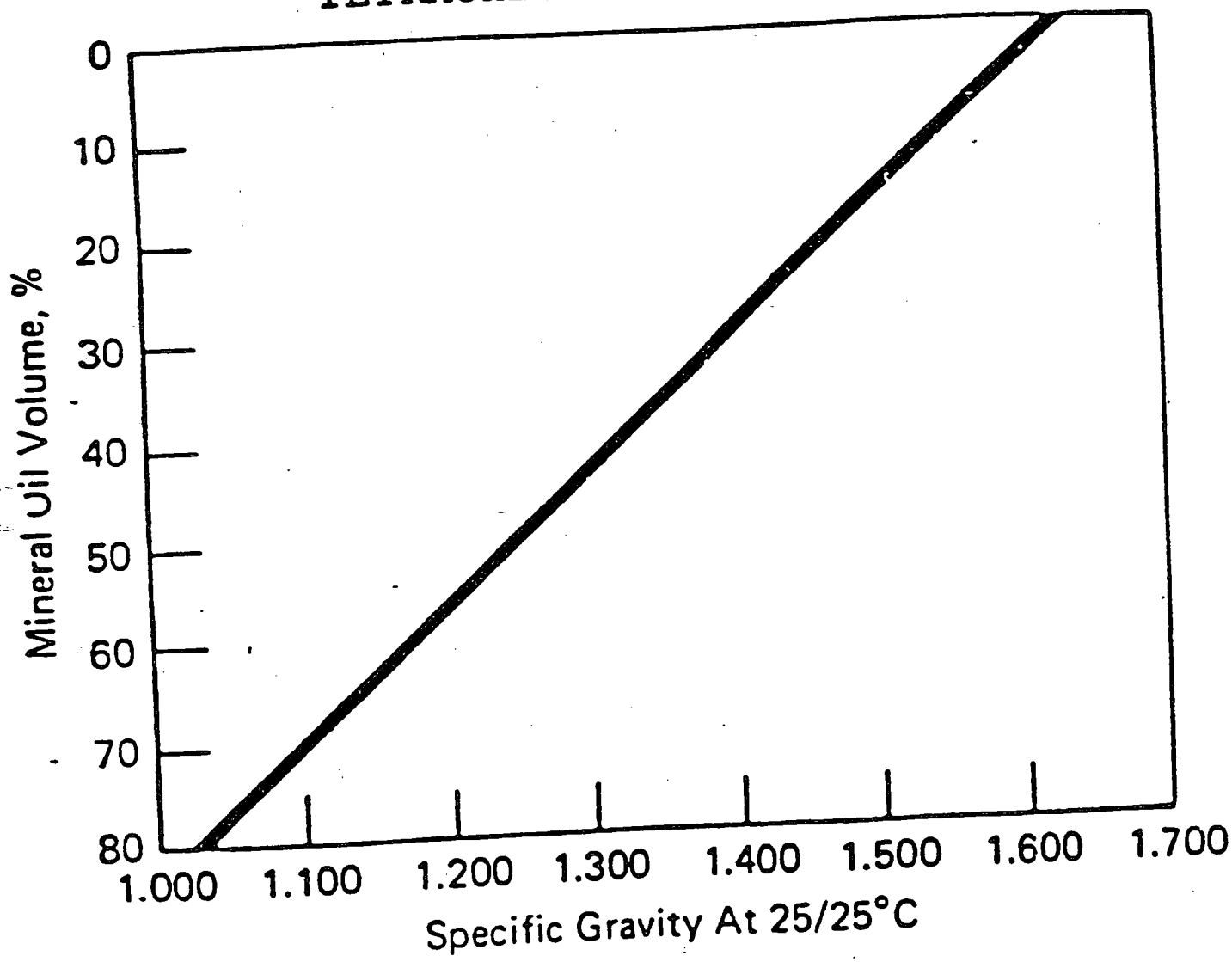
Vapor temperature (boiling point) is the second test performed on all incoming waste solvents and serves as a more precise method of confirming the identity of the waste solvent and determining the reclamation yield.

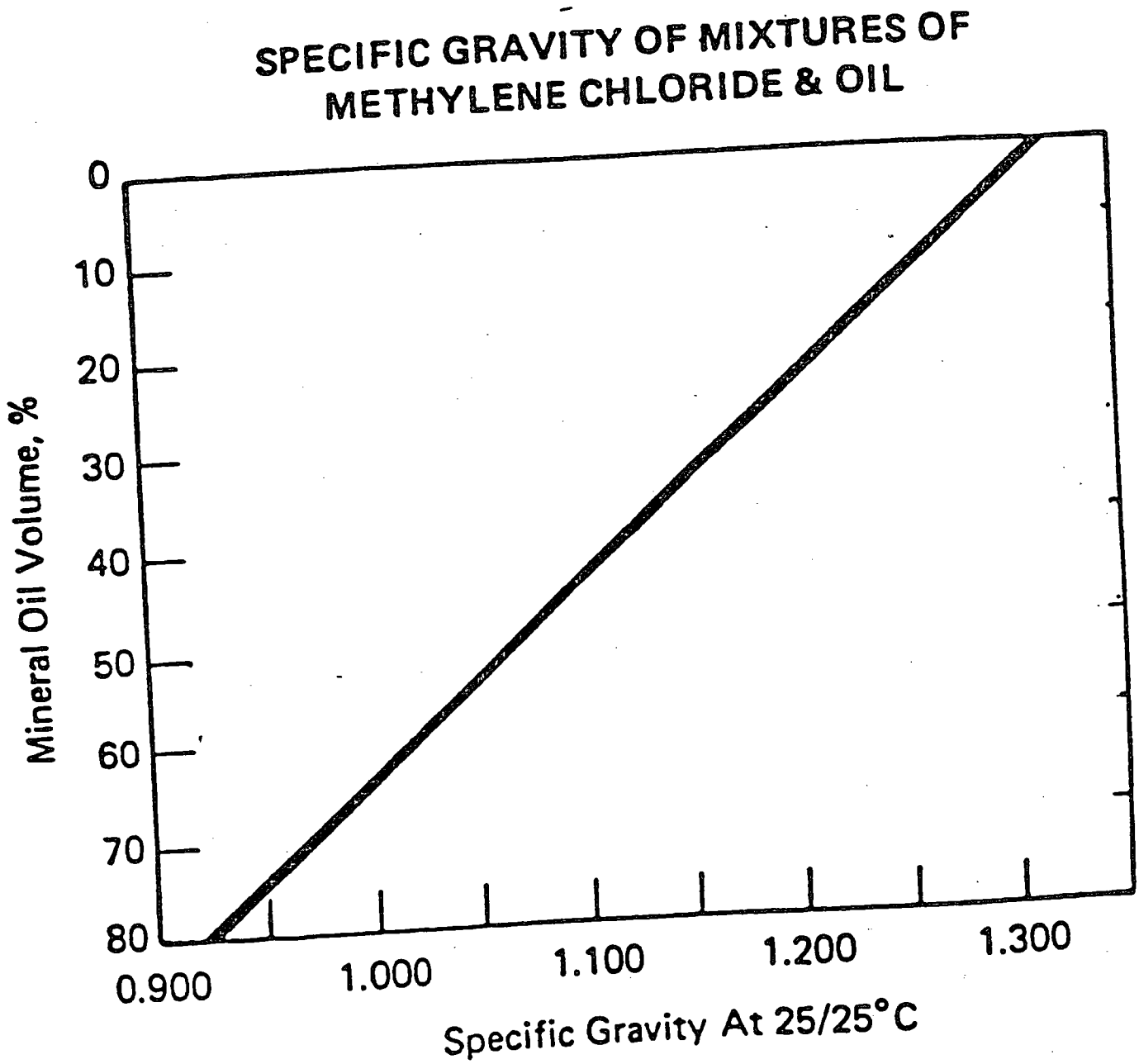
Vapor temperature is determined using a Kimble Labset bench top distillation unit. An electric heating element heats the solvent and the boiling point or vapor temperature is measured with a calibrated thermometer. The waste's vapor temperature is compared against standard vapor temperatures of the specific solvent with varying mixtures of mineral oil. Graphs, plotting temperatures versus mineral oil content for each of the four chlorinated solvents handled by Pride Solvents, are presented in Figures 6 through 9.


SPECIFIC GRAVITY OF MIXTURES OF
CHLOROTHENE VG AND OIL
1,1,1-TRICHLOROETHANE
Mineral Oil Volume, %
0
10
20
30
40
50
60
70
80
1.000
1.050
1.100
1.150
1.200
1.250
1.300
1.350
Specific Gravity At 25/25°C

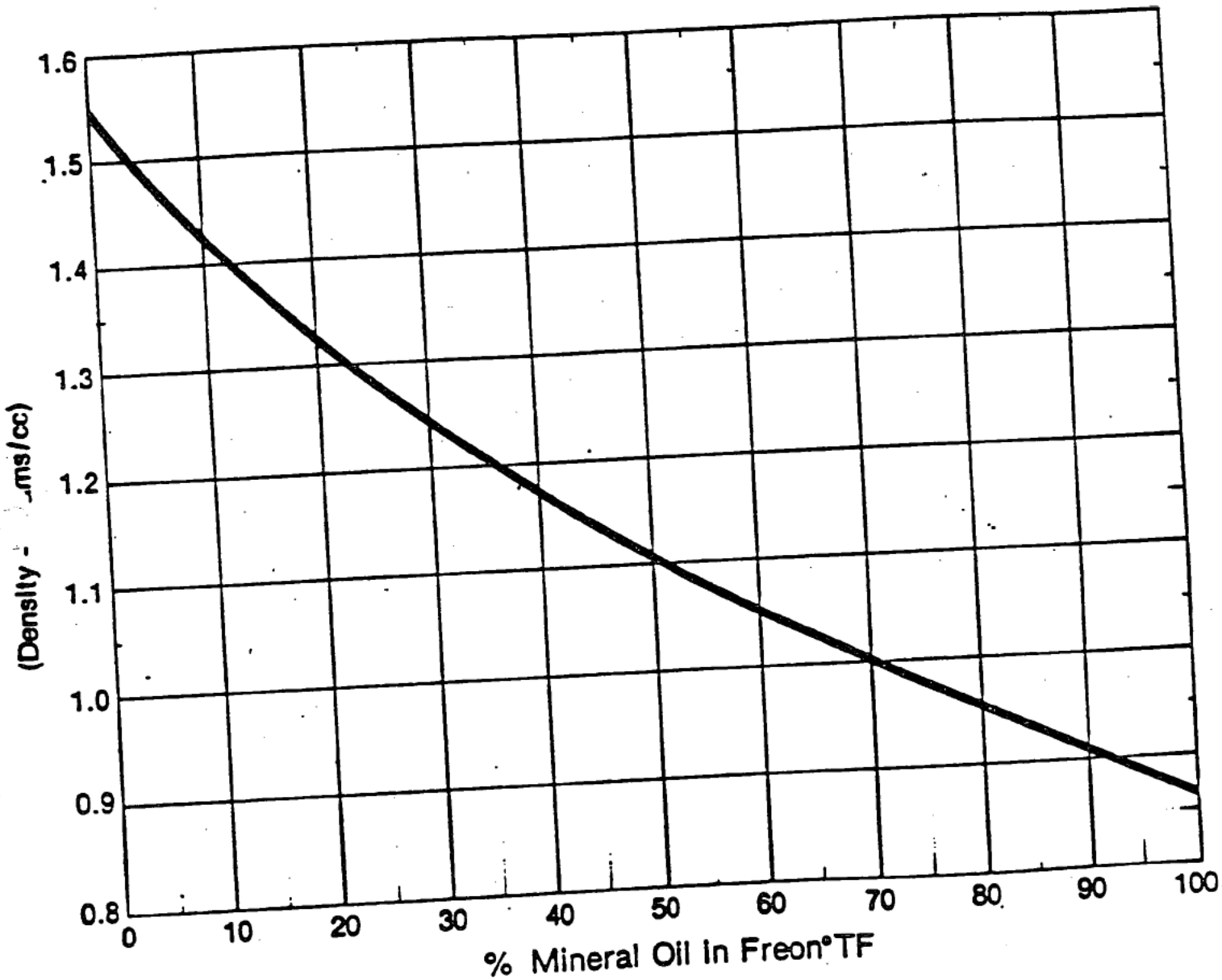

SPECIFIC GRAVITY OF MIXTURES OF NEU-TRI
TRICHLOROETHYLENE
Mineral Oil Volume, %
0
10
20
30
40
50
60
70
80
1.000
1.100
1.200
1.300
1.400
1.500
Specific Gravity At 25/25°C

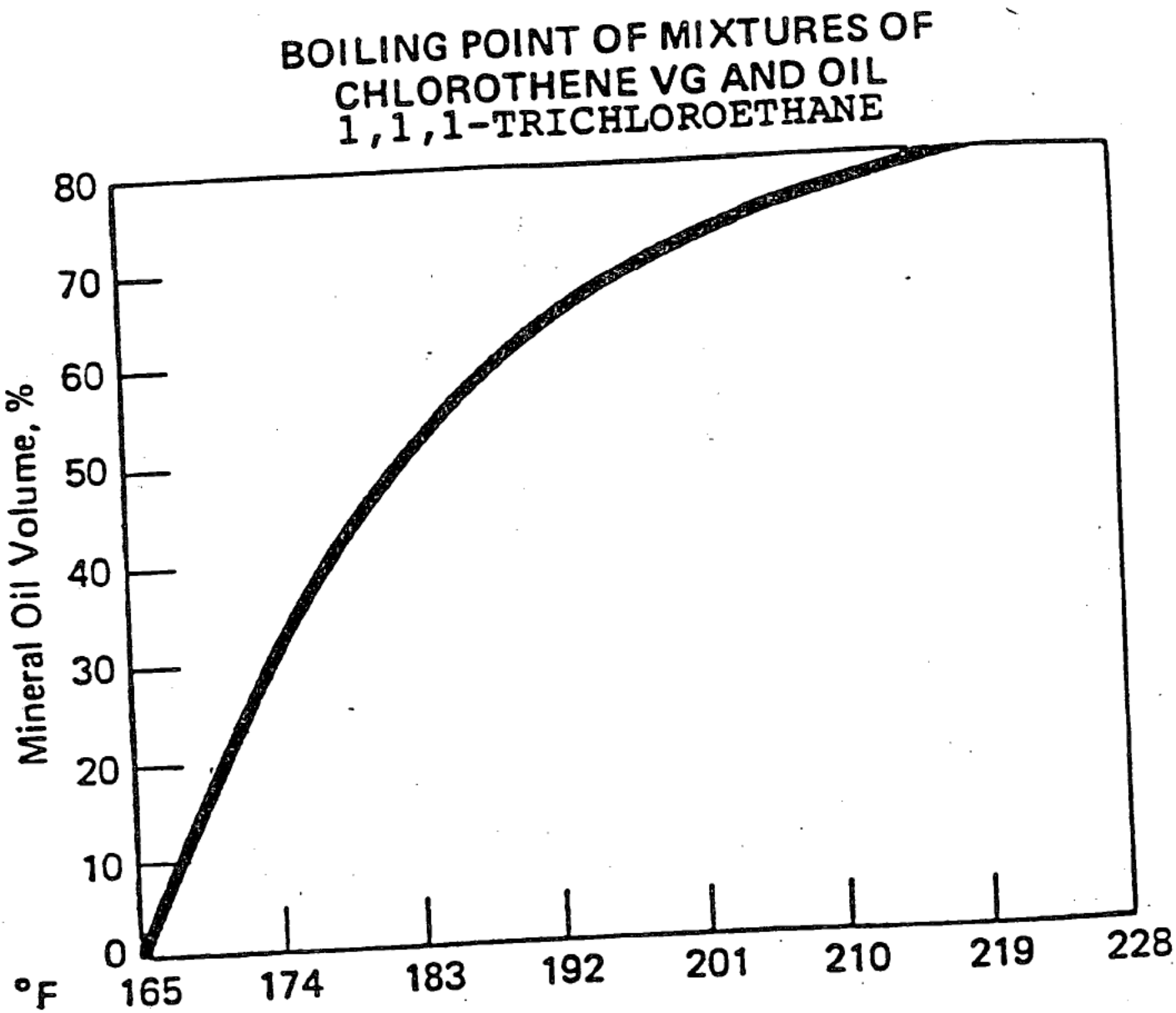
SPECIFIC GRAVITY OF PERCHLOROETHYLENE-OIL MIXTURES
TETRACHLOROETHYLENE

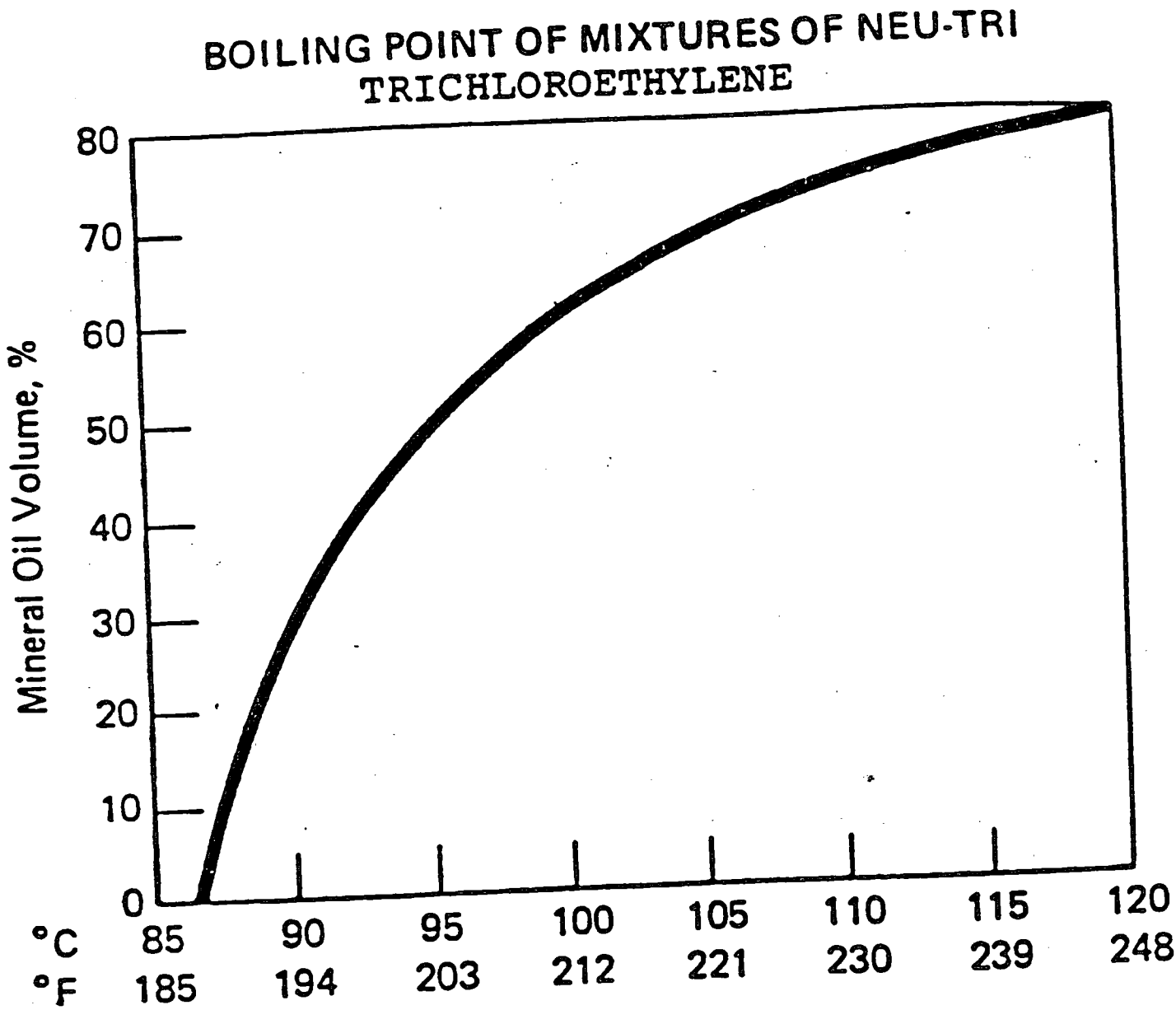



SPECIFIC GRAVITY OF MIXTURES OF
METHYLENE CHLORIDE & OIL
Mineral Oil Volume, %
0
10
20
30
40
50
60
70
80
0.900
1.000
1.100
1.200
1.300
Specific Gravity At 25/25°C

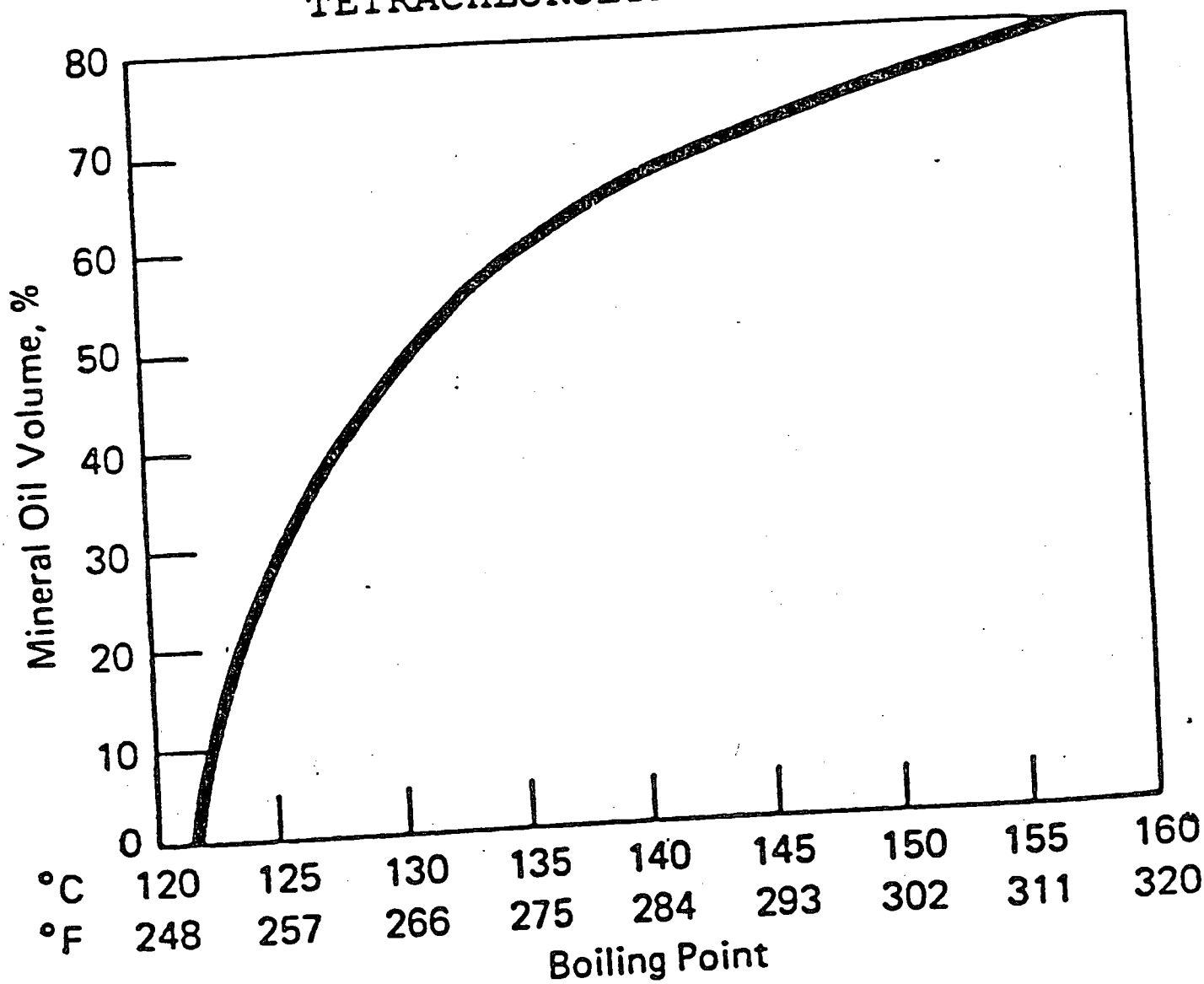
Density (grams/cc) of Freon® TF / Mineral Oil Mixtures at Ambient Temperature (70° F)

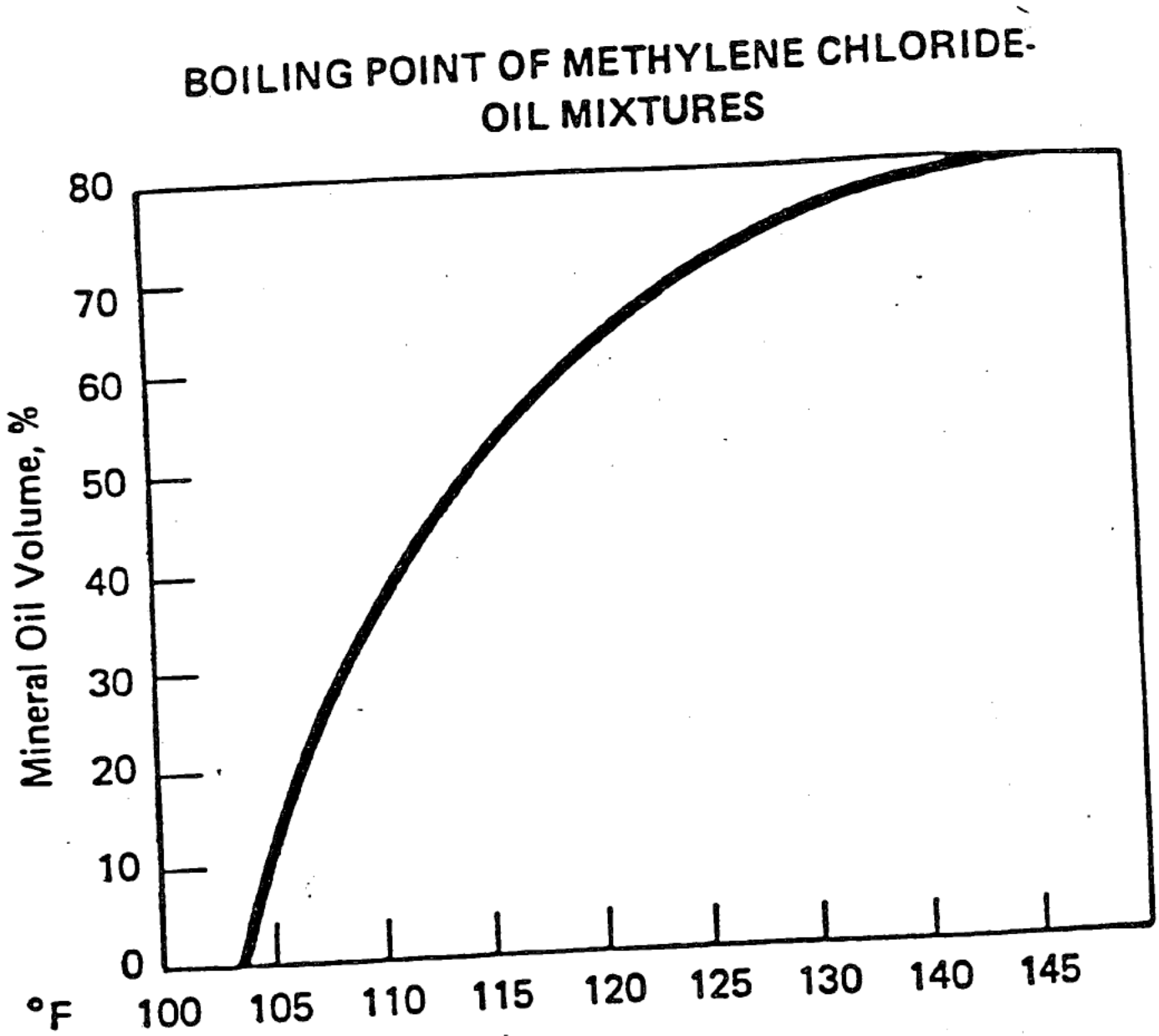



BOILING POINT OF MIXTURES OF
CHLOROTHENE VG AND OIL
1,1,1-TRICHLOROETHANE
Mineral Oil Volume, %
80
70
60
50
40
30
20
10
0
°F
165
174
183
192
201
210
219
228


BOILING POINT OF MIXTURES OF NEU-TRI
TRICHLOROETHYLENE
Mineral Oil Volume, %
80
70
60
50
40
30
20
10
0
°C 85 90 95 100 105 110 115 120
°F 185 194 203 212 221 230 239 248

BOILING POINT OF PERCHLOROETHYLENE-OIL MIXTURES
TETRACHLOROETHYLENE




BOILING POINT OF METHYLENE CHLORIDE-
OIL MIXTURES
Mineral Oil Volume, %
80
70
60
50
40
30
20
10
0
°F
100
105
110
115
120
125
130
140
145

The permissible vapor temperatures for all of the five solvents are as follows:

Methylene Chloride	103° to 130°F
Freon Solvents	118° to 150°F
1,1,1-Trichloroethane	165° to 205°F
Trichloroethylene	190° to 235°F
Tetrachloroethylene	250° to 305°F

If the vapor temperature of a waste falls outside the allowable range for a particular solvent, the waste is suspect of being improperly manifested, containing a mixture of two or more solvents, or having a reclamation yield of less than 25 percent. The vapor temperature test is useful because it will identify waste discrepancies not found by the specific gravity test.

3.3 RECLAMATION YIELD

Knowing the particular solvent of which a waste is comprised, an approximate reclamation yield can be estimated using the specific gravity test. A more accurate indication of the recoverable yield is determined during the bench top distillation test for vapor temperature.

Because the bench top distillation test simulates the actual waste solvent reclamation process, the test also identifies problems which may occur during reclamation. The most common problem identified is that of excessive foaming.

3.4 GAS CHROMATOGRAPHY

The final test performed on the waste solvents prior to reclamation is a gas chromatography scan. Gas chromatography (GC) is used to confirm information extrapolated from the specific gravity and bench top distillation tests. The GC will accurately identify and quantify the specific solvent in the waste, as well as any trace organic contaminants which may be present.

Gas chromatography scans are performed using a Hewlett-Packard HP-5804A gas chromatograph. Waste samples are introduced to the GC by direct injection (Test Methods for Evaluating Solid Wastes, Physical/Chemical Methods - EPA SW-846, Method 8.80). Detection is achieved by a flame ionization detector (FID).

GC results are compared against standard GC scans for the specific solvent. To ensure accurate results, standards are run once a week. In addition to confirming the specific solvent content of the waste material, the GC is also used to measure miscellaneous organic contaminants which may be present in the waste. If contaminants are found to be present at levels greater than 2 percent, the waste solvent will not be accepted for reclamation.

3.5 TEST METHODS

The analytical test parameters and test methods utilized by Pride Solvents are presented in Table 4, Test Methods. See Appendix C.

TABLE 4

TEST METHODS

PRIDE SOLVENTS & CHEMICAL CO., INC.

PARAMETER	TEST METHOD	REFERENCE
Specific Gravity	Hydrometer	ASTM D2111-71 Method B Standard Test Methods for Specific Gravity of Halogenated Organic Solvents and their Admixtures
Vapor Temperature	Bench Top Distillation	ASTM D1078-75 Standard Test Method for Distillation Range of Volatile Organic Liquids
Reclamation Yield	Bench Top Distillation	ASTM D1078-75 Standard Test Method for Distillation Range of Volatile Organic Liquids
1,1,1-Trichloroethane	GC/FID	Test Methods for Evaluating Solid Waste. Physical/Chemical Methods USEPA SW-846, Modified Method 8.01
Trichloroethylene	GC/FID	Test Methods for Evaluating Solid Waste. Physical/Chemical Methods USEPA SW-846, Modified Method 8.01
Methylene Chloride	GC/FID	Test Methods for Evaluating Solid Waste. Physical/Chemical Methods USEPA SW-846, Modified Method 8.01
Tetrachloroethylene	GC/FID	Test Methods for Evaluating Solid Waste. Physical/Chemical Methods USEPA SW-846, Modified Method 8.01

TABLE 4 (CONT'D.)

PARAMETER	TEST METHOD	REFERENCE
Trichlorotrifluoroethane	GC/FID	Test Methods for Evaluating Solid Waste. Physical/Chemical Methods USEPA SW-846, Modified Method 8.01
Miscellaneous Trace Organic Contaminants	GC/FID	Test Methods for Evaluating Solid Waste. Physical/Chemical Methods USEPA SW-846, Modified Method 8.01

TABLE 4 (Continued)

PARAMETER	TEST METHOD	REFERENCE
Trichlorotrifluoroethane	GC/FID	Test Methods for Evaluating Solid Waste. Physical/ Chemical Methods USEPA SW-846, Modified Method 8.01.
Miscellaneous Trace Organic Contaminants	GC/FID	Test Methods for Evaluating Solid Waste. Physical/ Chemical Methods USEPA SW-846, Modified Method 8.01.
N. Propyl Bromide	GC/FID	Test Methods for Evaluating Solid Waste. Physical/ Chemical Methods USEPA SW-846, Modified Method 8.01.

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4.0 SAMPLING

Pride Solvents shall collect samples for analysis from each batch of waste solvents received. No waste solvents will be accepted for reclamation prior to sampling and analysis. For the purpose of this plan, a batch is defined as one or more 55-gallon drums containing a single waste product received from a single off-site source (customer/generator). Samples may consist of a sample collected from a single drum or a composite of individual samples collected from a number of drums. Composite samples will be collected from a maximum of 8 drums. If a batch of waste solvent from a customer exceeds 8 drums, the shipment will be divided into two or more batches. Sampling procedures for waste solvents from three typical customers is presented in Table 5, Waste Sampling.

If the analytical results from a composite sample indicates a manifest discrepancy or other problem, a second set of samples will be collected from each individual drum and each sample will be analyzed separately.

4.1 SAMPLING METHODS

Pride Solvents uses 1/2-inch diameter by 36-inch long Coliwasa type glass tube samplers to collect representative samples from the drums containing waste solvents. Separate sampling tubes will be used for each of the five waste solvents accepted for reclamation to avoid any possible cross-contamination.

TABLE 5

WASTE SAMPLING

PRIDE SOLVENTS & CHEMICAL CO., INC.

WASTE BATCHES	SAMPLES
Customer A: 16 Drums of Waste 1,1,1-Trichloroethane	2-8 Drum Composite Samples of 1,1,1-Trichloroethane
Customer B: 4 Drums of Waste 1,1,1-Trichloroethane and 2 Drums of Waste Trichloroethylene	1-4 Drum Composite Samples of 1,1,1-Trichloroethane and 1-2 Drum Composite Samples of Trichloroethylene
Customer C: 2 Drums of Waste 1,1,1-Trichloroethane, 1 Drum of Waste Methylene Chloride and 1 Drum of Waste Freon Solvent	1-2 Drum Composite Samples of 1,1,1-Trichloroethane, 1 Sample of Methylene Chloride and 1 Sample of Freon Solvent

Samples will be collected by slowly lowering the glass tube sampler into the drum, allowing the waste solvent to rise in the tube as it is lowered. When the sampling tube reaches the bottom of the drum, the tube is closed off and retracted from the drum. The sample is then transferred from the sampler tube to a glass sample jar. The procedure is repeated until approximately 500 ml of the waste solvent has been collected. Reference EPA SW-846 Method 1.2.1.1 in Appendix D.

4.2 SAMPLE IDENTIFICATION

Each sample collected from a drum of waste solvent shall be identified by reference to the waste's generator and batch number. Identifying the sample by the waste's generator allows for a comparison of the test results with previous test results for that particular generator. Significant deviation would indicate changes in the waste's characteristics. Upon completion of the waste analyses, the waste samples should be double checked against the waste's generator and batch numbers before the drummed waste solvent is accepted into the reclamation area of the facility. All sample analyses results shall be maintained at Pride Solvents for a period of not less than 3 years from the date of testing.

5.0 FREQUENCY OF ANALYSES

Sampling and analyses shall be performed on every drum of waste solvent received by Pride Solvents. Analyses will be performed regardless of whether or not Pride Solvents has been notified or has reason to believe the processes or operations generating the waste solvent have changed.

5.1 PRE-SHIPMENT SAMPLING

A pre-shipment sample will be required for all new accounts and customers to confirm that the waste solvent is acceptable for reclamation. Pre-shipment samples may also be required of existing customers when problems have developed on prior waste shipments. Typical problems which might require pre-shipment samples on future waste solvent deliveries include:

- improperly manifested waste
- waste solvents containing solvent blends or mixes
- waste solvents with reclamation yields of less than 25 percent

Pre-shipment sampling and analyses for waste solvents from existing accounts will be performed at the discretion of the operations manager.

To ensure that samples are truly representative of the waste solvents, pre-shipment samples shall be collected by Pride Solvents personnel in accordance with the procedures outlined in Section 4.1 of this plan.

6.0 QUALITY CONTROL/QUALITY ASSURANCE

Pride Solvents' Quality Control (QC) and Quality Assurance (QA) Program as outlined in this section is designed to ensure that the data developed via on-site waste analyses are complete and technically accurate. The principal concerns addressed by the QC/QA program are sample integrity and analytical testing accuracy.

6.1 DATA USE

The data developed by Pride Solvents' waste analyses is intended to provide the information necessary to determine whether or not the waste solvents received at the facility are acceptable for reclamation.

Inasmuch as the wastes accepted by Pride Solvents for reclamation are limited to a select group of solvents, and the distillation process utilized for reclamation can handle solvents of varying quality or purity, the accuracy of the analyses performed is not restrictively critical. The level of precision or accuracy for each test is as follows:

PARAMETER	TEST METHOD	ACCURACY
Specific Gravity	Hydrometer	± 0.01
Vapor Temperature	Bench Top Distillation	± 5°F
Reclamation Yield	Bench Top Distillation	± 5°F
1,1,1-Trichloroethane	GC/FID	± 0.1%
Trichloroethylene	GC/FID	± 0.1%
Methylene Chloride	GC/FID	± 0.1%

PARAMETER	TEST METHOD	ACCURACY
Tetrachloroethylene	GC/FID	± 0.1 %
Trichlorotrifluoroethane	GC/FID	± 0.1%
N. Propyl Bromide	GC/FID	± 0.1%
Misc. Trace Organics	GC/FID	± 0.1%

6.2 SAMPLE COLLECTION

QC/QA procedures for sampling are designed to ensure that the samples collected for analyses are truly representative of the waste solvent being sampled. Because all waste solvents are received in 55-gallon drum containers, Coliwasa type samplers are used (reference EPA SW-846, Section 1.2.1.1). The Coliwasa sampler enables Pride Solvents to collect representative samples from drums containing waste solvents which may consist of two or more immiscible liquid phases.

As indicated in Section 4.0, samples are collected from every batch of waste solvent received at Pride Solvents. A batch is defined as one or more 55-gallon drums containing a single type of waste solvent received from a single off-site source. Samples may consist of a sample collected from a single drum or a composite of individual samples from a number of drums. So as to maintain quality control, composite samples are limited to a maximum of eight (8) drums, and are collected only from single product batches from a single off-site generator.

All sampling is conducted by Pride Solvents personnel within the indoor drum storage area. In the case of pre-shipment samples for new customers/generators, the samples are collected

/97

PARAMETER	TEST METHOD	ACCURACY
Tetrachloroethylene	GC/FID	± 0.1%
Trichlorotrifluoroethane	GC/FID	± 0.1%
Misc. Trace Organics	GC/FID	± 0.1%

6.2 SAMPLE COLLECTION

QC/QA procedures for sampling are designed to ensure that the samples collected for analyses are truly representative of the waste solvent being sampled. Because all waste solvents are received in 55-gallon drum containers, Coliwasa type samplers are used (reference EPA SW-846, Section 1.2.1.1). The Coliwasa sampler enables Pride Solvents to collect representative samples from drums containing waste solvents which may consist of two or more immiscible liquid phases.

As indicated in Section 4.0, samples are collected from every batch of waste solvent received at Pride Solvents. A batch is defined as one or more 55-gallon drums containing a single type of waste solvent received from a single off-site source. Samples may consist of a sample collected from a single drum or a composite of individual samples from a number of drums. So as to maintain quality control, composite samples are limited to a maximum of eight (8) drums, and are collected only from single product batches from a single off-site generator.

All sampling is conducted by Pride Solvents personnel within the indoor drum storage area. In the case of pre-shipment samples for new customers/generators, the samples are collected

by Pride Solvents' sales representatives at the generator's facility.

Separate Coliwasa samplers are used for each of the five types of waste solvents accepted to avoid cross contamination. The samplers are flushed with virgin solvent and allowed to air dry before collecting samples from the next batch of waste solvent.

Samples are collected in 500 ml glass sample jars. Because the waste analyses are performed the same day as the samples are collected, sample preservation is not necessary.

6.3 CHAIN-OF-CUSTODY

Because Pride Solvents collects its samples and performs the waste analyses on-site, chain-of-custody procedures are not required.

6.4 ANALYSIS

Appendix A of the Waste Analysis Plan contains standard procedures for each analytical test performed. The test procedures are either ASTM Standard Test Methods or EPA Standard Methods for Evaluating Solid Wastes (EPA SW-846).

Quality control for the analytical tests is maintained through routine calibration and maintenance of the instruments and equipment utilized in the analyses. This includes routine analyses of known standards (virgin solvent).

Calibration of the hydrometer, which is used to test specific gravity, is accomplished by measuring the specific gravity of virgin solvents and virgin solvents spiked with known quantities of mineral spirits. Calibration precision should be within the same allowable tolerance as the test method itself (± 0.01).

Quality control for the bench scale distillation test, used to measure vapor temperature and reclamation yield, is accomplished by checking the calibration of the thermometer used in the test method. Accuracy for the thermometer calibration should be within the allowable deviation of ± 1°F. Vapor temperature and reclamation yield are also checked by testing standards (virgin solvent) and spiked standards (virgin solvent and mineral spirit mixtures).

Pride Solvents' Hewlett-Packard HP-580A gas chromatograph is calibrated by analyzing known standards. The known standards are prepared from samples of virgin solvent products. GC calibration is performed once a week at minimum. Chromatograms of known standards are used as references to which subsequent waste solvent chromatograms are compared.

6.5 DATA HANDLING

Waste analyses results are filed by customer/generator. Each analysis is compared against previous waste analyses for the particular customer/generator. In this way, any significant deviation in the waste solvent's characteristics can be readily identified.

Quality control test results are recorded in a Quality Control Record. The QC tests are performed by Pride Solvents' reclamation manager and reviewed by the facility's operations manager. The QC record is certified by both managers. A sample QC record is included in Appendix E of this plan.

All waste analysis results and QC records are maintained in Pride Solvents' facility operating record as per 6 NYCRR 373-2.5 (c).

APPENDIX A

SAMPLE CHROMATOGRAMS

Chromatogram #1

Waste Sample of 1-1-1 Trichloroethane from Tecknit.

2/14/85

Retention Time	Amount	Product
3.14	.691	Dow Inhibitor
4.05	95.051	Methyl Chloroform
9.05	3.817	Dow Inhibitor
10.61	.362	Dow Inhibitor
	99.921	

Composition of Standard 1-1-1 Trichloroethane

Dow Inhibitor	.750
Methyl Chloroform	95.350
Dow Inhibitor	3.500
Dow Inhibitor	.400
	100.000

Chromatogram #2

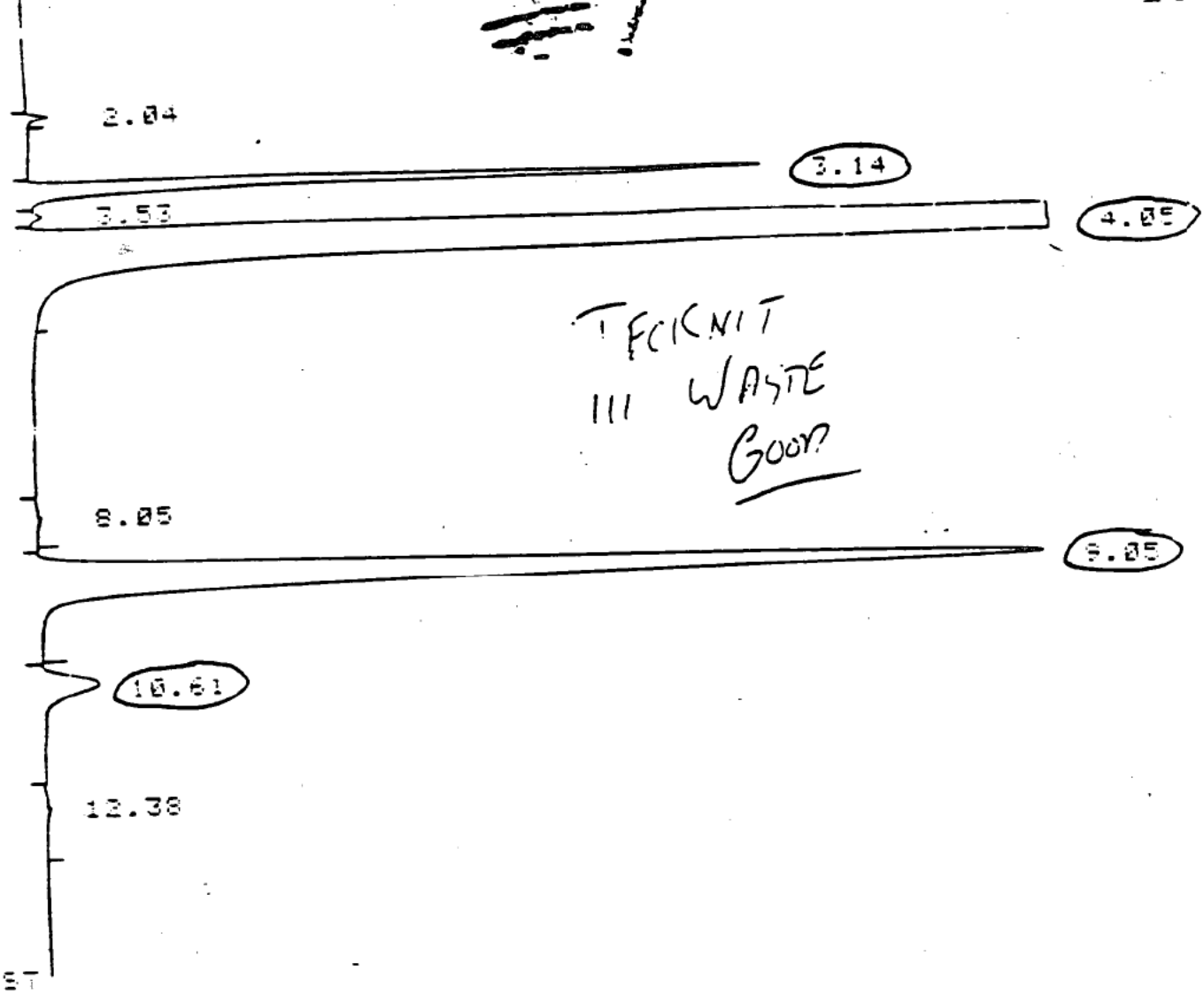
Waste Sample of Trichloroethylene from Grumman.

5/1/84

Retention Time	Amount	Product
2.38	.132	Dow Inhibitor
2.68	.383	Dow Inhibitor
3.16	.090	Dow Inhibitor
5.93	99.048	Trichloroethylene
11.45	.068	Dow Inhibitor
14.51	.262	Dow Inhibitor
	99.983	

Composition of Standard Trichloroethylene.

Dow Inhibitor	.150
Dow Inhibitor	.500
Dow Inhibitor	.100
Trichloroethylene	99.000
Dow Inhibitor	.050
Dow Inhibitor	.200
	100.000



FP RUN # 13 FEB/14/85 TIME 14:00:29
BOTTLE 8
NORM

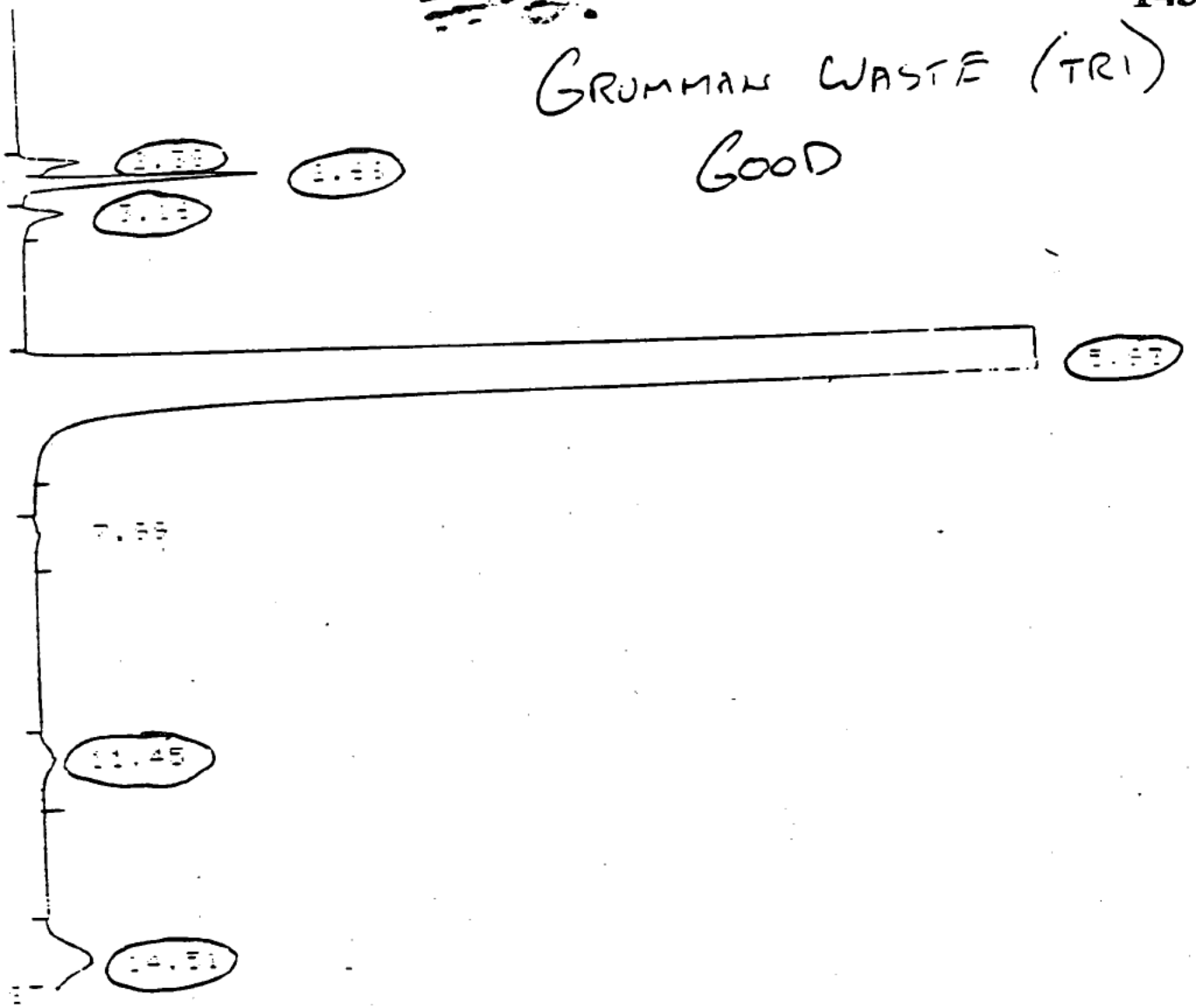
RT	EXP RT	AREA	CAL #	AMT
			(U)	0.021
2.04	0.00	39540		
3.14	3.12	2580000	2	0.691
3.53	0.00	42790	(U)	0.023
4.05	3.92	177100000	(R) 1	95.051
8.05	0.00	27680	(U)	0.015
9.05	9.07	9290000	3	3.817
10.61	10.67	568600	4	0.362
12.38	0.00	38380	(U)	0.021

DIL FACTOR: 1.0000 E+ 0
SF UNC PKS: 5.8318 E- 7

#2.

GRUMMAN WASTE (TRI)

GOOD



[illegible] RUN # 1 MAY/01/84 [illegible] 10:31:05

[illegible]OTTLE 1

[illegible]REA %

RT	AREA	AREA %
[illegible]	289200	0.132
[illegible]	839600	[illegible]
[illegible]	197900	0.090
[illegible]	217300000	99.048
[illegible]	37630	0.017
11.45	149400	0.068
14.51	575200	0.262

[illegible]IL FACTOR: 1.0000 E+ 0

Chromatogram #3

Waste Sample of 1-1-1 Trichloroethane from Hughes Treitler.

1/28/85

Retention Time	Amount	Product
3.08	.613	Dow Inhibitor
3.95	94.995	Methyl Chloroform
8.91	4.025	Dow Inhibitor
10.50	.288	Dow Inhibitor
	99.921	

Composition of Standard 1-1-1 Trichloroethane.

Dow Inhibitor	.750
Methyl Chloroform	95.350
Dow Inhibitor	3.500
Dow Inhibitor	.400
	100.000

Chromatogram #4

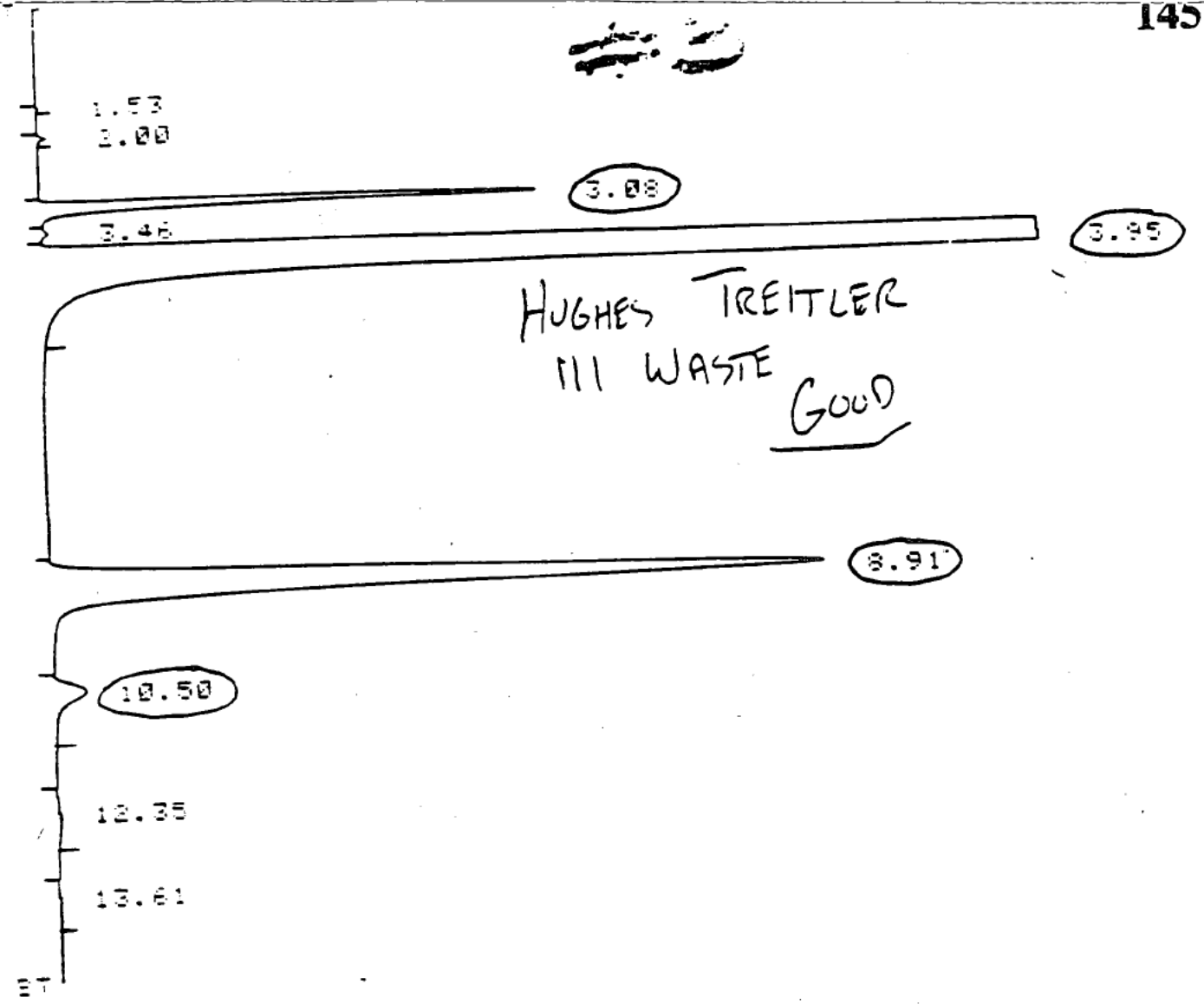
Waste Sample of Freon TF from Hughes Treitler.

2/4/85

Retention Time	Amount	Product
1.49	99.718	Freon TF

Composition of Standard Freon TF.

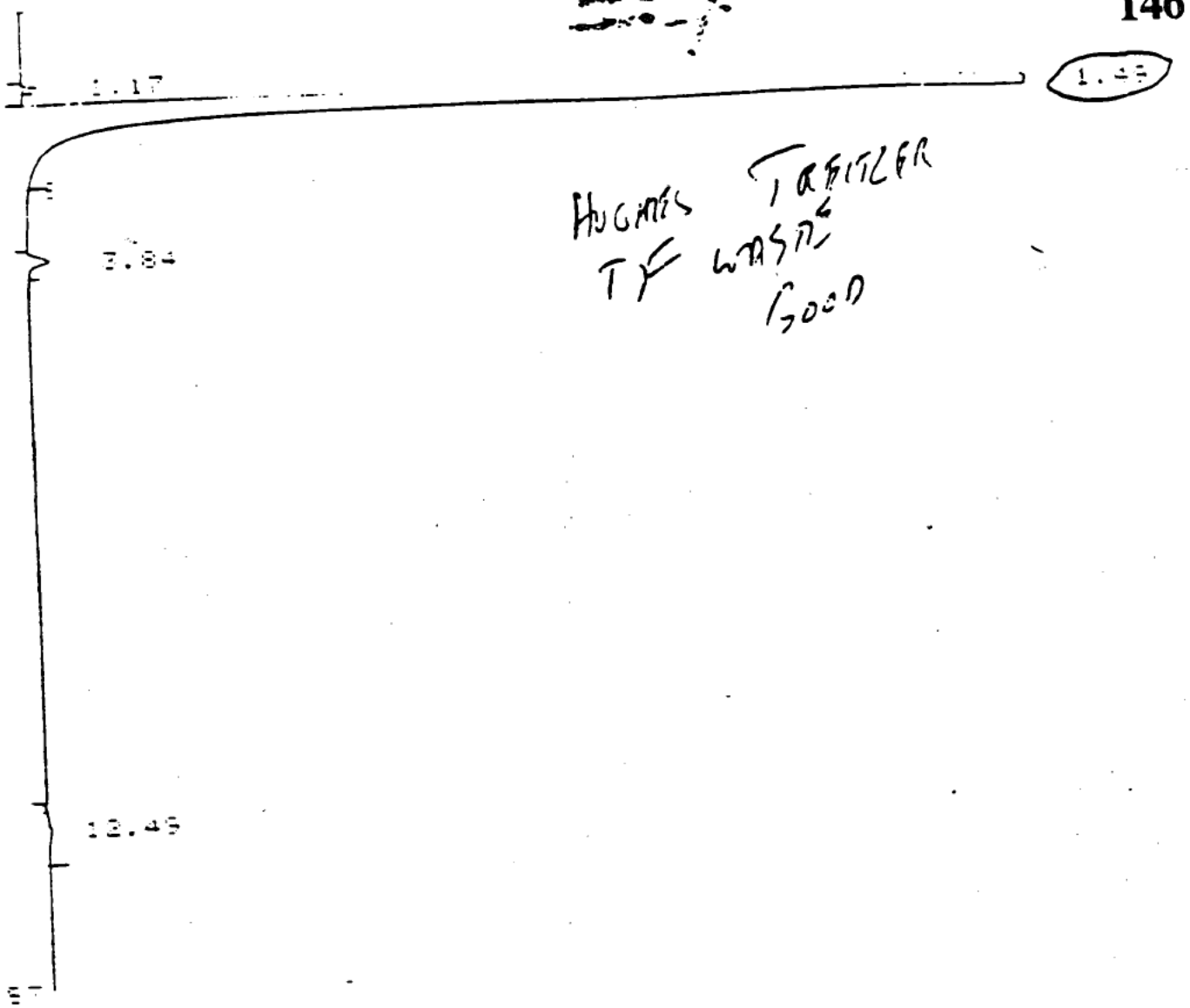
Freon TF	99.900



HF RUN # 8 JAN/28/85 TIME 14:15:05
BOTTLE 7
NORM

RT	EXP RT	AREA	CAL #	AMT
1.53	0.00	3069	(U)	0.002
2.00	0.00	17180	(U)	0.013
3.08	3.04	1673000	2	0.613
3.46	0.00	28950	(U)	0.021
3.95	3.92	129400000	(R) 1	94.995
8.91	8.84	7162000	3	4.025
10.50	10.40	331000	4	0.288
12.35	0.00	52630	(U)	0.039
13.61	0.00	6260	(U)	0.005

FIL FACTOR: 1.0000 E+ 0
SF UNC PKS: 5.8318 E- 7



HUGHES TREITLER
TF WASTE
GOOD

-P RUN # 2 FEB/04/85 TIME 06:28:17
BOTTLE 1
NORM

RT	EXP RT	AREA	CAL #	AMT
1.17	0.00	16810	(U)	0.031
1.49	0.00	53630000	(U)	99.718
3.84	3.92	87820	(R) 1	0.163
12.49	0.00	46950	(U)	0.087

DIL FACTOR: 1.0000 E+ 0
RF UNC PKS: 5.8318 E- 7

Chromatogram #5

Waste Sample of Freon TMC from Aerospace Avionics.

12/4/85

Retention Time	Amount	Product
1.60	45.688	Freon TF
3.94	53.906	Methylene Chloride
	99.594	

Composition of Standard Freon TMC

Freon TF	43.000
Methylene Chloride	57.000
	100.000

Chromatogram #6

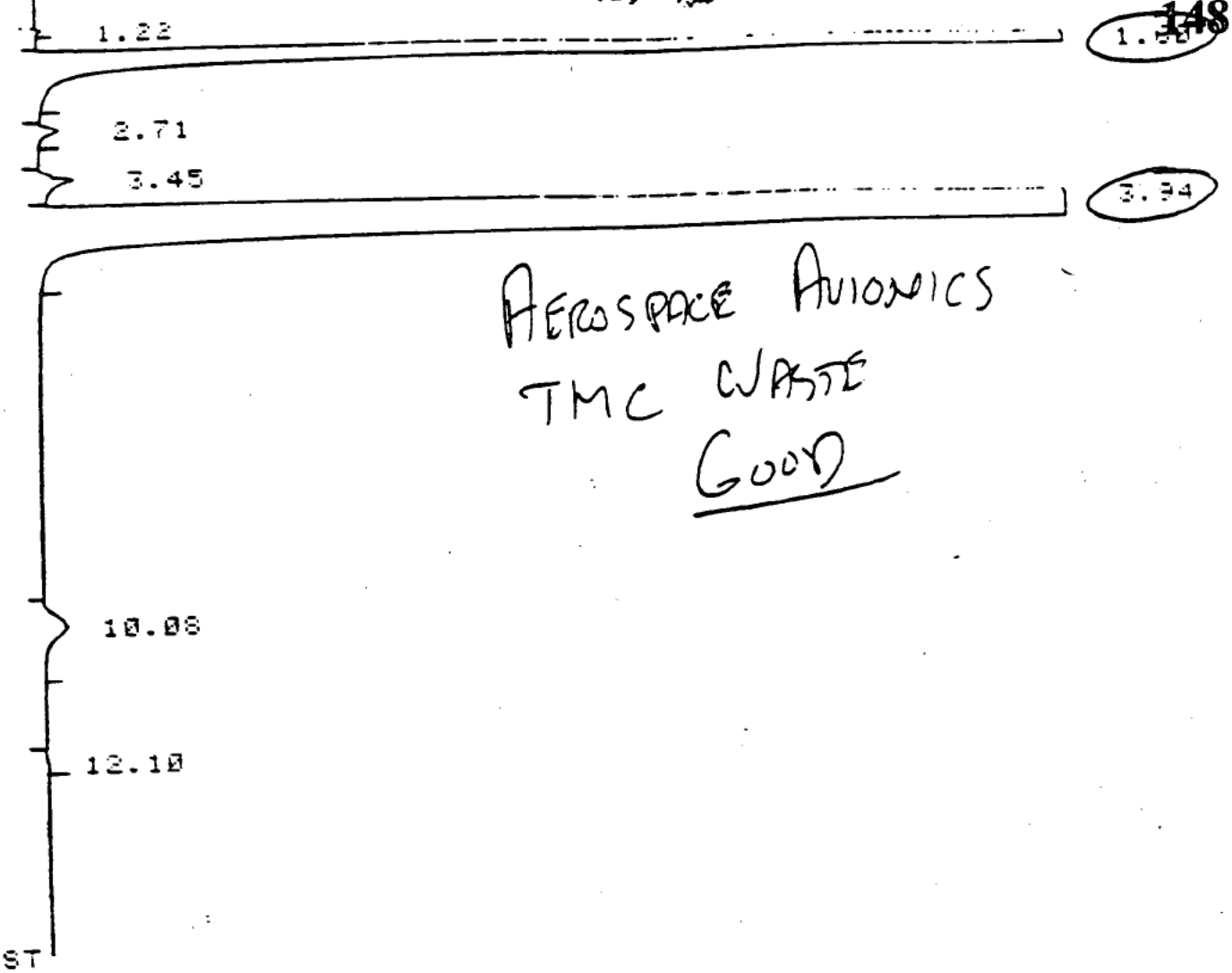
Waste Sample of 1-1-1 Trichloroethane from Aerospace Avionics.

12/28/84

Retention Time	Amount	Product
3.64	.688	Dow Inhibitor
4.59	94.498	Methyl Chloroform
10.68	4.036	Dow Inhibitor
12.62	.355	Dow Inhibitor
	99.577	

Composition of Standard 1-1-1 Trichloroethane.

Dow Inhibitor	.750
Methyl Chloroform	95.350
Dow Inhibitor	3.500
Dow Inhibitor	.400
	100.000



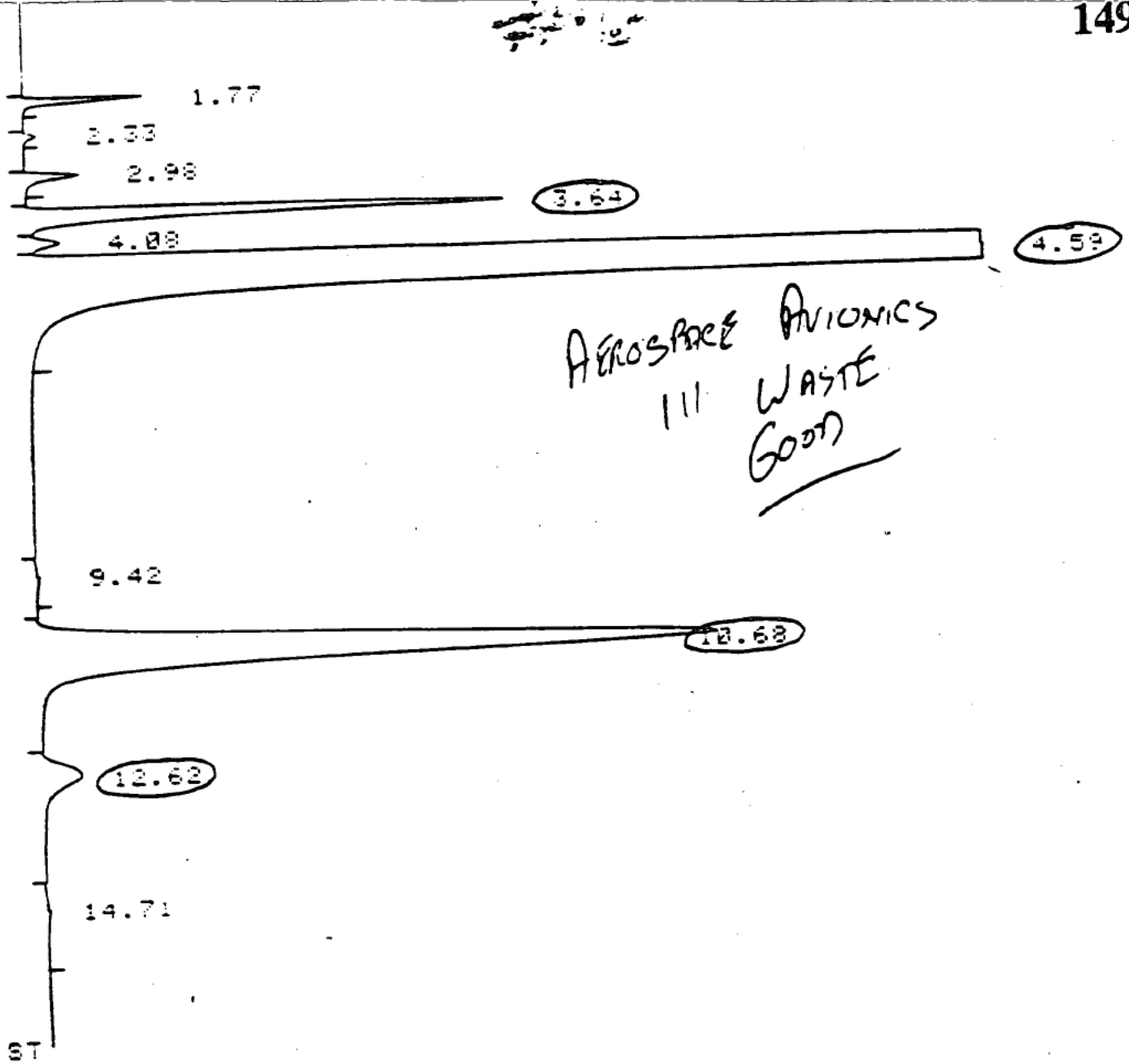
AEROSPACE AVIONICS
TMC WASTE
GOOD

HP RUN # 7 DEC/04/84 TIME 14:07:19
BOTTLE 6
NORM

RT	EXP RT	AREA	CAL #		AMT
1.22	0.00	5011	(U)		0.005
1.60	0.00	43810000	(U)		45.688
2.71	0.00	69380	(U)		0.072
3.45	3.42	198000		2	0.109
3.94	0.00	51690000	(U)		53.906
10.08	10.09	248800		3	0.211
12.10	11.94	6365		4	0.008

DIL FACTOR: 1.0000 E+ 0
RF UNC PKS: 5.5565 E- 7

96027556



AEROSPACE AVIONICS
111 WASTE
GOOD

HP RUN # 5 DEC/28/84 TIME 09:20:47
BOTTLE 3
NORM

RT	EXP RT	AREA	CAL #		AMT
1.77	0.00	298100	(U)		0.166
2.33	0.00	34010	(U)		0.019
2.98	0.00	193700	(U)		0.108
3.64	3.62	2366000		2	0.668
4.08	0.00	158900	(U)		0.088
4.59	4.53	172100000	(R)	1	94.498
9.42	0.00	30060	(U)		0.017
10.68	10.66	9018000		3	4.036
12.62	12.60	557700		4	0.355
14.71	0.00	48050	(U)		0.027

CL FACTOR: 1.0000 E+ 0
RF UNC PKS: 5.5565 E- 7

Chromatogram #7

Waste Sample of Trichloroethylene from Lambda Electronics.

12/20/84

Retention Time	Amount	Product
3.09	.092	Dow Inhibitor
3.46	.284	Dow Inhibitor
4.07	.055	Dow Inhibitor
7.60	97.045	Trichloroethylene
12.16	.005	Dow Inhibitor
14.79	.013	Dow Inhibitor
	97.494	

Composition of Standard Trichloroethylene.

Dow Inhibitor	.150
Dow Inhibitor	.500
Dow Inhibitor	.100
Trichloroethylene	99.000
Dow Inhibitor	.050
Dow Inhibitor	.200
	100.000

Chromatogram #8

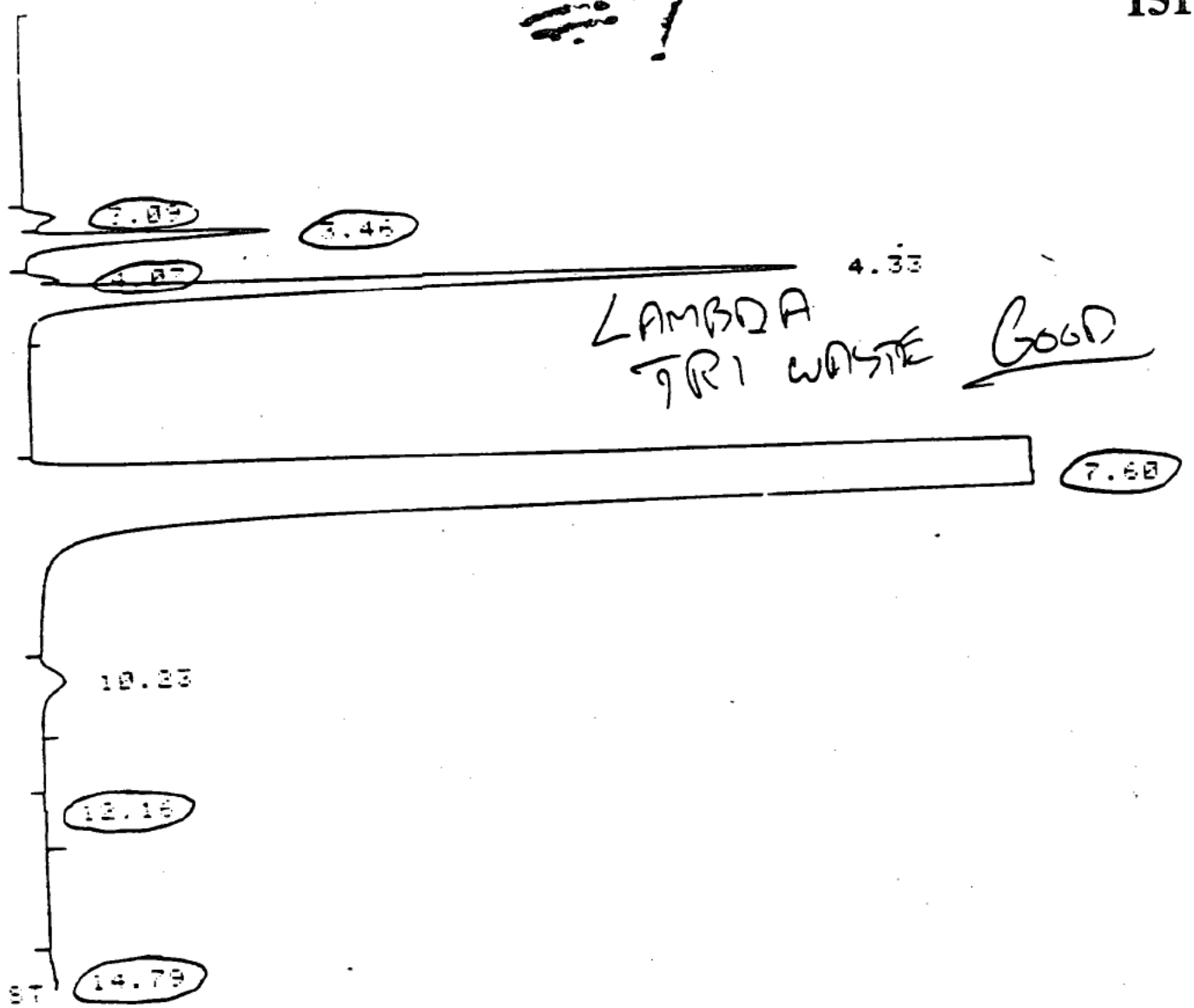
Waste Sample of 1-1-1 Trichloroethane from Lambda Electronics.

6/13/84

Retention Time	Amount	Product
2.71	.687	Dow Inhibitor
3.46	95.086	Methyl Chloroform
7.96	3.777	Dow Inhibitor
9.47	.361	Dow Inhibitor
	99.911	

Composition of Standard 1-1-1 Trichloroethane.

Dow Inhibitor	.750
Methyl Chloroform	95.350
Dow Inhibitor	3.500
Dow Inhibitor	.400
	100.000

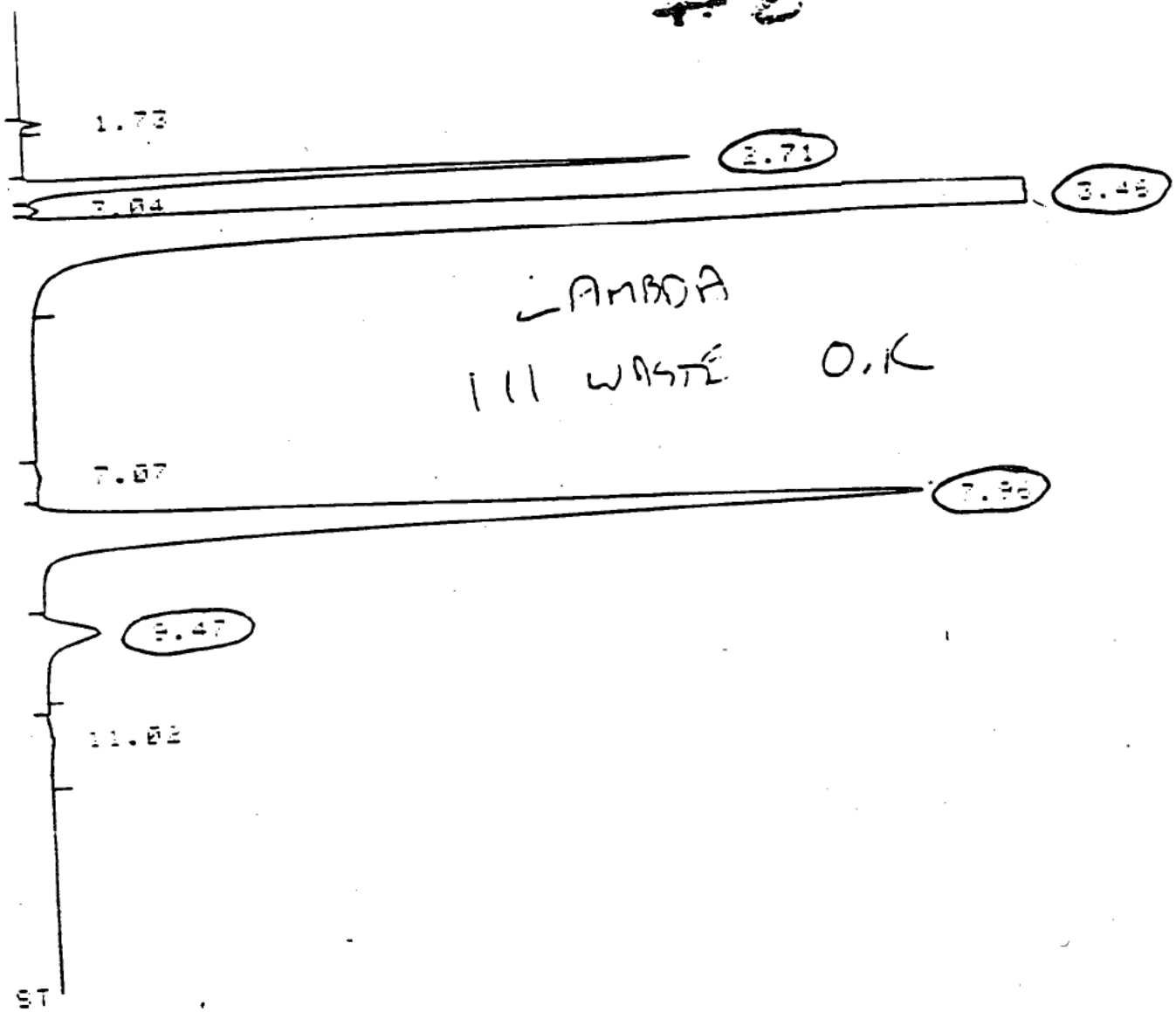


HP RUN # 7 DEC/20/84 TIME 12:24:50
BOTTLE 5
NORM

RT	EXP RT	AREA	CAL #	AMT
3.09	0.00	192100	(U)	0.092
3.46	3.41	1124000	2	0.284
4.07	0.00	115300	(U)	0.055
4.33	4.34	5006000	(R) 1	2.391
7.60	0.00	203200000	(U)	97.045
10.23	10.06	299600	3	0.116
12.16	11.91	8360	4	0.005
14.79	0.00	26820	(U)	0.013

DIL FACTOR: 1.0000 E+ 0
SF UNC PKS: 5.5565 E- 7

#152



HP RUN # 1 JUN/13/84 TIME 06:41:30

BOTTLE 7

RT	EXP RT	AREA	CAL #	AMT
1.73	0.00	42300	(U)	0.025
2.71	2.71	2390000	2	0.687
3.04	0.00	45750	(U)	0.027
3.46	3.42	159000000	(R) 1	95.086
7.07	0.00	26090	(U)	0.016
7.96	8.00	8622000	3	3.777
9.47	9.54	572900	4	0.361
11.02	0.00	34420	(U)	0.021

DIL FACTOR: 1.0000 E+ 0
PF UNC PKS: 6.2320 E- 7

Chromatogram #9

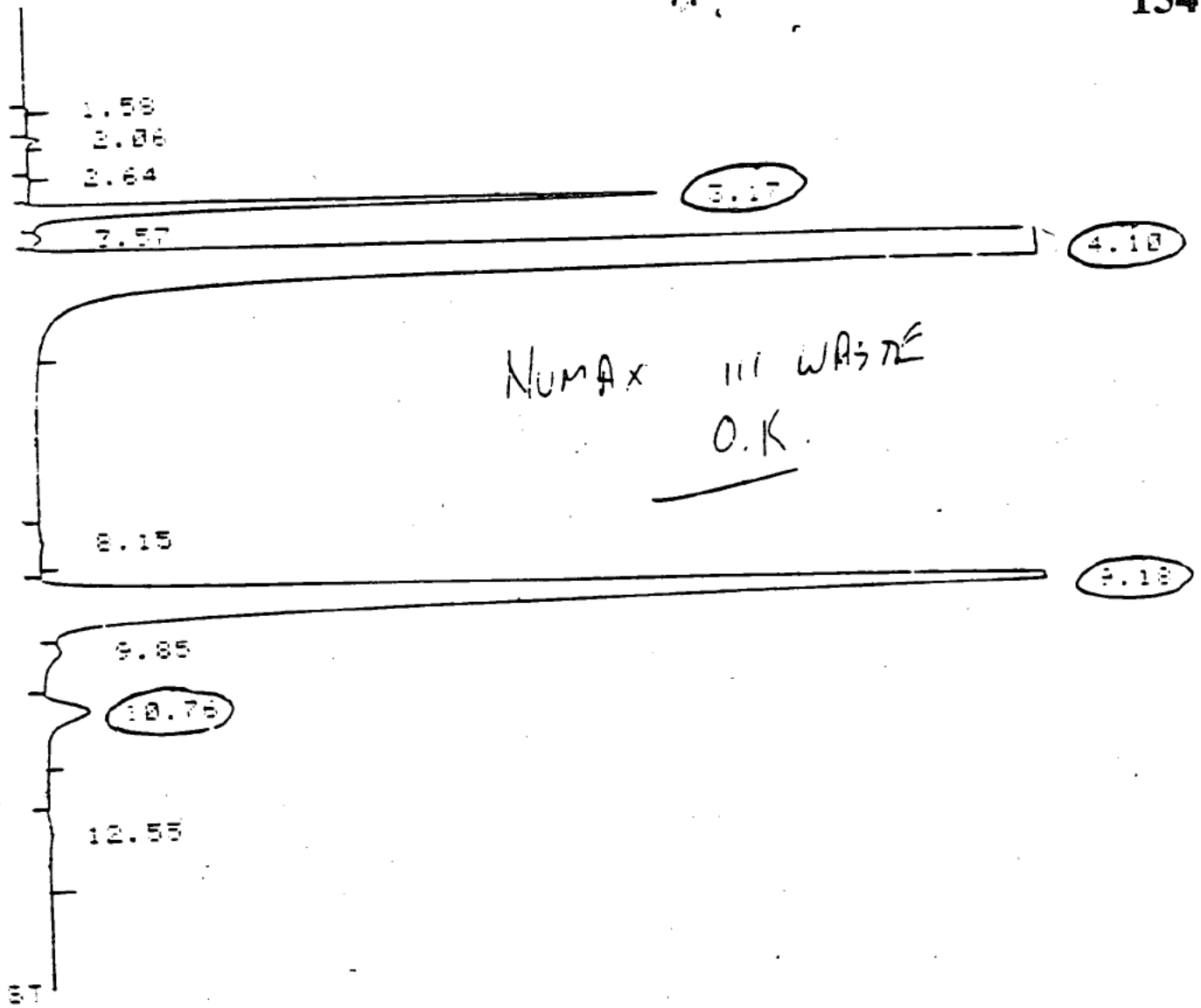
Waste Sample of 1-1-1 Trichloroethane from Numax Electronics.

2/28/85

Retention Time	Amount	Product
3.17	.627	Dow Inhibitor
4.10	94.495	Methyl Chloroform
9.18	4.412	Dow Inhibitor
10.76	.291	Dow Inhibitor
	99.825	

Composition of Standard 1-1-1 Trichloroethane.

Dow Inhibitor	.750
Methyl Chloroform	95.350
Dow Inhibitor	3.500
Dow Inhibitor	.400
	100.000



HP RUN # 9 FEB/28/85 TIME 13:19:41
BOTTLE 6
NORM

RT	EXP RT	AREA	CAL #	AMT
1.58	0.00	2364	(U)	0.001
2.06	0.00	26180	(U)	0.014
2.64	0.00	1356	(U)	0.001
3.17	3.15	2298000	2	0.627
3.57	0.00	44400	(U)	0.024
4.10	3.92	172800000	(R) 1	94.495
8.15	0.00	24940	(U)	0.014
9.18	9.18	10540000	3	4.412
9.85	0.00	178500	(U)	0.098
10.76	10.80	448700	4	0.291
12.55	0.00	42880	(U)	0.023

DIL FACTOR: 1.0000 E+ 0
RF UNC PKS: 5.8318 E- 7

CHROMATOGRAM #10 AND #11

Waste Sample of Perchloroethylene (Tetrachloroethylene) from Slater Electric

2/28/85

Retention Time	Amount	Product
10.64	99.965	Perchloroethylene

4/15/85

11.67	100	Perchloroethylene

CHROMATOGRAM #12 AND #13

Waste Sample of Perchloroethylene From Piezo Electric

3/5/85

Retention Time	Amount	Product
10.71	99.993	Perchloroethylene

4/26/85

13.79	99.965	Perchloroethylene

CHROMATOGRAM #14

Waste Sample of Methylene Chloride From Optica Manufacturing

3/29/85

Retention Time	Amount	Product
2.70	.142	Inhibitor
3.75	99.856	Methylene Chloride

CHROMATOGRAM #15

Waste Sample of Methylene Chloride from Microtronics

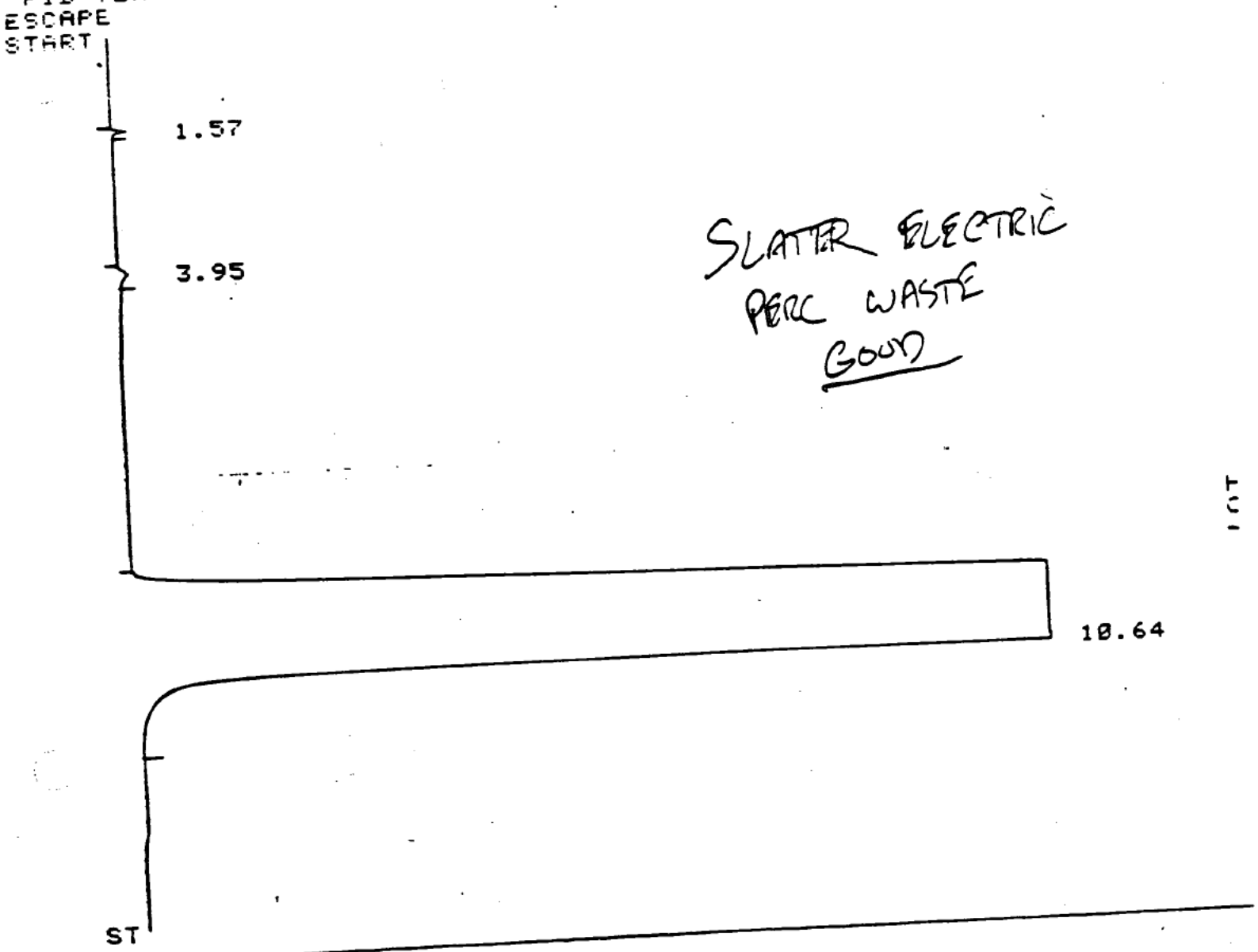
11/26/84

Retention Time	Amount	Product
2.71	.185	Inhibitor
3.84	99.599	Methylene Chloride

Composition of Standard Methylene Chloride

Inhibitor	.189
Methylene Chloride	99.790

INJ TEMP 400 150 150
FID TEMP 400 200 200



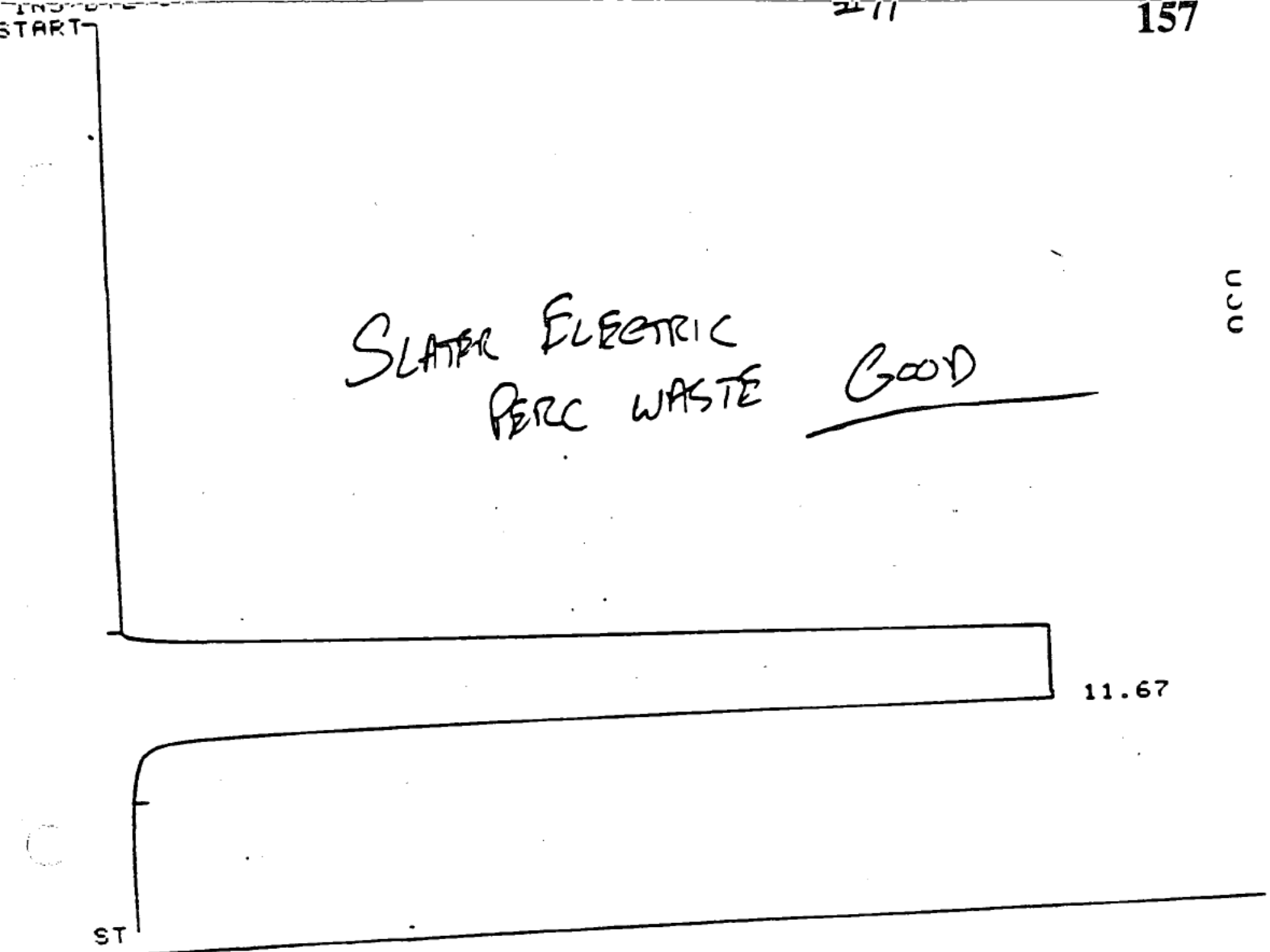
HP RUN # 13 FEB/28/85 TIME 14:37:58
BOTTLE 10
AREA %

RT	AREA	AREA %
1.57	25560	0.014
3.95	39230	0.021
10.64	184500000	99.965

DIL FACTOR: 1.0000 E+ 0

TEMP1	400	80	80
TIME1	0.00		
INJ TEMP	400	150	150
FID TEMP	400	200	200
AUX TEMP	400	0	52

CHT SPD	1.00
ZERO	10.0
ATTN 2↑	12
FID SGNL	+8



HP RUN # 11 APR/15/85 TIME 14:08:29
BOTTLE 9
AREA %

RT	AREA	AREA %
11.67	138300000	100.000

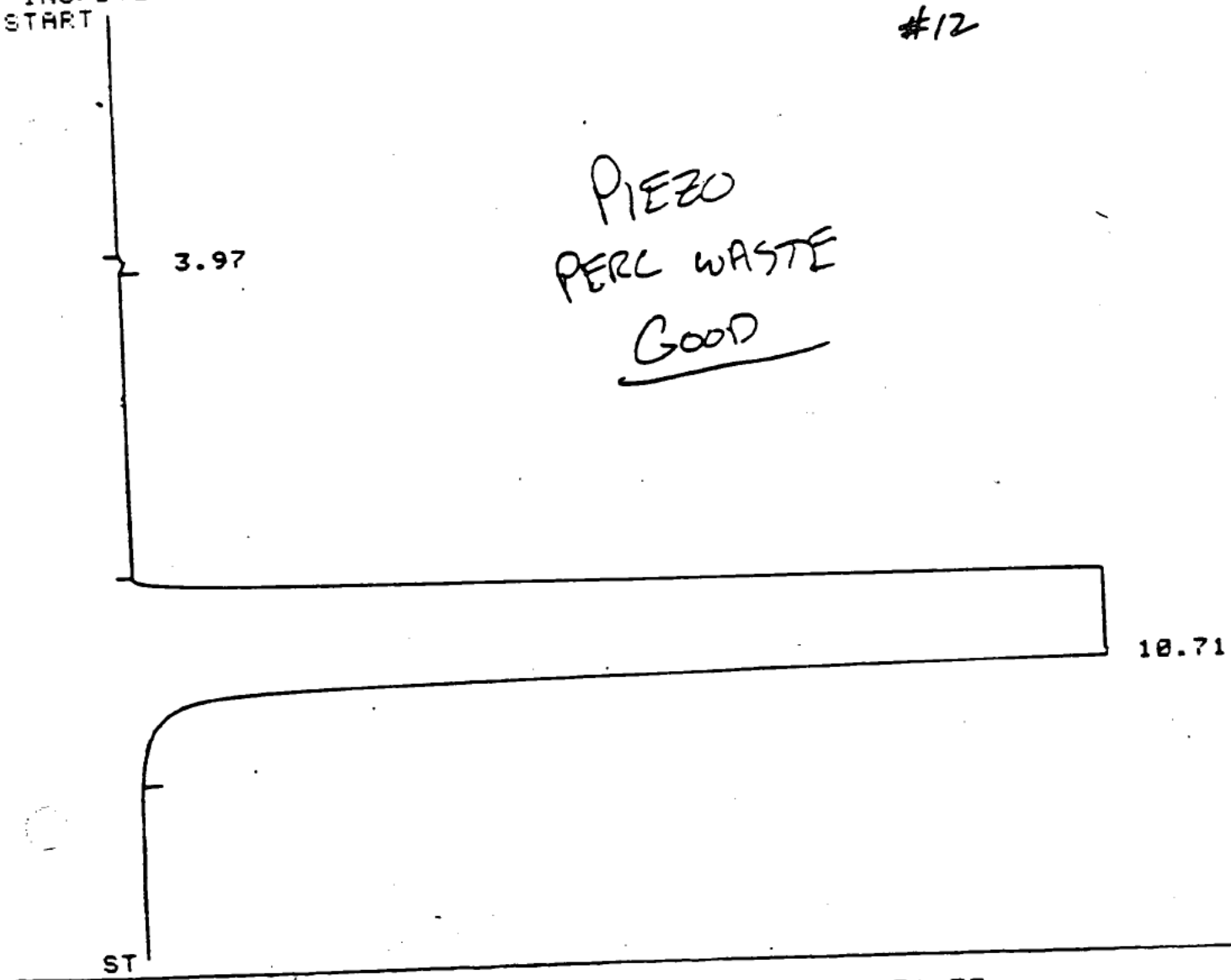
DIL FACTOR: 1.0000 E+ 0

TEMP1	400	80	80
TIME1	0.00		
INJ TEMP	400	150	150
FID TEMP	400	200	200
AUX TEMP	400	0	51

CHT SPD	1.00	
ZERO	10.0	
ATTN 2↑	12	
ID SGNL	+B	
SLP SENS	4.00	
AREA REJ		0
FLOW A	0.0	0.1
FLOW B	25.0	25.7

OPTN # 3 @
INJ/BTL.STROKE: 1 1 @

#12



PIEZO
PERC WASTE
GOOD

HF RUN # 3 MAR/05/85 TIME 13:31:37
BOTTLE 3
AREA %

RT	AREA	AREA %
3.97	15050	0.007
10.71	209100000	99.993

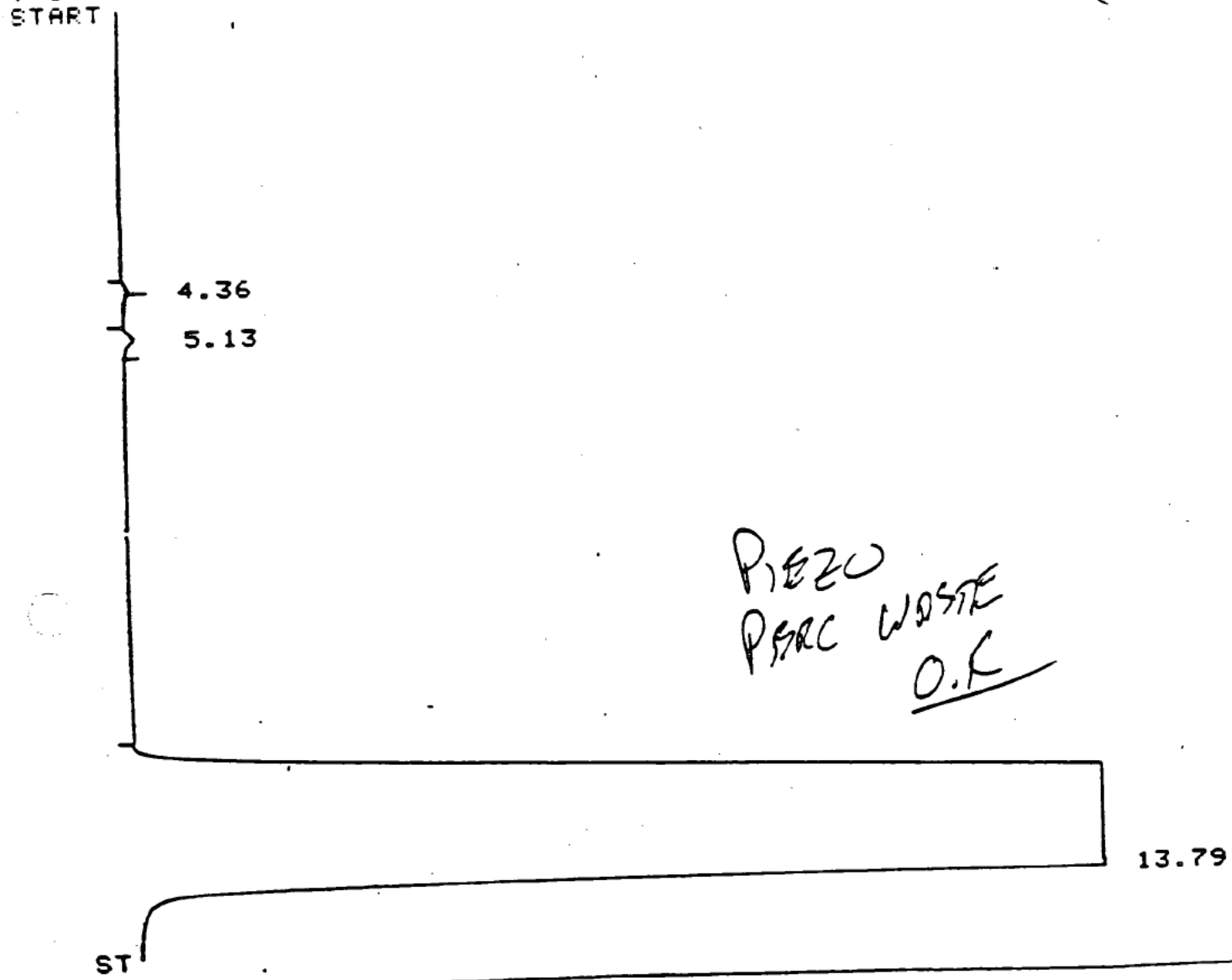
DIL FACTOR: 1.0000 E+ 0

TEMP1	400	80	80
TIME1	0.00		
INJ TEMP	400	150	150
FID TEMP	400	200	200

DIL FACTOR: 1.0000 E+ 0

TEMP1 400 80 80
ESCAPE
?
N # 3 @
J/BTL,STROKE: 1 1 @
? STARTSTOP ESCAPE
? STARTSTOP ESCAPE

#13



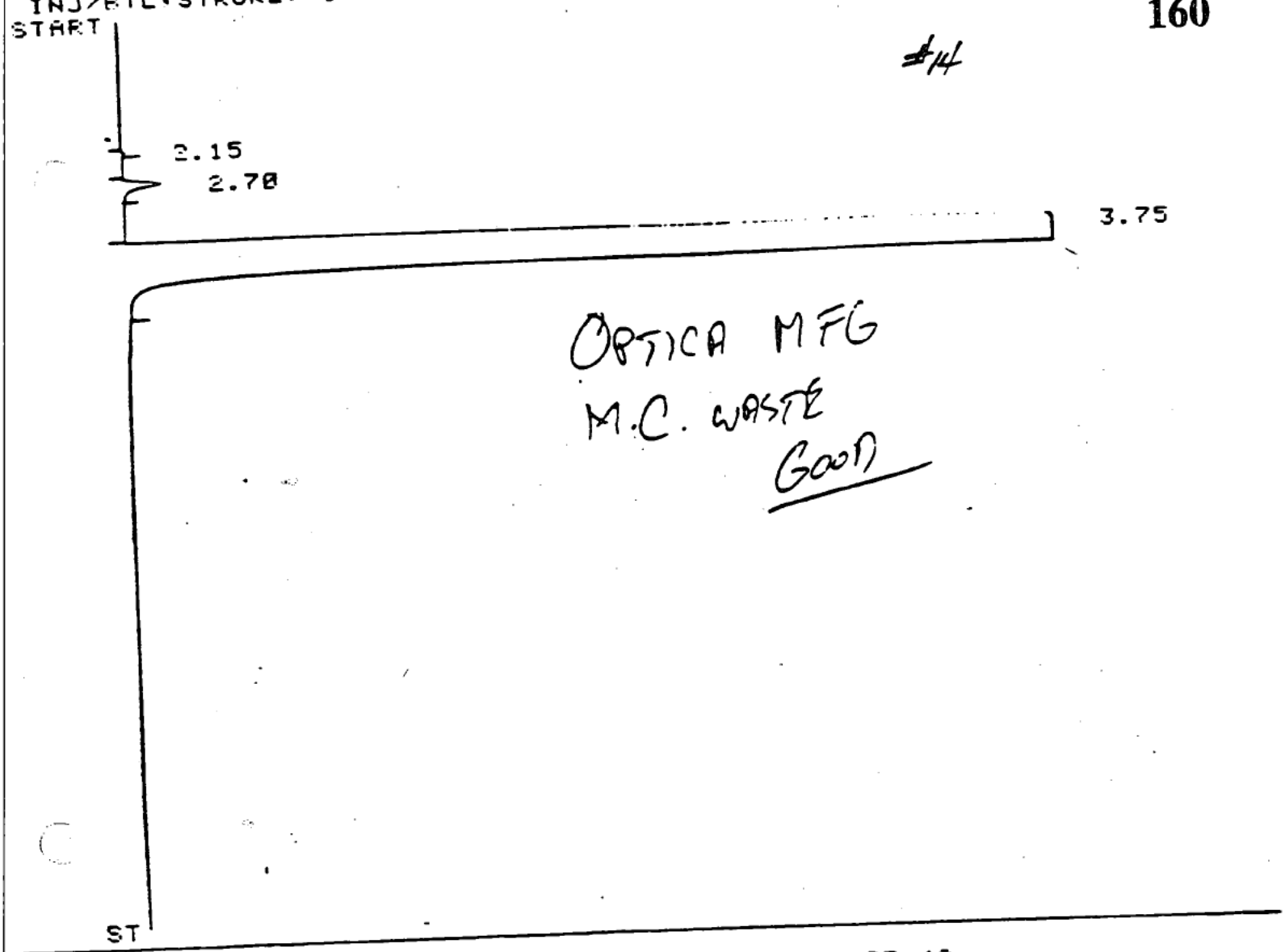
PIEZO
PARC WASTE
O.K

HP RUN # 6 APR/26/85 TIME 13:41:07
BOTTLE 4
AREA %

RT	AREA	AREA %
4.36	6822	0.004
5.13	59880	0.031
13.79	190300000	99.965

DIL FACTOR: 1.0000 E+ 0

#14



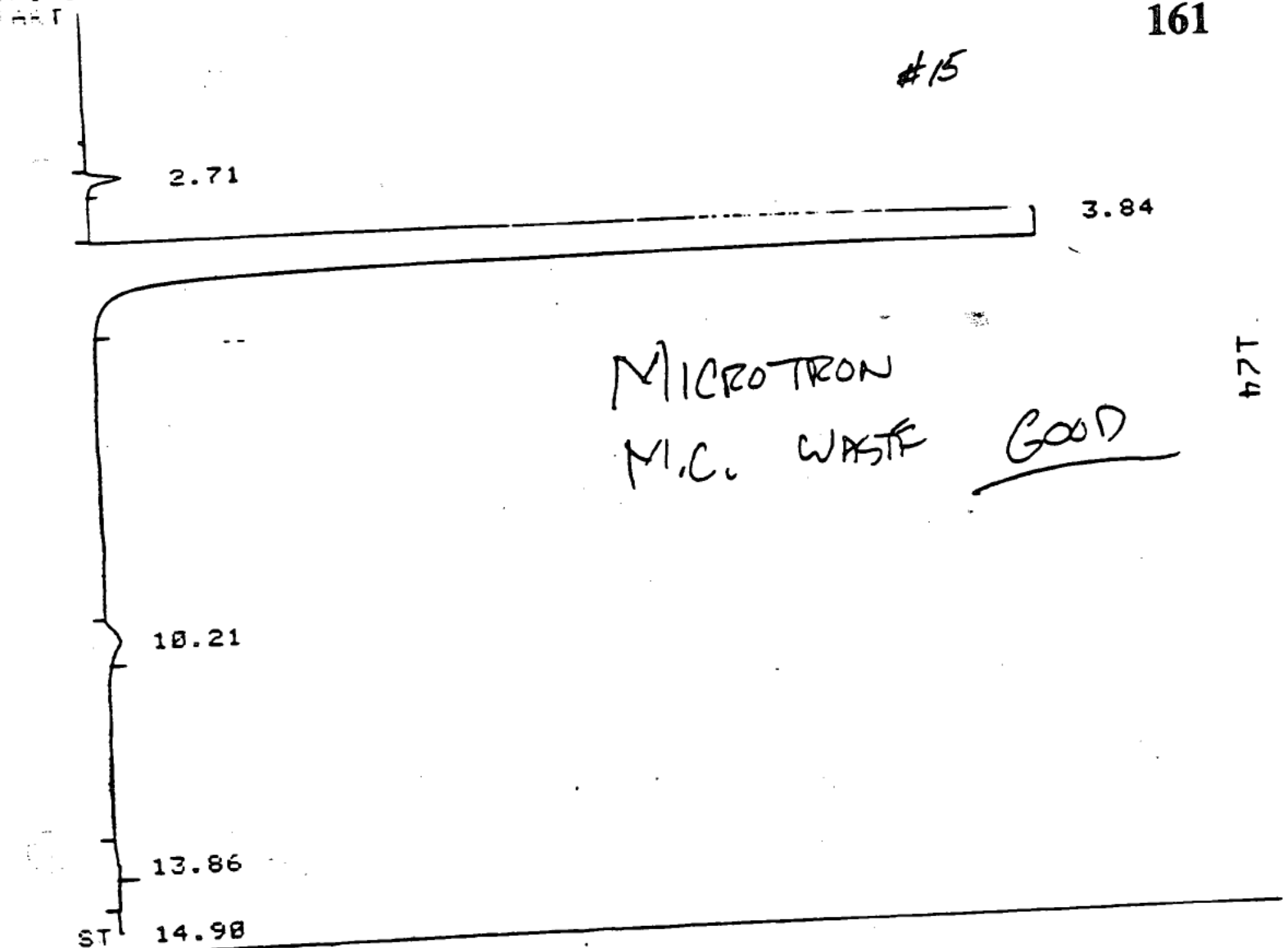
OPTICA MFG
M.C. WASTE
GOOD

HP RUN # 1 MAR/29/85 TIME 11:05:48
BOTTLE 1
AREA %

RT	AREA	AREA %
2.15	2124	0.002
2.70	149000	0.142
3.75	104500000	99.856

DIL FACTOR: 1.0000 E+ 0

#15



HP RUN # 1 NOV/26/84 TIME 09:09:07
BOTTLE 5
AREA %

RT	AREA	AREA %
2.71	143200	0.185
3.84	77260000	99.599
10.21	145200	0.187
13.86	20250	0.026
14.90	2095	0.003

DIL FACTOR: 1.0000 E+ 0

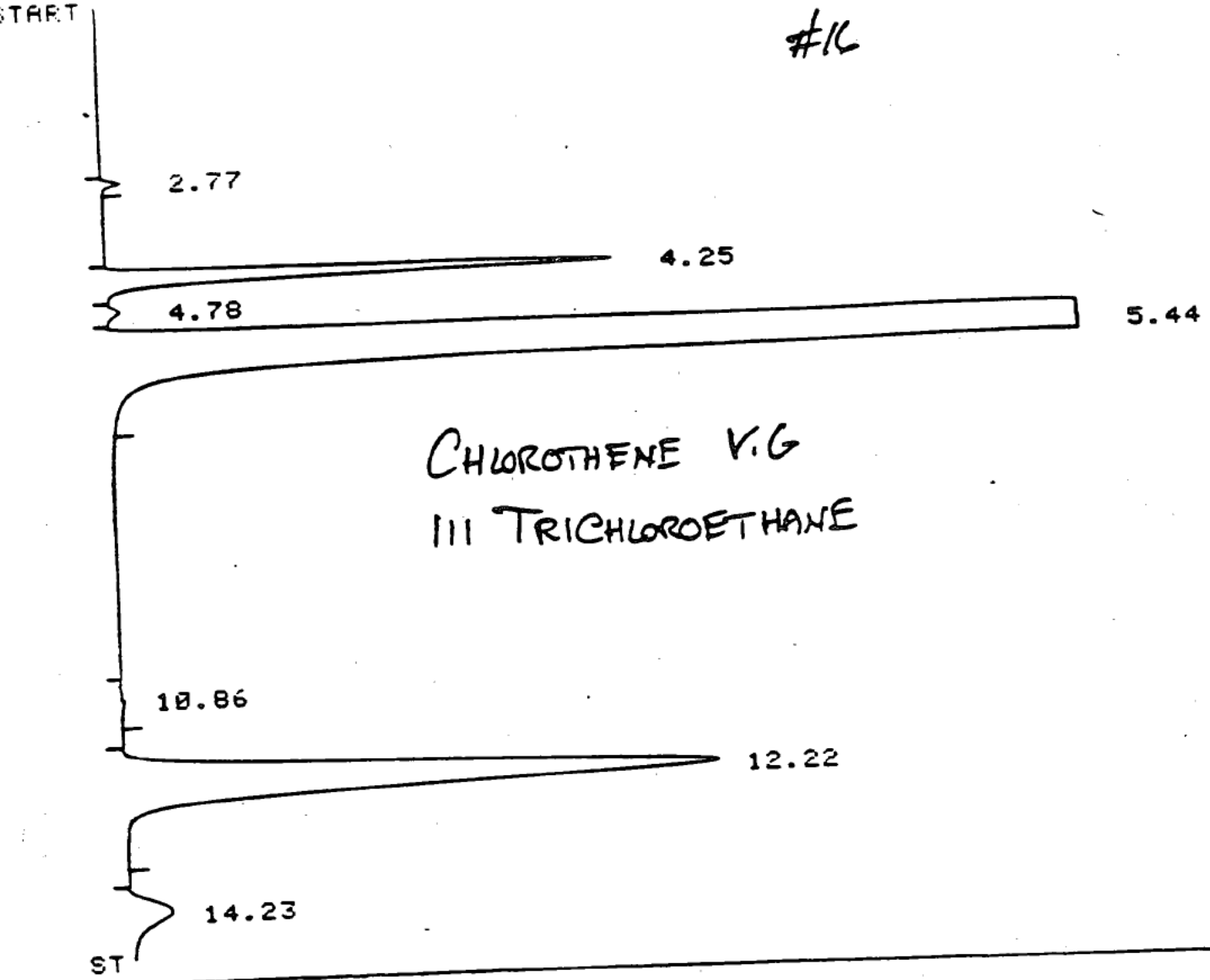
TEMP1	400	80	80
TIME1	0.00		
INJ TEMP	400	150	150
FID TEMP	400	200	200
AUX TEMP	400	0	52

HT SPD 1.00
ZERO 10.0
ATTN 2↑ 12

CHROMATOGRAMS OF VIRGIN PRODUCT STANDARDS
(as at the indicated dates)

#16 1,1,1-Trichloroethane
#17 Trichloroethylene
#18 Methylene Chloride
#19 Perchloroethylene (Tetrachloroethylene)
#20 Freon TF
#21 Freon TMS
#22 Freon TMC
#23 Freon TE
#24 Freon TES

PTN # 3 0
INJ/BTL, STROKE: 1 1 0



HP RUN # 9 MAY/06/85 TIME 09:37:10
BOTTLE 4
AREA %

7RT

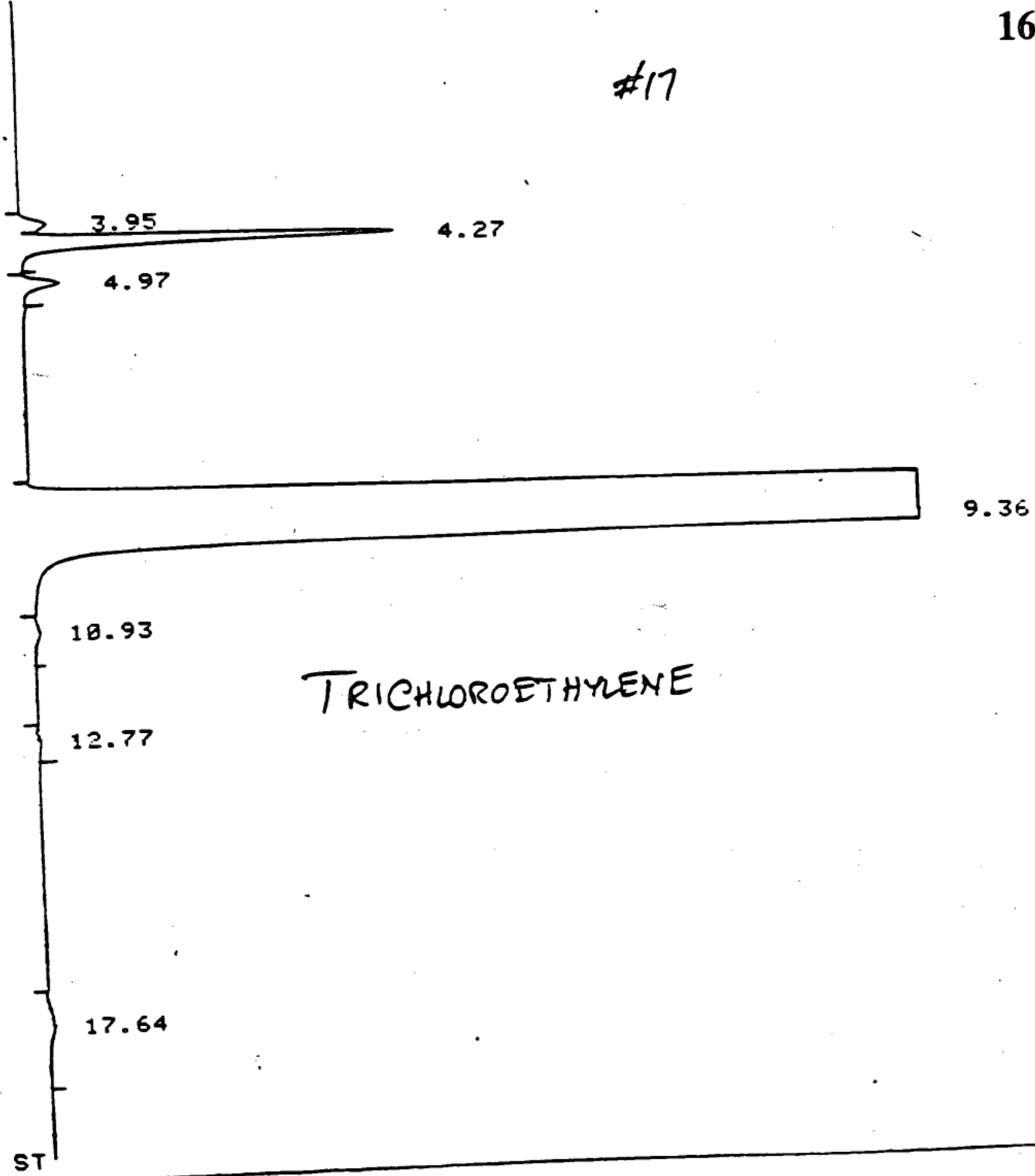
RT	AREA	AREA %
2.77	48770	0.026
4.25	2543000	1.347
4.78	62750	0.033
5.44	177800000	94.211
10.86	24170	0.013
12.22	7688000	4.074
14.23	558900	0.296

DIL FACTOR: 1.0000 E+ 0

TEMP1	400	80	80
IME1	0.00		
INJ TEMP	400	150	150
FID TEMP	400	200	200
AUX TEMP	400	0	51

CHT SPD 1.00
ZERO 10.0

#17



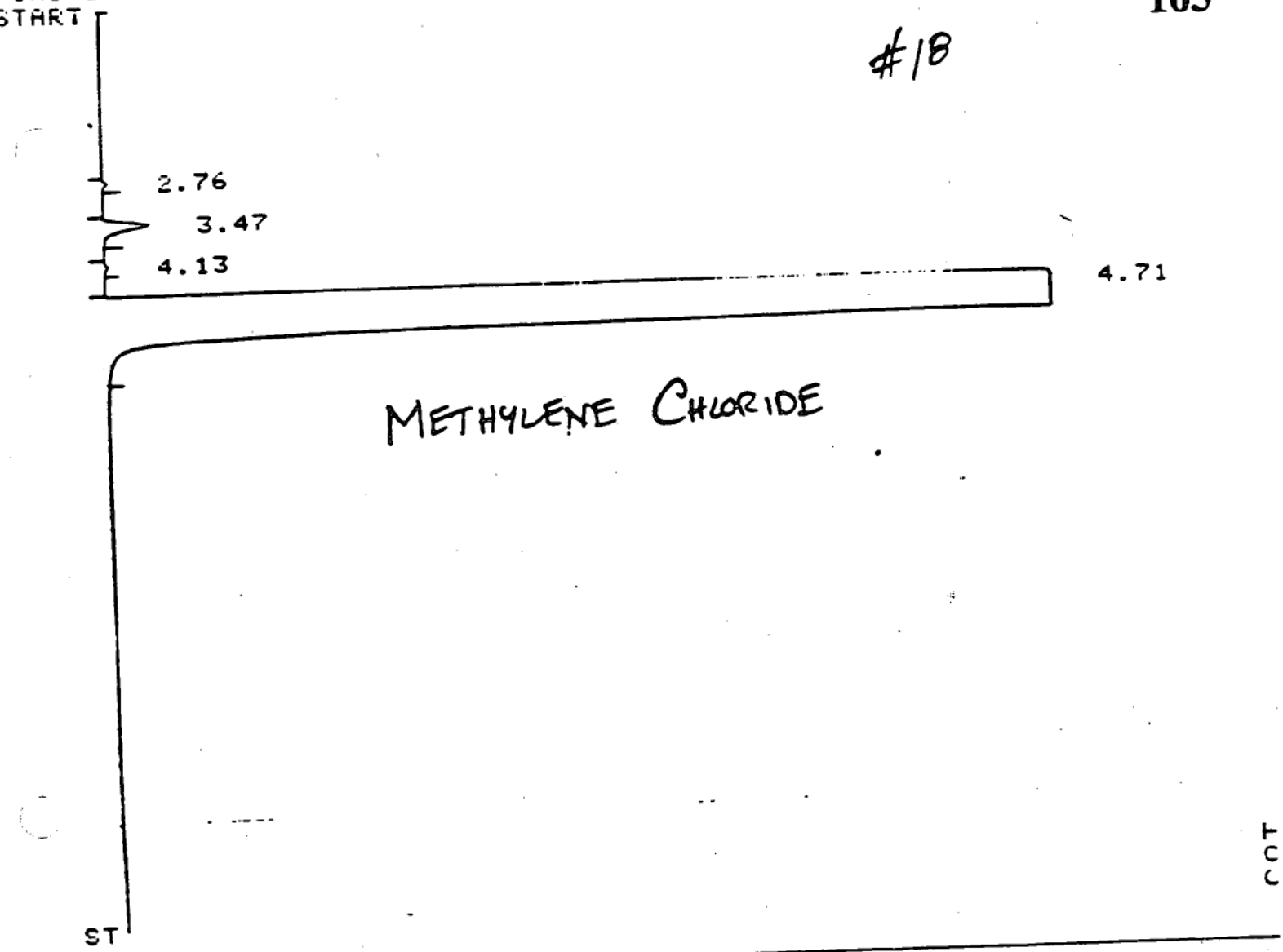
HP RUN # 12 MAY/06/85 TIME 10:39:20
BOTTLE 1
AREA %

RT	AREA	AREA %
3.95	179200	0.079
4.27	2033000	0.900
4.97	210800	0.093
9.36	223200000	98.840
10.93	73340	0.032
12.77	18180	0.008
17.64	104900	0.046

DIL FACTOR: 1.0000 E+ 0

RUN # 5 @
INJ/BTL, STROKE: 1 1 @

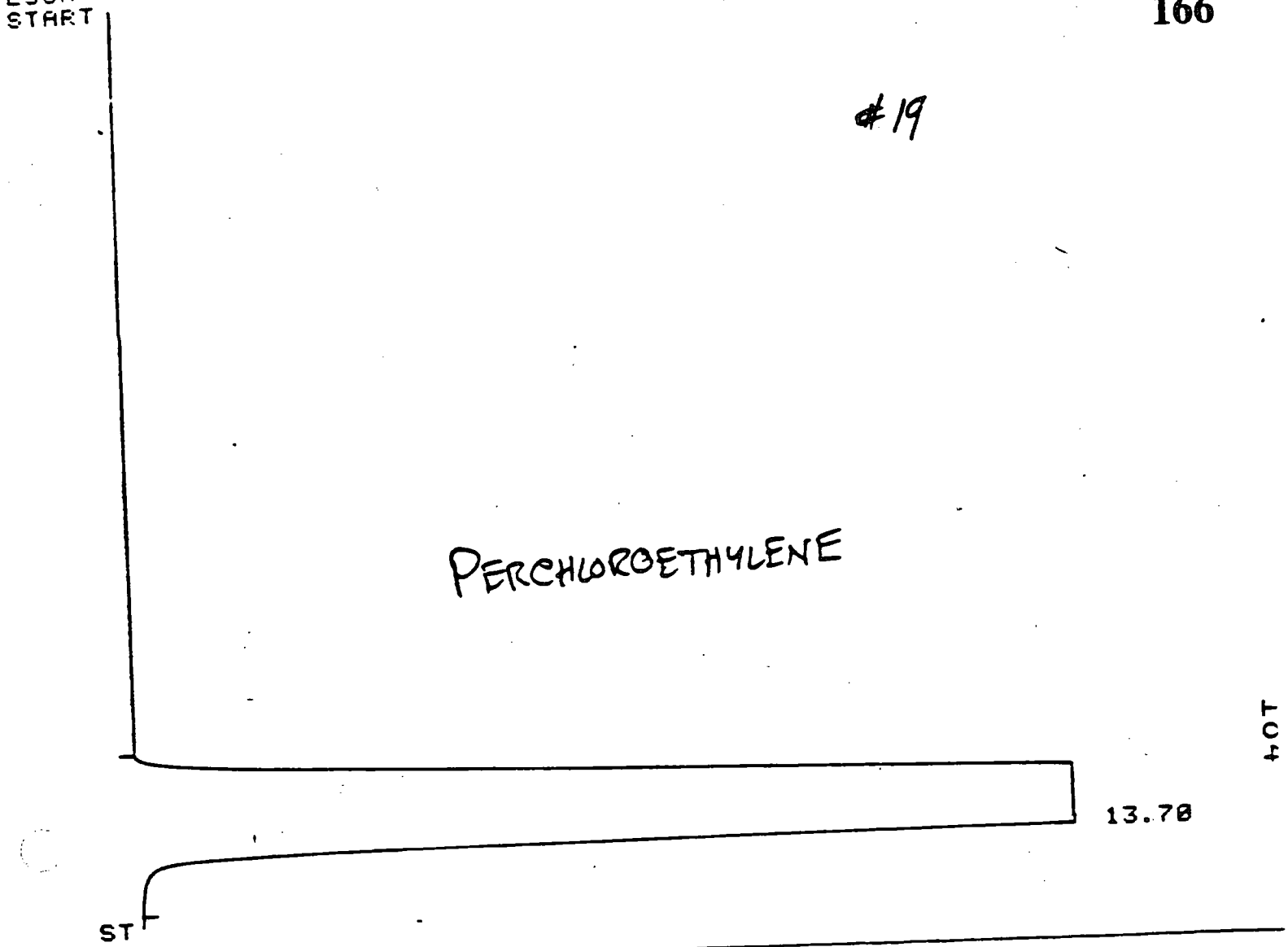
#18



HP RUN # 10 MAY/06/85 TIME 10:00:00
BOTTLE 5
AREA %

RT	AREA	AREA %
2.76	13310	0.011
3.47	221400	0.189
4.13	10950	0.009
4.71	116600000	99.790

DIL FACTOR: 1.0000 E+ 0



HP RUN # 11 MAY/06/85 TIME 10:18:13
BOTTLE 6
AREA %

RT	AREA	AREA %
13.70	78000000	100.000

DIL FACTOR: 1.0000 E+ 0

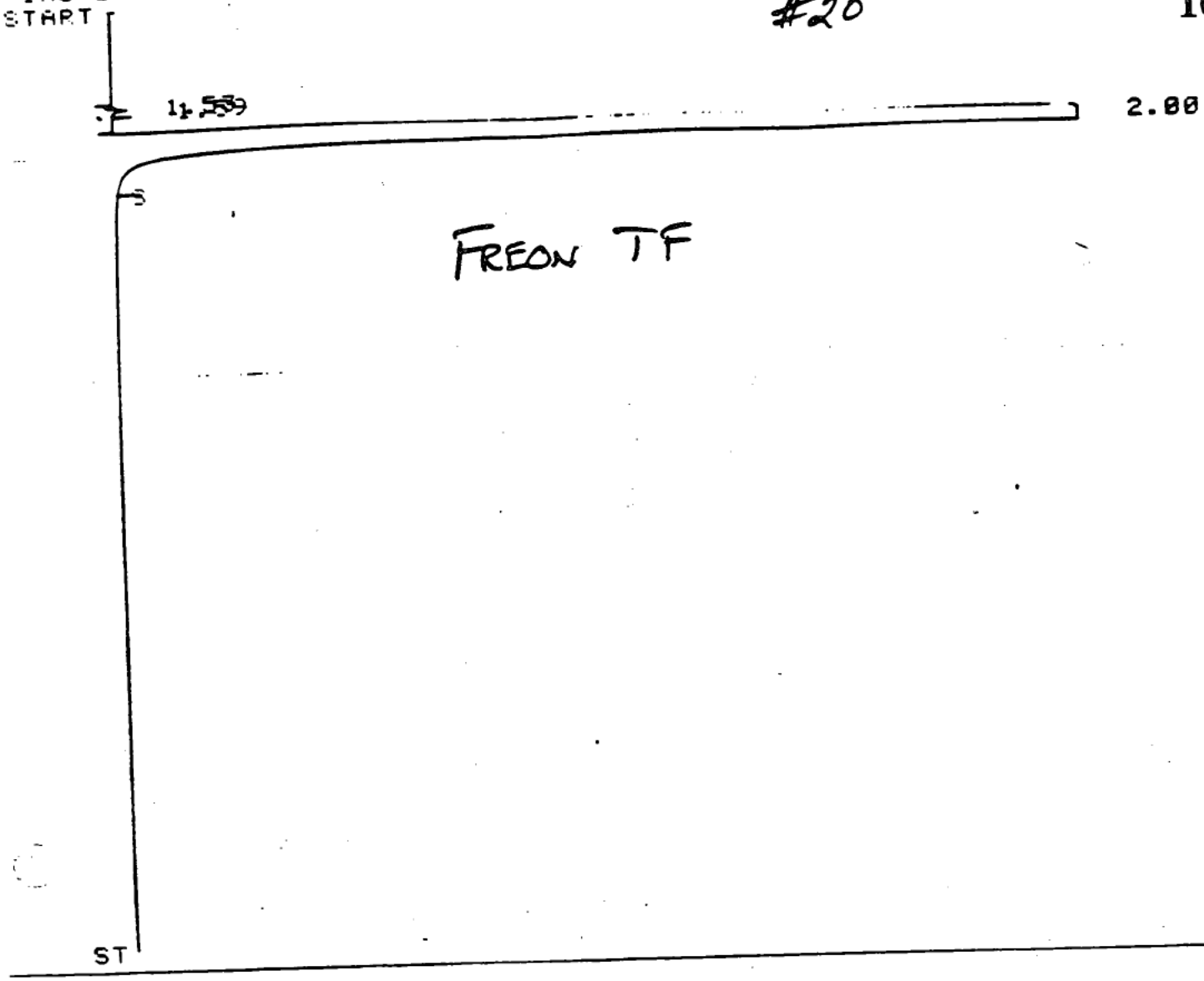
TEMP1	400	80	80
TIME1	0.00		
INJ TEMP	400	150	150
FID TEMP	400	200	200
AUX TEMP	400	0	51

CHT SPD	1.00	
ZERO	10.0	
ATTN 2↑	12	
FID SGNL	+B	
SLP SENS	4.00	
AREA REJ		0
FLOW A	0.0	0.2
FLOW B	25.0	25.5

15.00 STOP

INJ/BTL•STROKE: 1 1 0

#20



HP RUN # 5 MAY/06/85 TIME 07:57:55
BOTTLE 3
AREA %

RT	AREA	AREA %
1.53	2108	0.002
1.59	21810	0.024
2.00	91240000	99.974

DIL FACTOR: 1.0000 E+ 0

TEMP1	400	80	80
TIME1	0.00		
INJ TEMP	400	150	150
FID TEMP	400	200	200
AUX TEMP	400	0	51

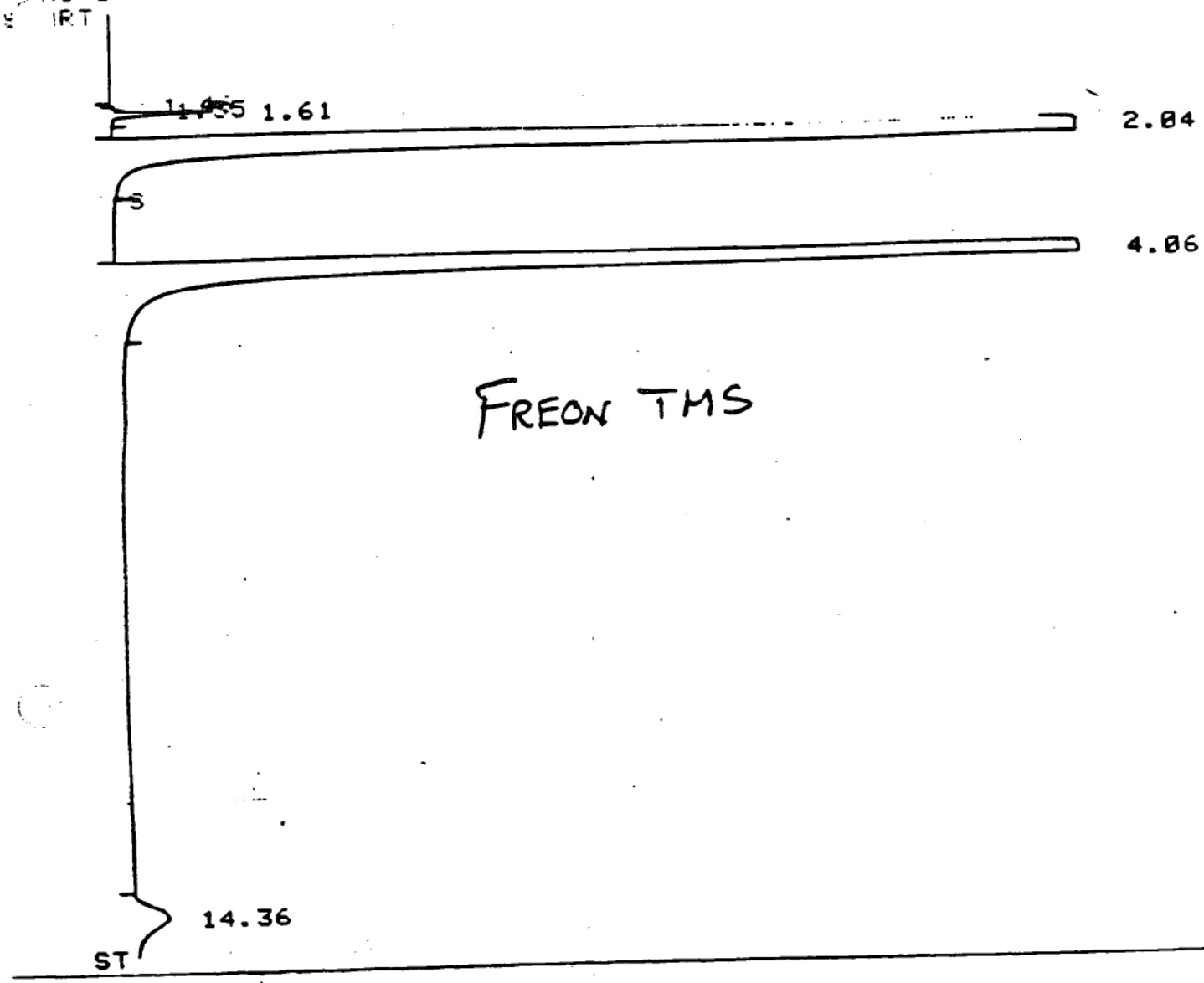
CHT SPD	1.00	
ERO	10.0	
ATTN 2↑	12	
FID SGNL	+B	
SLP SENS	4.00	
AREA REJ		0
FLOW A	0.0	0.2
FLOW B	25.0	25.2

DELETE STOP
STOP MIN? ? 1 5 @

#21

15.00 STOP

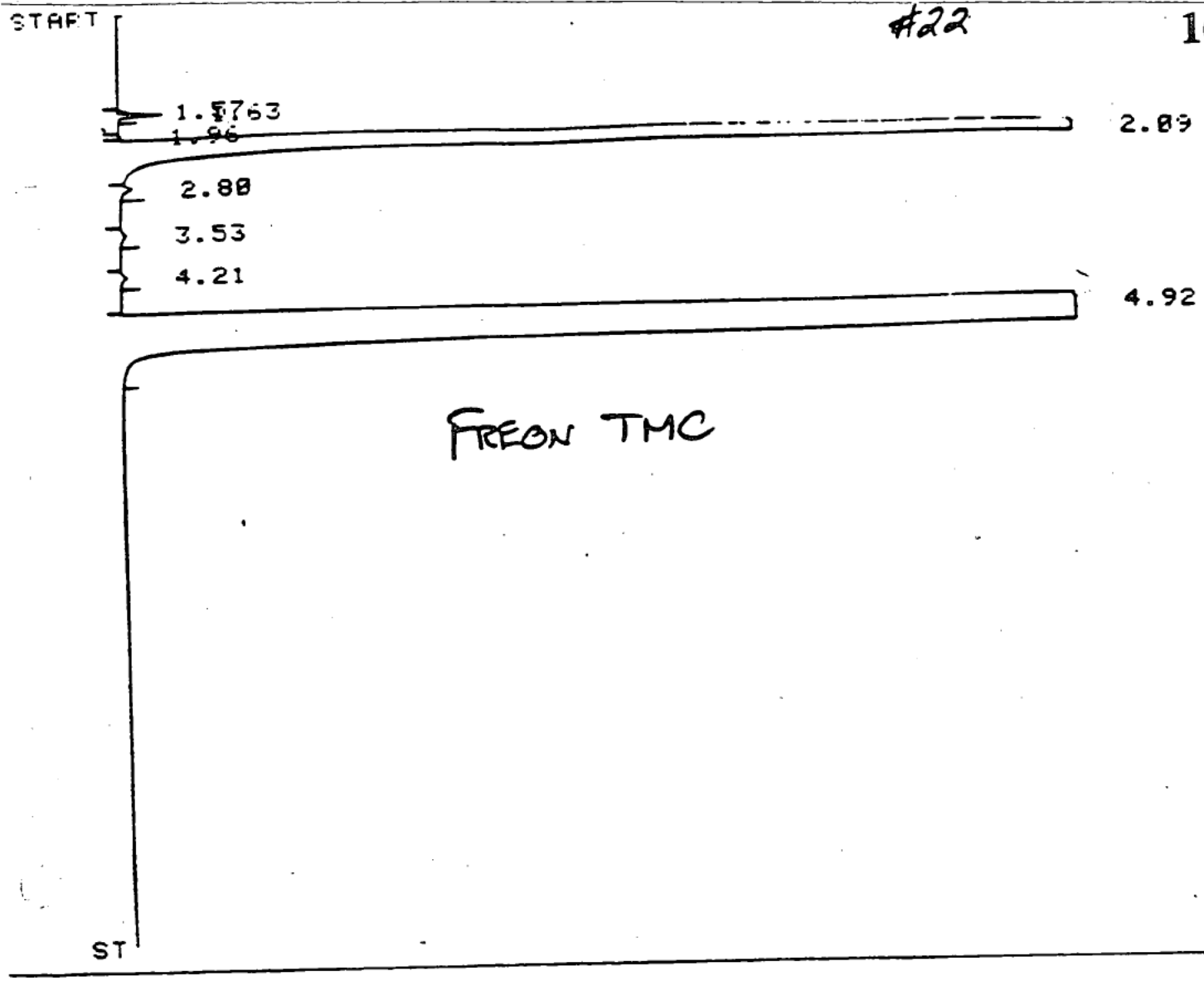
?TN # 3 @
NJ/BTL,STROKE: 1 1 @



HP RUN # 13 MAY/06/85 TIME 11:06:25
BOTTLE 2
AREA %

RT	AREA	AREA %
1.46	676	0.001
1.55	19280	0.019
1.61	168300	0.167
2.04	84660000	83.798
4.06	15740000	15.580
14.36	440100	0.436

TL FACTOR: 1.0000 E+ 0



HP RUN # 14 MAY/06/85 TIME 11:25:00
BOTTLE 3
AREA %

RT	AREA	AREA %
1.57	8554	0.008
1.63	65440	0.059
1.96	2587	0.002
2.09	53410000	48.119
2.80	39230	0.035
3.53	21590	0.019
4.21	18940	0.017
4.92	57430000	51.740

DIL FACTOR: 1.0000 E+ 0

TEMP1	400	80	80
TIME1	0.00		
NJ TEMP	400	150	150
ID TEMP	400	200	200
AUX TEMP	400	0	51

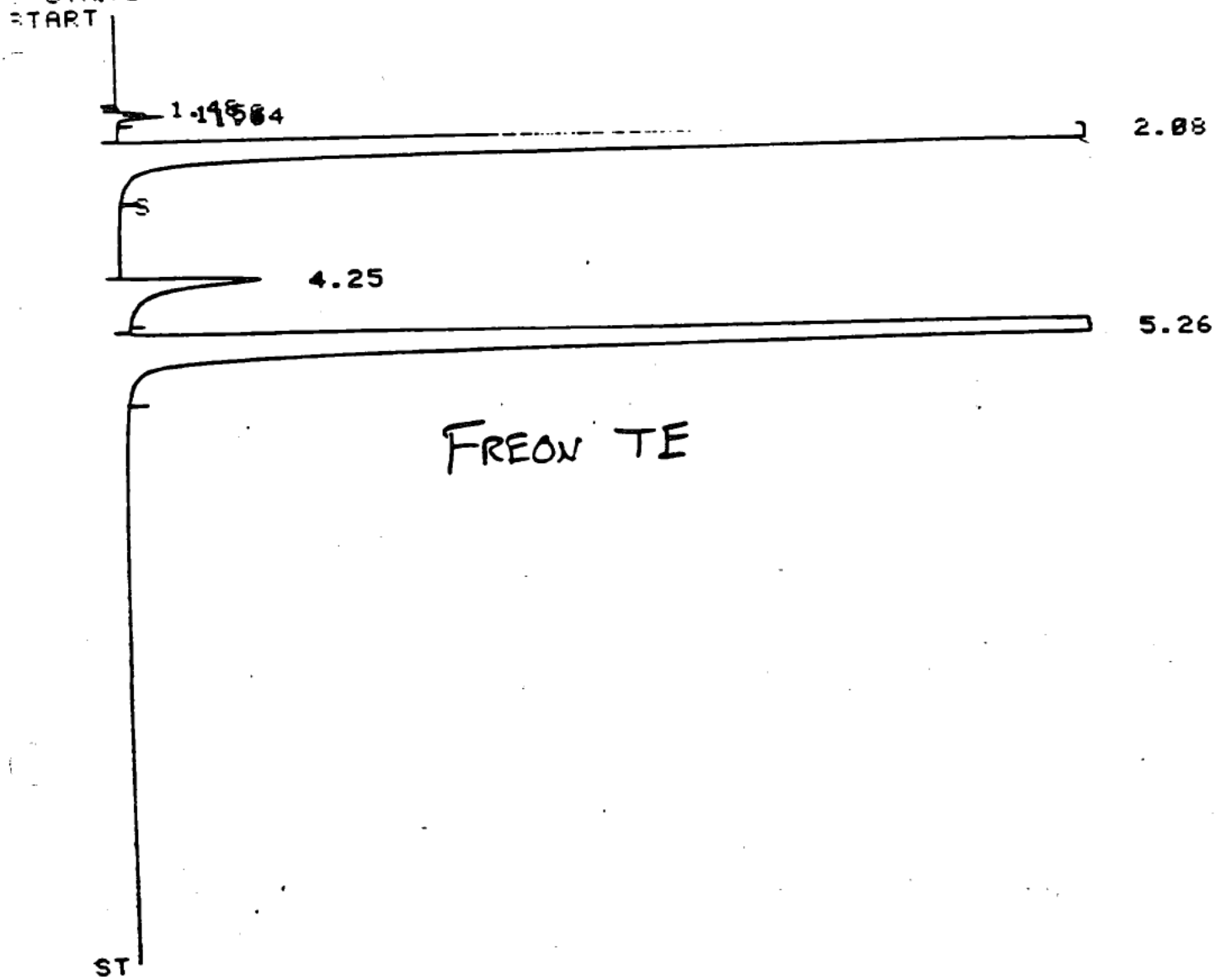
CHT SPD 1.00
ZERO 10.0
ATTN 2T 12

15.00 STOP

170

OPTN # 3 @
INJ/BTL,STROKE: 1 1 @
? STAP/STOP ESCAPE

#23



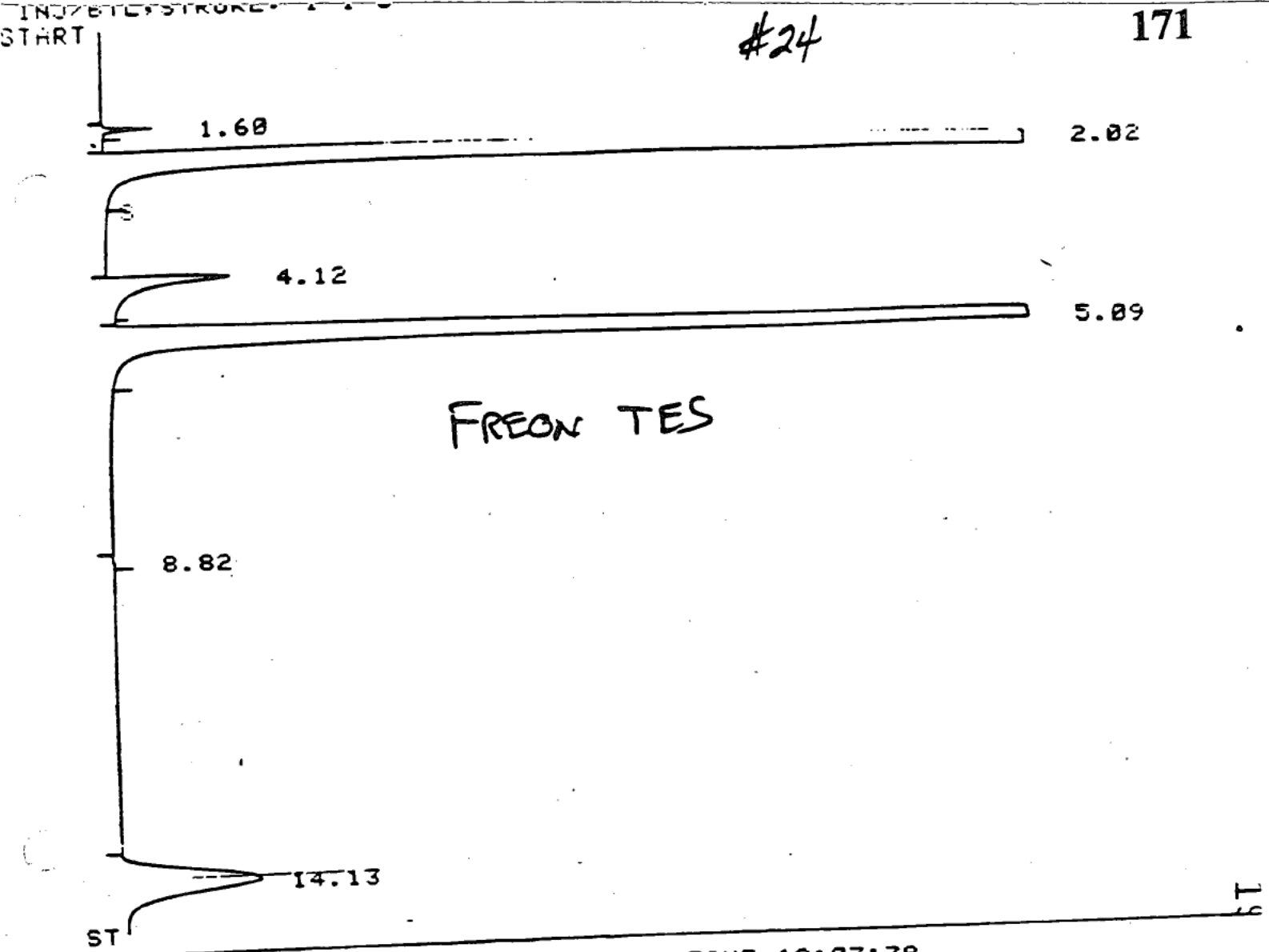
HF RUN # 16 MAY/06/85 TIME 11:46:45
BOTTLE 4
AREA %

RT	AREA	AREA %
1.48	1412	0.001
1.58	35910	0.035
1.64	72760	0.071
2.08	84040000	82.211
4.25	824400	0.806
5.26	17250000	16.875

DIL FACTOR: 1.0000 E+ 0

TEMP1	400	80	80
TIME1	0.00		
INJ TEMP	400	150	150
FID TEMP	400	200	200
AUX TEMP	400	0	52

#24



HP RUN # 17 MAY/06/85 TIME 12:07:38
BOTTLE 5
AREA %

RT	AREA	AREA %
1.60	81000	0.081
2.02	83000000	82.760
4.12	748600	0.746
5.09	14500000	14.458
8.82	2490	0.002
14.13	1958000	1.952

DIL FACTOR: 1.0000 E+ 0

TEMP1	400	80	80
TIME1	0.00		
INJ TEMP	400	150	150
FID TEMP	400	200	200
UX TEMP	400	0	52

APPENDIX B

CUSTOMER/GENERATOR AUDIT

PRIDE SOLVENTS & CHEMICAL CO., INC.

CUSTOMER/GENERATOR AUDIT

I. GENERAL INFORMATION

COMPANY NAME: _____

PLANT LOCATION: _____

_____

PLANT CONTACT: _____

PHONE NO.: _____

Describe the operations and principal product(s) or service(s) at this facility: _____

_____

_____

_____

_____

_____

_____

_____

_____

_____

RESTRICTIONS

1. As a service to our customers, we will handle spent chlorinated and fluorocarbon solvents only.
2. Spent solvents must be of a single product, mixtures will not be accepted.
3. Spent solvents must have a reclamation value of at least fifty percent (50%).
4. Spent solvents must be in full drums and the drums must be in a condition acceptable for DOT common carrier transport.
5. All drums accepted for transport must be labeled and have documentation as prescribed by NYS, EPA and DOT regulations.

II. WASTE SOLVENT INFORMATION

For each waste solvent, indicate the generation rate, expected shipping frequency and quantities to be shipped.

Waste Solvent	Generation Rate (Gals./Month)	Shipping Frequency	Quantity (Gals.)	Pre-Shipme Sample
1,1,1-Trichloroethane				
Trichloroethylene				
Perchloroethylene				
Methylene Chloride				
Freon TF				
Freon TMS				
Freon TE				
Freon TMC				
Freon TES				

III. PROCESS INFORMATION

For each waste solvent, describe the process or operation which generates the waste and identify the contaminants expected to be present:

Use additional sheets, if necessary.

IV. ADDITIONAL WASTE PRODUCTS

Other than the waste solvents identified in Section II, describe all other liquid and/or solid wastes, such as acids, alkalies, cyanides, thinners, oils, etc. For each waste stream, describe the process or operation which generates the waste and the contaminants expected to be present: _____

Are any of the additional waste products stored in the same area as the waste solvents? Please explain: _____

Does this facility utilize any chemicals or compounds, or generate any wastes containing PCBs? If yes, explain: _____

V. CERTIFICATION

I certify that the information provided in this audit is true and accurate to the best of my knowledge.

Facility Rep. _____ Title: _____

Signature: _____ Date: _____

Pride Solvents Rep. _____

Signature: _____ Date: _____

APPENDIX C

TEST METHODS

Designation: D 2111 – 71 (Reapproved 1978)

Standard Test Methods for SPECIFIC GRAVITY OF HALOGENATED ORGANIC SOLVENTS AND THEIR ADMIXTURES[1]

This Standard is issued under the fixed designation D 2111; the number immediately following the designation indicates the year of original adoption or, in the case of revision, the year of last revision. A number in parentheses indicates the year of last reapproval.

These methods have been approved for use by agencies of the Department of Defense and for listing in the DoD Index of Specifications and Standards

1. Scope

1.1 These methods cover the determination of the specific gravity of halogenated organic solvents and solvent admixtures. They define suitable apparatus and procedures and furnish details underlying the interpretation of test data and the selection of numerical limits for agreement among interested persons and agencies.

1.2 Four methods are covered as follows:

1.2.1 *Method A*, specific gravity by means of a specific gravity balance.

1.2.2 *Method B*, specific gravity by means of a hydrometer.

1.2.3 *Method C*, specific gravity by means of a pycnometer.

1.2.4 *Method D*, specific gravity by means of a vacuum pycnometer.

NOTE 1—In referee problems, Methods A, C, or D may be used.

2. Definitions

2.1 *specific gravity*—the ratio of the weight in air of a given volume of the material at a stated temperature to the weight in air of an equal volume of distilled water at a stated temperature. It shall be stated thus:

2.1.1 When the temperatures of the material and of the water are the same:

Specific gravity x/x C. . . .

where x = temperature of the material and the water.

2.1.2 When the temperature of the material and of the water are not the same:

Specific gravity x/y C

where:

x = temperature of the material, and

y = temperature of the water.

2.1.3 *specific gravity, absolute*—the ratio of the weight referred to vacuum of a given volume of the material at a stated temperature to the weight referred to vacuum of an equal volume of gas-free distilled water (Note 2) at a stated temperature. It shall be stated as in 2.1.

NOTE 2—Gas-free distilled water is distilled water that has been boiled to eliminate dissolved gases.

3. Test Temperatures

3.1 Material specifications often specify different temperatures at which specific gravity shall be measured:

Specific gravity 15/4 C
Specific gravity 20/20 C
Specific gravity 25/25 C

For purposes of unity, the test temperature used throughout shall be 25/25 C.

3.2 For some of the liquids, an agreement may be reached as to the coefficient of expansion of the product. In such cases, the specific gravity may be changed from one temperature basis to another as described in Section 14.

METHOD A—SPECIFIC GRAVITY BY MEANS OF A SPECIFIC GRAVITY BALANCE

4. Apparatus

4.1 *Balance*—Westphal or equivalent, capable of determining specific gravity to the

[1] These methods are under the jurisdiction of ASTM Committee D-26 on Halogenated Organic Solvents.
Current edition effective April 15, 1971. Originally issued 1962. Replaces D 2111 – 64.

fourth decimal place, and equipped with a plummet for use at 25 C.

4.2 *Cylinder*—The cylinder may be of metal or of clear glass, with a lip on the rim for convenience in pouring. A convenient size of cylinder is approximately 1½ in. (38 mm) in diameter and 5 in. (127 mm) in height.

4.3 *Thermometer*—An ASTM Gravity Thermometer having a range from −20 to +102 C and conforming to the requirements for Thermometer 12C as prescribed in ASTM Specification E 1.[2]

4.4 *Water Bath*, capable of maintaining a temperature of 25.0 ± 0.5 C during the test.

5. Procedure

5.1 Cool the sample in the original closed container to the temperature specified for the test. The thermometer, plummet, and cylinder should be at about the same temperature. Take care to prevent the temperature of the sample from changing appreciably during the time necessary to complete the test. This may be done by placing the test cylinder in the water bath maintained at the necessary temperature during the time of the test. Allow sufficient time to permit the plummet, cylinder, and thermometer to reach the specified temperature. In cases of dispute, it is recommended that the temperature of the sample be determined both before and after the reading is taken.

5.2 Suspend the plummet from the arm of the balance and adjust the balance to equilibrium in air so that the reading is zero. Pour freshly boiled and cooled distilled water into the cylinder. Place the cylinder in the water bath and arrange so that the plummet is immersed in the distilled water. Be sure that the plummet is free of air bubbles, is completely submerged, and does not touch the sides or bottom of the cylinder containing the sample. Stir the contents of the cylinder and, when the temperature is 25.0 ± 0.5 C, take the balance reading. Wash the plummet and cylinder with alcohol and ether to clean and dry. Pour enough of the previously cooled sample into the cylinder to cause the suspension wire to be immersed to the same point as before, and repeat the above procedure to obtain the reading when the plummet is immersed in the sample at 25 C.

6. Calculation

6.1 Calculate the specific gravity as follows:

$$\text{Specific gravity } 25/25\text{ C} = A/B$$

where:

A = reading obtained with the sample, and

B = reading obtained with water.

Method B—Specific Gravity by Means of a Hydrometer

7. Apparatus

7.1 *Hydrometer*—The hydrometers to be used shall be those specified in ASTM Specification E 100, for ASTM Hydrometers[2] as follows:

Nominal Specific Gravity Range	ASTM Hydrometer No.
0.900 to 0.950	107H
0.950 to 1.000	108H
1.000 to 1.050	125H
1.050 to 1.100	126H
1.100 to 1.150	127H
1.150 to 1.200	128H
1.200 to 1.250	129H
1.250 to 1.300	130H
1.300 to 1.350	131H
1.350 to 1.400	132H
1.400 to 1.450	133H
1.450 to 1.500	134H
1.500 to 1.550	135H
1.550 to 1.600	136H
1.600 to 1.650	137H

7.2 *Hydrometer Cylinder*—The vessel in which the sample for the gravity test is confined shall be made of clear glass and shall be cylindrical in shape. For convenience in pouring, it may have a lip on the rim. The inside diameter shall be at least 25.4 mm (1.0 in.) greater than the outside diameter of the hydrometer used in it. The height of the cylinder shall be such that the length of the column of sample it contains is greater by at least 25.4 mm (1.0 in.) than the portion of the hydrometer that is immersed beneath the surface of the sample after a state of equilibrium has been reached.

7.3 *Thermometer*—See 4.3.

7.4 *Water Bath*—See 4.4.

8. Procedure

8.1 Cool the sample in the original container to about 24 C. Rinse each piece of equipment with a portion of the sample. Pour the sample

[2] *Annual Book of ASTM Standards*, Part 25 and 44.

into the clean hydrometer cylinder without splashing, so as to avoid formation of air bubbles. Remove any air bubbles adhering to the surface by touching them with a piece of clean filter paper. Select a location that is free of air currents. Place the cylinder vertically in the water bath and let the temperature of the sample reach 25.0 ± 0.5 C as follows: Stir the contents of the cylinder, being careful to avoid formation of air bubbles. When the temperature of the sample is 24.5 C, slowly and carefully lower the hydrometer into the sample to a level two smallest scale divisions below that at which it will float and then release the hydrometer. After it has come to rest and floats freely away from the walls of the cylinder, read the gravity as the point at which the surface of the sample apparently cuts the hydrometer scale.

8.2 When the temperature is 25.0 C, make this observation by placing the eye slightly below the level of the liquid and slowly raise the eye until the surface of the sample first seen as a distorted ellipse seems to become a straight line cutting the hydrometer scale. Determine the temperature of the sample just before and also, for referee tests, just after reading the hydrometer.

METHOD C—SPECIFIC GRAVITY BY MEANS OF A PYCNOMETER

9. Apparatus

9.1 *Pycnometer*, 25-ml capacity with a ground-glass stopper having a capillary opening, a chamber to provide for expansion up to room temperature, and a cap to prevent evaporation.

9.2 *Water Bath*, capable of maintaining a temperature of 25.0 ± 0.5 C, or other required temperature, during the test.

9.3 *Thermometer*—An ASTM Low Softening Point Thermometer having a range from −2 to +80 C and conforming to the requirements for thermometer 15C as prescribed in Specifications E 1.[2]

9.4 *Analytical Balance*, having a sensitivity of between 2 and 3 scale divisions displacement effected by an excess weight of 1 mg when carrying a load of between 15 and 50 g in each pan.

9.5 *Analytical Weights*, Class S, as certified by the National Bureau of Standards, or equivalent weights.

10. Procedure

10.1 Clean the pycnometer by filling it with a saturated solution of chromic acid in concentrated sulfuric acid (H_2SO_4, sp gr 1.84), allowing it to stand for a few hours, emptying, and rinsing well with distilled water. Fill the pycnometer with freshly boiled distilled water that has been cooled to 22 to 24 C. Place it in the water bath maintained at 25.0 ± 0.5 C until the pycnometer and its contents are at constant volume at 25 C.

10.2 After immersion in the bath for at least 30 min, adjust the level of liquid to the proper point on the pycnometer, put the stopper in place, remove from the bath, wipe dry, and weigh. Empty the pycnometer, rinse successively with alcohol and ether, remove the ether vapor, immerse in the bath and bring to 25.0 C as was done before. After immersion at 25.0 C for at least 30 min, put the stopper in place, remove from the bath, wipe dry, and weigh. Subtract the weight of the empty pycnometer from the weight when filled with water in order to get the weight of the contained water at 25.0 C in air. Call this difference W.

10.3 Cool the sample to 22 to 24 C, fill the pycnometer with it, immerse in the bath, and bring to 25.0 C as was done before. After immersion at 25.0 C for at least 30 min, adjust the liquid level, put the stopper in place, remove from the bath, wipe dry, and weigh. Subtract the weight of the empty pycnometer from the weight when filled with sample in order to obtain the weight of the contained sample at 25.0 C. Call this difference S.

11. Calculation

11.1 Calculate the specific gravity at 25/25 C (in air) as follows:

$$\text{Specific gravity } 25/25\text{ C} = S/W$$

METHOD D—SPECIFIC GRAVITY BY MEANS OF A VACUUM PYCNOMETER

12. Apparatus

12.1 *Pycnometer*—A vacuum-wall pycnometer, 25 ml in capacity.

12.2 *Thermometer*—See 9.3.

12.3 *Analytical Balance*—See 9.4.

12.4 *Analytical Weights*—See 9.5.

13. Procedure

13.1 Using the procedure described in 13.2, determine at two different temperatures (for example, 15 and 30 C) the weights of water required to fill the pycnometer at these temperatures. Retain the data for use in calculating the weight of water required to fill the pycnometer at any particular temperature at which it is subsequently employed, as outlined in 14.2. Call this calculated weight W. Dry the pycnometer and keep it ready for use.

13.2 Transfer about 200 ml of the sample at room temperature to a clean, dry 300-ml beaker. Rinse the pycnometer with some of the sample, immerse it in the beaker, and allow it to fill. Insert the thermometer in the beaker. Let the apparatus stand several minutes to permit the sample and the instruments to reach the same temperature. Empty the pycnometer and immerse it again until it is filled with the sample. Record the temperature in degrees Celsius, x. Remove the pycnometer, insert the capillary tube stopper, and quickly wipe dry, taking care to see that the ground-glass cap joint is dried and that none of the liquid is removed from the capillary. Put the glass cap in place and weigh at once. Clean and dry the pycnometer and obtain its weight when empty. Record the weight W' of the sample required to fill the pycnometer at x C.

14. Calculation

14.1 Calculate the specific gravity as follows:

$$S_x = W'/W$$

$$S_{25} = S_x\,[1 + k\,(x - 25.0)]\,(d_x/d_{25\,0})$$

where:

S_x = specific gravity x/x C,

S_{25} = specific gravity 25/25 C,

W, W' = values stated in 13.1 and 13.2, respectively,

x = temperature at which the test was made,

k = coefficient of cubical expansion (0.00117 at 0 to 40 C for trichloroethylene, 0.00102 at 0 to 25 C for perchloroethylene, 0.00125 at 0 to 30 C for 1,1,1-trichloroethane, 0.00137 at 0 to 40 C for methylene chloride, and 0.000927 at 0 to 30 C for fluorocarbon-113)

d_x = absolute density of [illegible]

d_{25} = absolute density of water at 25 C (taken as 0.997044).

14.2 Material specifications often specify different temperatures at which specific gravity shall be measured. In order to convert to any selected temperature, the coefficient of cubical expansion of 0.00117 for trichloroethylene and 0.00102 for perchloroethylene are employed. In addition, the absolute density of water at the desired temperature is taken. The absolute densities of water at different temperatures are tabulated in various handbooks. In converting to any desired temperature basis the following equation is used:

$$\text{Specific gravity } T_3/T_4\ C = \frac{\text{specific gravity } T_1/T_2}{[1 + k(T_3 - T_1)]\,\left(\dfrac{d_{H_2O} \text{ at } T_4}{d_{H_2O} \text{ at } T_2}\right)}$$

where:

T_1/T_2 = original temperature conditions,

T_3/T_4 = new temperature conditions,

k = coefficient of cubical expansion (0.00117 at 0 to 40 C for trichloroethylene, 0.00102 at 0 to 25 C for perchloroethylene, 0.00125 at 0 to 30 C for 1,1,1-trichloroethane, 0.00137 at 0 to 40 C for methylene choride, and 0.000927 at 0 to 30 C for fluorocarbon-113)

d_{H_2O} = absolute density of water at the specified temperature.

NOTE 3: *Example*—Assume a specific gravity of 1.4550 at 25/25 C for trichloroethylene and this is to be converted to 15/4 C and 20/20 C.

Specific gravity 15/4 C

$$= 1.4550/[1 + 0.00117(15 - 25)]\,(0.999973/0.997044)$$

$$= 1.4550/[0.9883]\ 1.00293$$

$$= 1.4679$$

where 0.999973/0.997044 = ratio of the absolute density of water at 4 C compared to the absolute density of water at 25 C.

Specific gravity 20/20 C

$$= 1.4550/[1 + 0.00117\,(20 - 25)]\,(0.998203/0.997044)$$

$$= 1.4550/[0.99415]\ 1.00116$$

$$= 1.4619$$

where 0.998203/0.997044 = ratio of the absolute density of water at 20 C compared to the absolute density of water at 25 C.

NOTE 4—Figures for absolute density of water are taken from the *Handbook of Chemistry and Physics*, Forty-ninth edition (1968-1969), published by The Chemical Rubber Co.

15. Precision

15.1 When Method A, C, or D is employed, different laboratories using different instruments should be able to obtain results that differ from the means by not more than 0.0002.

15.2 The limits of precision and accuracy of any method for determining specific gravity depend upon the attention that is given to details of calibration and technique. Consideration, in general, must be given to the problems of keeping a large volume of liquid (sometimes unstirred) at a constant temperature, providing for the effects of humidity or static electricity during weighing of pycnometers, and weighing relatively large loads. When extreme accuracy is desired, instruments certified by the National Bureau of Standards shall be used and the necessary corrections applied.

The American Society for Testing and Materials takes no position respecting the validity of any patent rights asserted in connection with any item mentioned in this standard. Users of this standard are expressly advised that determination of the validity of any such patent rights, and the risk of infringement of such rights, is entirely their own responsibility.

This standard is subject to revision at any time by the responsible technical committee and must be reviewed every five years and if not revised, either reapproved or withdrawn. Your comments are invited either for revision of this standard or for additional standards and should be addressed to ASTM Headquarters. Your comments will receive careful consideration at a meeting of the responsible technical committee, which you may attend. If you feel that your comments have not received a fair hearing you should make your views known to the ASTM Committee on Standards, 1916 Race St., Philadelphia, Pa. 19103, which will schedule a further hearing regarding your comments. Failing satisfaction there, you may appeal to the ASTM Board of Directors.

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Standard Test Method for DISTILLATION RANGE OF VOLATILE ORGANIC LIQUIDS[1]

This Standard is issued under the fixed designation D 1078; the number immediately following the designation indicates the year of original adoption or, in the case of revision, the year of last revision. A number in parentheses indicates the year of last approval.

This method has been approved for use by agencies of the Department of Defense to replace Method 4301.1 of Federal Test Method Standard No. 141a and for listing in the DoD Index of Specifications and Standards.

1. Scope

1.1 This method covers the determination of the distillation range of liquids boiling between 30 and 300 C, that are chemically stable during the distillation process.

1.2 The method is applicable to organic liquids such as hydrocarbons, oxygenated compounds, chemical intermediates, and blends thereof.

2. Summary of Method

2.1 A 100-ml sample is distilled under conditions equivalent to a simple batch differential distillation. The temperature of the mercury in the thermometer is equilibrated with that of the refluxing liquid before the distillate is taken over. Boiling temperatures observed on a partial immersion thermometer are corrected to standard atmospheric pressure to give true boiling temperatures.

3. Definitions

3.1 *initial boiling point*—the temperature indicated by the distillation thermometer at the instant the first drop of condensate leaves the condenser tube.

3.2 *dry point*—the temperature indicated at the instant the last drop of liquid evaporates from the lowest point in the distillation flask. Disregard any liquid on the side of the flask.

4. Apparatus

4.1 *Distillation Apparatus*—see Section 4, Figs. 1 and 2, and Section 5 of ASTM Specification E 133, for Distillation Equipment.[2]

4.2 *Distillation Flasks*, 200-ml of borosilicate glass complying with the specifications given in Section 3, Fig. 3, and flask C of Specification E 133.

NOTE 1—Liquid superheating in a new flask may be prevented by depositing a small amount of carbon in the bottom of the flask. This may be accomplished by heating and decomposing a pinch of tartaric acid in the bottom of the flask. The flask is then prepared for use by washing with water, rinsing with acetone, and drying.

4.3 *Source of Heat*—An adjustable gas burner or electric heater so constructed that sufficient heat can be obtained to distill the product at the uniform rate specified in Section 6. For narrow-range (less than 2 C) liquids, an electric heater may be used only if it has been proven to give results comparable to those obtained when using gas heat. (See Section 7 for factors that cause superheating, and the Appendix for a discussion on the use of electric heaters.)

4.4 *Receiver*—A 100-ml cylinder graduated in 1-ml subdivisions and having an over-all height of 250 to 260 mm.

4.5 *Thermometers*—Partial immersion thermometers as listed in Table 1, conforming to ASTM Specification E 1, for ASTM Thermometers.[3] Both bore corrections and either ice or steam standardization corrections are recommended.

5. Preparation of Apparatus

5.1 Clean and dry the condenser tube by

[1] This method is under the jurisdiction of ASTM Committee D-1 on Paint and Related Coatings and Materials and is the direct responsibility of Subcommittee D01.35 on Solvents, Plasticizers, and Chemical Intermediates.

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[2] *Annual Book of ASTM Standards*, Parts 25 and 41.

[3] *Annual Book of ASTM Standards*, Parts 25 and 44.

swabbing with a piece of soft lint-free cloth attached to a wire or cord or by any other suitable means.

5.2 Use the thermometer listed in the material specification for the product under study. If no thermometer is specified, select one from Table 1 with the smallest graduations that will cover the entire distillation range of the sample. Center the thermometer into the neck of the flask through a tight-fitting cork stopper so that the upper end of the contraction chamber (or bulb if Thermometer 2C is used) is level with the lower side of the vapor tube at its junction with the neck of the flask.

NOTE 2—It is far more important that the greatest volume of mercury be immersed in the refluxing zone than that the immersion mark on the thermometer be placed at any specific point.

5.3 Insert the vapor tube of the distillation flask into the condenser, making a tight connection with a well-rolled cork. Adjust the position of the asbestos boards or heater shield so that the neck of the flask is vertical and the vapor tube extends into the condenser tube a distance of 25 to 50 mm. Have the bottom of the flask resting firmly in the 1¼-in. (32-mm) opening of the upper asbestos board.

NOTE 3—For low-boiling materials, cool the apparatus to room temperature before starting the test.

5.4 Fill the condenser bath with water of the appropriate temperature shown in Table 2.

5.5 Adjust the temperature of the sample to the appropriate temperature shown in Table 2.

6. Procedure

6.1 Using the graduated receiver measure 100 ± 0.5 ml of the sample at a temperature as indicated in Table 2. Remove the flask from the apparatus and transfer the sample directly to the flask, allowing the graduate to drain for 15 to 20 s.

NOTE 4—For viscous liquids, a longer drainage period may be necessary to complete the transfer of the sample to the flask, but the drainage time should not exceed 5 min. Do not allow any of the sample to enter the vapor tube.

6.2 Connect the flask to the condenser and insert the thermometer as described in 5.2. Place the receiver, without drying, at the outlet of the condenser tube in such a position that the condenser tube extends into the graduate at least 25 mm but does not extend below the 100-ml mark. If the initial boiling point of the sample is below 70 C, immerse the cylinder in a transparent bath and maintain at a temperature of 10 to 20 C throughout the distillation. Place a flat cover on the top of the graduate to prevent condensed moisture from entering the graduate.

6.3 A certain amount of judgment is necessary in choosing the best operating conditions to get acceptable accuracy and reproducibility for materials having different distilling temperatures. As a general guide, it is recommended that:

6.3.1 For materials having an initial boiling point below 150 C, the following conditions be established:

6.3.1.1 *Heat Shield*—Hole size, 1¼-in. (32-mm) diameter.

6.3.1.2 *Heating Rate*—Time from application of heat to first drop of distillate, 5 to 10 min, and time of rise of vapor column in neck of flask to side arm, 2½ to 3½ min.

6.3.2 For materials having an initial boiling point above 150 C, the following conditions should be established:

6.3.2.1 *Heat Shield*—Hole size, 1½-in. (38-mm) diameter.

6.3.2.2 *Heating Rate*—Time from application of heat to first drop of distillate, 10 to 15 min, and time of rise of vapor column in neck of flask to side arm, sufficiently rapid to permit collection of the first drop of distillate within 15 min of the start of heating.

6.4 Adjust the heat input so that the distillation proceeds at a rate of 4 to 5 ml/min (approximately 2 drops per second), and move the receiving cylinder so that the tip of the condenser tube touches one side of the cylinder after the first drop falls (initial boiling point). Record the readings of the distillation thermometer after collecting 5, 10, 20, 30, 40, 50, 60, 70, 80, 90, and 95 ml of distillate.

6.5 Without changing the heater setting, continue distillation beyond the 95 percent point until the dry point is observed. Record the temperature at this point as the dry point (Section 3). If a dry point is not obtained

(that is, if active decomposition should occur before the dry point is reached, as evidenced by a rapid evolution of vapor or heavy fumes; or if there is liquid remaining on the bottom of the flask when the maximum temperature is observed on the distillation thermometer), record this fact.

6.6 When a dry point cannot be obtained, report as the end point the maximum temperature observed on the distillation thermometer. When active decomposition is encountered, the rapid evolution of vapor and heavy fumes is usually followed by a gradual decrease in the distillation temperature. If the expected drop in temperature does not occur, record the maximum temperature observed on the distillation thermometer 5 min after the 95 percent point has been reached, and report as "end point, 5 min." This notation shows that a true end point could not be reached within the given time limit. In any event, the end point should not exceed 5 min after the 95 percent point.

6.7 Read and record the barometric pressure.

6.8 The total yield of distillate from a material having a distillation range of 10 C or less should be not less than 97 percent for nonviscous liquids. For viscous liquids and materials having a wider distillation range than 10 C, a yield of 95 volume percent shall be satisfactory. If yields are not obtained within these limits, the test shall be repeated.

6.9 If any residue is present, cool to room temperature and pour into a small cylinder graduated in 0.1-ml subdivisions. Measure the volume and record it as residue. After the condenser tube has drained, read the total volume of distillate and record it as recovery. Record the difference between 100 and the sum of the residue plus recovery as distillation loss.

7. Factors Causing Superheating

7.1 In general, any condition whereby the temperature surrounding the vapor exceeds the temperature of the vapor in equilibrium with the liquid will cause superheating. Specific factors conducive to superheating are as follows, and should be avoided:

7.2 *Flame in Contact with the Flask*—The applied gas flame should be prevented from contacting more than the specified portion of the flask by the following procedures:

7.2.1 Maintain the correct over-all dimensions and specified hole diameter of the asbestos board. The hole must be perfectly circular, with no irregularities.

7.2.2 Use a board that is free of cracks and checks.

7.2.3 Set the flask snugly in the hole in the upper insulating board.

7.3 *Application of Heat*—Attention should be given to burner placement, position, and character of flame, as follows:

7.3.1 Apply the source of heat directly beneath the flask. Any variation would result in heating a larger portion of surrounding air to a higher temperature than that of the flask.

7.3.2 The flame should not have a larger cross section than is necessary, and should be nonluminous.

7.3.3 Place the burner at a level such that the complete combustion area of a nonluminous flame is approximately ¾ in. (19 mm) below the board.

7.4 *Extraneous Heat Source*—An extraneous source of heat such as sunlight falling directly on the flask will cause superheating.

7.5 *Condition of Equipment*—Caution should be observed in employing the apparatus for immediate re-use. For low-boiling materials, cool the heating unit to room temperature before starting the test.

7.6 *Use of Electric Heaters*—Electric heaters will, in general, cause superheating. These should be used only after they have been proven to give results comparable to those obtained when using gas heat. The superheating effect obtained from electric heaters may be minimized, but not completely eliminated, by selecting a heater which, by its design, concentrates the heating elements to a minimum area, and which contains a minimum amount of ceramic material in its overall construction. The fulfillment of these requirements will reduce, but not completely eliminate, the amount of extraneous heat radiating around the perimeter of the asbestos board on which the distillation flask is placed.[4] (See Appendix for a more complete discussion of the problems encountered in the use of electric heaters.)

[4] The Lo-Cap heater, available from the Precision Scientific Company, Chicago, Ill., in general, fulfills the requirements for electric heaters.

8. Calculations

8.1 *Thermometer Bore Correction*—Apply the corrections for any variations in the bore of the thermometer as given by the calibration.

8.2 *Thermometer Bulb Shrinkage Correction*—Apply the correction for shrinkage of the mercury bulb of the thermometer as determined by any change in its ice or steam point where applicable. Other means can be employed, such as the use of a platinum-resistance thermometer or a Bureau of Standards thermometer.

8.3 *Barometer Correction*—After applying the corrections for thermometer error, correct each reading for deviation of the barometric pressure from normal by adding algebraically the correction calculated as follows:

$$\text{Correction} = K(760 - P)$$

where:

K = rate of change of boiling point with pressure, in degrees Celsius per millimetre, as given in Table 3 (Note 5), and

P = barometric pressure in millimetres of mercury at standard temperature.

NOTE 5—For other pure compounds not listed in Table 3, the value K should be obtained from the literature. For narrow-boiling hydrocarbon materials, the value of K may be assumed as 0.00012 times the normal boiling point on the absolute temperature scale.

8.4 If the over-all distillation range of the sample does not exceed 2 C, combined thermometer (bore irregularities and bulb shrinkage) and barometric corrections may be made on the basis of the difference between the observed 50 percent boiling point and the true boiling point at 760 mm as given in Table 3.

9. Report

9.1 Report the results in a manner conforming with the specifications of the material tested. If no definite manner of reporting is specified, report the corrected temperatures at each observed volume, and report the volume percentages of residue, recovery, and distillation loss.

10. Precision

10.1 The precision data given in Table A4 (Appendix A2) may be used as examples of the type of precision that can be expected at a 95 percent confidence level when this method is applied to compounds of a similar nature with similar distillation ranges. For a better estimate of precision for any particular case, a cooperative study should be made on the particular compound having approximately the same distillation range as the test samples in question.

NOTE 6—A description of the interlaboratory test programs used in studying the precision of D 1078 and a discussion of the results obtained are given in Appendix A2 of this method A detailed report describing these studies and showing all of the data obtained is on file at Society Headquarters in Philadelphia.

TABLE 1 Thermometers

ASTM Thermometer Number	Range, deg C	Subdivisions, deg C
2C*	−5 to +300	1.0
37C	−2 to +52	0.2
38C	24 to 78	0.2
39C	48 to 102	0.2
40C	72 to 126	0.2
41C	98 to 152	0.2
42C*	95 to 255	0.5
102C	122 to 177	0.2
103C	148 to 202	0.2
104C	173 to 227	0.2
105C	198 to 252	0.2
106C	223 to 277	0.2
107C	248 to 302	0.2

* Thermometers 2C and 42C have more temperature lag than the other thermometers listed herein and are not satisfactory for use with narrow-boiling range liquids.

TABLE 2 Temperatures

Initial Boiling Point, deg C	Condenser, deg C	Sample, deg C
Below 50	0 to 3	0 to 3
50 to 70	0 to 10	10 to 20
70 to 150	25 to 30	20 to 30
Above 150	35 to 50	20 to 30

TABLE 3 Change of Boiling Point with Pressure

Compound	Value of K, deg C per mm Hg at Boiling Point	Boiling Point at 760 mm Hg, deg C
Acetone	0.039	56.1
n-Amyl alcohol	0.041	138.0
n-Amyl acetate	0.048	149.5
Aromatic solvent naphtha	0.049	...
Benzene	0.043	80.1
Isobutyl acetate	0.045	117.3
n-Butyl acetate	0.045	126.1
sec-Butyl acetate	0.045	112.4
Isobutyl alcohol	0.036	107.9
n-Butyl alcohol	0.037	117.7
sec-Butyl alcohol	0.035	99.5
Diacetone alcohol	0.050	...
Diethylene glycol	0.050	245.8
Dipropylene glycol	0.051	232.8
Ethyl acetate	0.041	77.2
Ethyl alcohol	0.033	78.3
Ethylene glycol	0.045	197.6
2-Butoxyethanol	0.047	171.2
2-Ethoxyethanol	0.044	135.1
2-Ethoxyethyl acetate	0.046	156.3
Hexylene glycol	0.045	197.1
n-Hexyl acetate	0.050	171.6
Isophorone	0.057	215.3
Methyl alcohol	0.033	64.5
Methyl ethyl ketone	0.043	79.6
Methyl isoamyl acetate	0.048	146.2
Methyl isoamyl ketone	0.048	144.9
Methyl isobutyl carbinol	0.041	131.8
Methyl isobutyl ketone	0.046	116.2
Perchloroethylene	0.048	121.2
Isopropyl alcohol	0.033	82.3
Isopropyl acetate	0.041	88.5
Propylene glycol	0.043	187.6
Pyridine	0.046	115.4
Toluene	0.046	110.6
Trichloroethylene	0.043	87.1
Vinyl acetate	0.040	72.7
Xylene (mixed isomers)	0.049	...

Method 8.01

METHOD FOR VOLATILE ORGANICS

Scope and Application

The following volatile organic compounds may be determined by this method:

Volatile Compound	Detector
Acrylamide	FID
Benzyl Chloride	HSD
Bis(2-chloroethoxymethane)	HSD
Bis(2-Chloroisopropyl) ether	HSD
Carbon Disulfide	FID
Carbon Tetrachloride	HSD
Chloroacetaldehyde	HSD
Chlorobenzene	HSD, FID
Chloroform	HSD
Chloromethane	HSD
Dichlorobenzene	HSD
Dibromomethane	HSD
Ethyl ether	FID
Formaldehyde	FID
Methanol	FID
Methyl Ethyl Ketone	FID
Methyl Isobutyl Ketone	FID
Paraldehyde	FID
Tetrachloroethane	HSD
Tetrachloroethene	HSD
Trichloroethene -	HSD
Trichlorofluoromethane	HSD
Trichloropropane	HSD
Vinyl Chloride	HSD
Vinylidene Chloride	HSD

Summary of Method

1. The volatile compounds are introduced to the gas chromatograph by direct injection (Method 8.80), the Headspace Method (Method 8.82), or the Purge and Trap method (Method 8.83). A temperature program is used in the gas chromatograph to separate the organic compounds. Detection is achieved by either a halide specific detector (HSD) or a flame ionization dectector (FID). The detector used depends on the compound(s) of interest.
2. If interferences are encountered, the method provides an optional gas chromatographic column that may be helpful in resolving the compounds of interest from the interferences.

Interferences

Samples can be contaminated by diffusion of volatile organics (particularly chlorofluorocarbons and methylene chloride) through the sample container septum during shipment and storage. A sample blank carried through sampling and subsequent storage and handling can serve as a check on such contamination.

Apparatus

1. Vial with cap - 40 ml capacity screw cap (Pierce #13075 or equivalent). Detergent wash and dry at 105°C before use.
2. Septum - teflon - forced silicone (Pierce #12722 or equivalent). Detergent wash, rinse with tap and distilled deionized water, and dry at 105°C for one hour before use.

3. Sample introduction apparatus (Methods 8.80, 8.82 and 8.83)
4. Gas chromatograph - Analytical system complete with programmable gas chromatograph suitable for on-column injection and all required accessories, including HSD or, FID, column supplies, recorder and gasses. A data system for measuring peak area is recommended.
5. Carbopack B 60/80 mesh coated with 1% SP-1000 packed in an 8 ft. x 0.1 in. ID stainless steel or glass column (Column 1) or Porisil-C 100/200 mesh coated with n-octane packed in a 6 ft. x 0.1 in. ID stainless steel or glass column (Column 2).
6. Syringes - 5 ml glass hypodermic with Luerlok tip (2 each).
7. Micro syringe - 10, 25, 100 ul.
8. 2-way syringe valve with Luer ends (3 each).
9. Syringe - 5 ml - gas tight with shut-off valve.
10. Bottle - 15 ml screw-cap, with teflon cap liner.

Reagents

1. Activated carbon - Filtrosorb 200 (Calspan Corp.) or equivalent.
2. Organic-free water generated by passing tap water through a carbon filter bed containing about 1 lb. of activated carbon. A water purification system (Millipore Super - Q or equivalent) may be used to generate organic-free deionized water. Organic free water may also be prepared by boiling water for 15 minutes. Subsequently, while maintaining the temperature at 90° C, bubble a contaminant-free inert gas through the water for one hour.

3. Stock standards - prepare stock standard solutions in methyl alcohol using assayed liquids or gas cylinders as appropriate. Because of the toxicity of many of the compounds being analyzed, primary dilutions of these materials should be prepared in a hood . A NIOSH/MESA approved toxic gas respirator should be used when the analyst handles high concentrations of such materials.

a. Place about 9.8 ml of methyl alcohol into a 10 ml ground glass stoppered volumetric flask. Allow about 10 minutes or until all alcohol wetted surfaces have dried. Weigh the flask to the nearest 0.1 mg.

b. Add the assayed reference material:

i. Liquids

Using a 100 ul syringe, immediately add 2 drops of assayed reference material to the flask, then reweigh. Be sure that the 2 drops fall directly into the alcohol without contacting the neck of the flask.

ii. Gases

To prepare standards from any of the organic compounds that boil below 30°C, fill a 5 ml valved gas-tight syringe with the reference standard to the 5 ml mark. Lower the needle to 5 mm above the methyl alcohol meniscus. Slowly inject the reference standard above the surface of the liquid (the heavy gas will rapidly dissolve into the methyl alcohol).

c. Reweigh, dilute to volume, stopper, then mix by by inverting the flask several times. Transfer the standard solution to a 15 ml screw cap bottle with a teflon cap liner.

d. Calculate the concentration in mg/l from the net gain in weight.

e. Store stock standards at 40° C. Prepare fresh standards weekly for the 4 compounds whose BP $\leq$ 30° C. All other standards must be replaced with fresh standards each month.

Calibration

1. Using stock standards, prepare secondary dilution standards in methyl alcohol that contains the compounds of interest, either singly or mixed together.

2. Assemble necessary gas chromatographic apparatus and establish operating parameters equivalent to those indicated in the Procedure section. By injecting secondary standards, adjust the sensitivity of the analytical system for each compound being analyzed so as detect $\leq$ 1 ug.

Quality Controls

1. Before processing any samples, the analyst should daily demonstrate through the analysis of an organic-free water or solvent blank that the entire analytical system is interference free.

2. Standard quality assurance practices should be used with this method. Field replicates should be collected to validate the precision of the sampling technique.

Laboratory replicates should be analyzed to validate the the precision of the analysis. Fortified samples should be analyzed to validate the accuracy of the analyses. Where doubt exists over the identification of a peak on the gas chromatogam, confirmatory techniques such as mass spectroscopy should be used.

3. The analyst should maintain constant surveillance of both the performance of the analytical system and the effectiveness of the method in dealing with each sample matrix by spiking each sample with known amounts of the compounds the waste is being analyzed for. Using these spiked samples, readjust the sensitivity of the instrument such that 1 ug/gm of sample can be readily detected (see Quality Control).

Procedure

1. Assemble gas chromatograph with either Column 1 or 2. (See Apparatus section.)

   Column 1:

   a) Set helium gas flow at 40 ml/min flow rate.

   b) Set column temperature at 45° C for 3 minutes then program a 8° C/minute temperature rise to 220° C and hold for 15 minutes.

   Column 2:

   a) Set helium carrier gas flow at 40 ml/minute flow rate.

   b) Set column temperature at 50° C for 3 minutes, then

program a 6° C/min temperature rise to 170° C and hold for 4 minutes.

2. Introduce volatile compounds to the gas chromatograph using direct injection, headspace, or purge and trap.
3. Table 8.01-1 summarizes the estimated retention times for a number of organic compounds analyzable using this method. An example of the separation achieved by Column 1 is shown in Figure 8.01-1.
4. Calibrate the system immediately prior to conducting any analysis and recheck as in Quality Control for each type of waste. Calibration should be done no less frequently than at the beginning and end of each analyses session.

Calculations

1. If a response for the contaminant being analyzed for is greater than 2x background, then the waste does not meet the criteria for delisting of being fundamentally different than the listed waste. If a response is not noted, then prior to concluding that the sample does not contain the specific contaminant, the analyst must demonstrate, using the spiked samples, that the instrument sensitivity is $\leq$ 1 ug/gm of sample.

Table 8.01-1

ORGANOHALIDES TESTED USING PURGE AND TRAP METHOD

Compound	Retention Time (Min) Col. 1	Col. 2
Acrylamide		
Bis(2-chloroethoxymethane)		
Bis(2-chloroisopropyl) ether		
Carbon disulfide		
Carbon tetrachloride	13.0	14.4
Chloroacetaldehyde		
Chlorobenzene	24.2	18.8
Chloroform	10.7	12.1
Chloromethane	1.50	5.28
1,3-Dichlorobenzene	34.00	22.4
1,2-Dichlorobenzene	34.9	12.6
1,4-Dichlorobenzene	35.4	15.4
1,1-Dichlproethane	9.30	12.6
1,2-Dichloroethane	11.4	15.4
Dichloromethane		
Ethyl ether		
Formaldehyde		
Methanol		
Methyl ether ketone		
Methyl isobutyl ketone		
Paraldehyde (trimer of acetaldehyde)		

Compound	Retention Time (Min) Col. 1	Col. 2
1,1,2,2-Tetrachloroethane	21.6	--
1,2,2,2-Tetrachloroethane		
1,1,1,2-Tetrachloroethane		
Tetrachloroethene	21.7	15.0
1,1,1-Tetrachloroethane	12.6	13.1
1.1,2-Trichloroethane	16.5	18.7
Trichloroethene	15.8	13.1
Trichlorofluoromethane	7.18	
Trichloropropane		
Vinyl Chloride	2.67	5.28
Vinylidene Chloride		

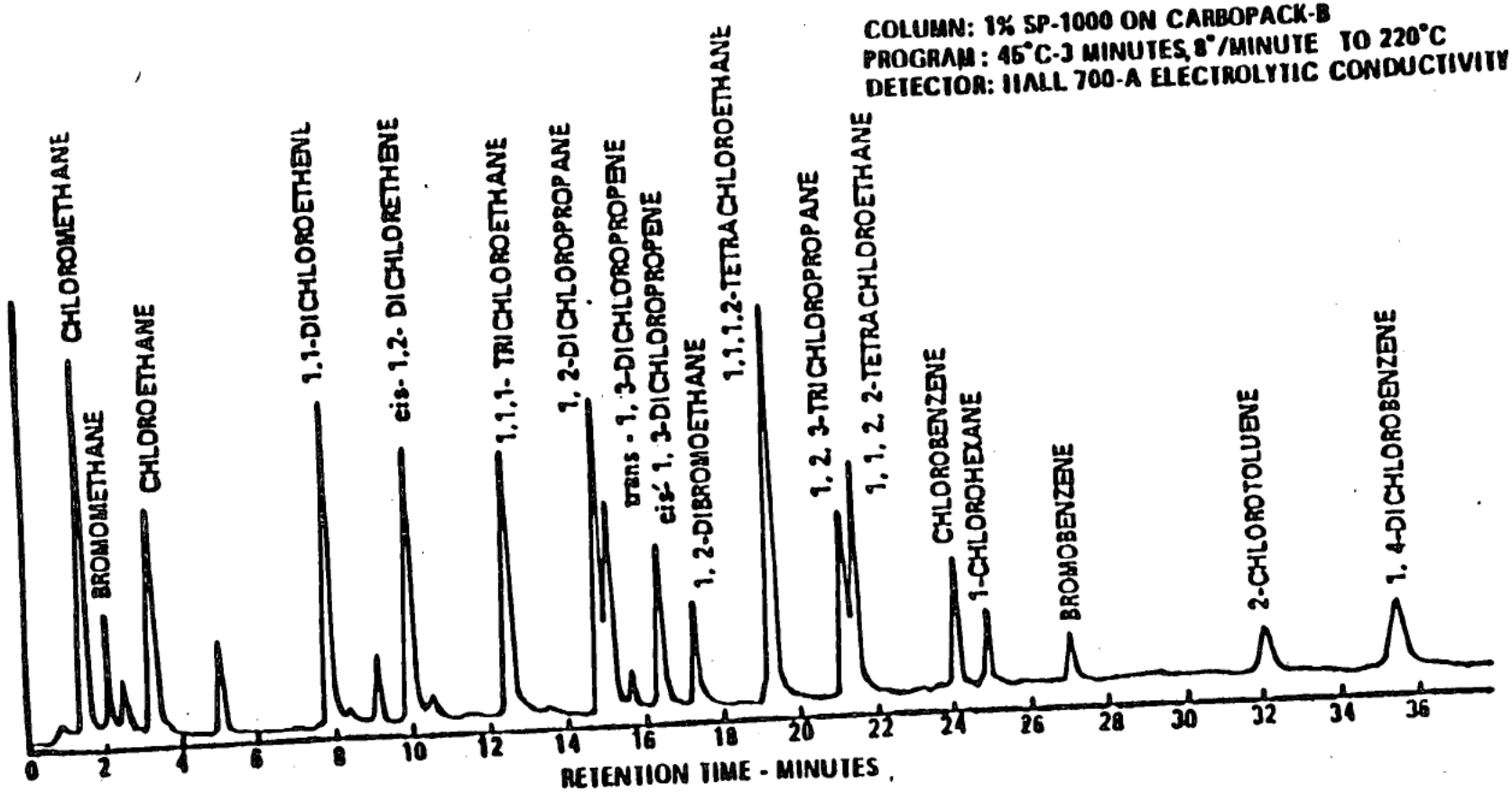


Figure 8.01-1
GAS CHROMATOGRAM OF VOLATILE ORGANICS

APPENDIX D

SAMPLING METHOD

3.2.1 Composite Liquid Waste Sampler (Coliwasa)

Scope and Purpose

The Coliwasa is a device employed to sample free flowing liquids and slurries contained in drums, shallow open top tanks, pits and similar containers. It is especially useful in sampling wastes which consist of a number of immiscible liquid phases.

The Coliwasa consists of a glass, plastic, or metal tube equipped with an end closure which can be opened and closed while the tube is submerged in the material to be sampled.

The Coliwasa was developed by the California Department of Health under a grant from the U.S. EPA and their report, "Samplers and Sampling Procedures for Hazardous Waste Streams" [Appendix I of this manual] should be consulted.

General Comments and Precautions

1. Do not use a plastic Coliswasa to sample wastes containing organic materials.
2. Do not use a glass Coliwasa to sample liquids that contain hydrofluoric acid.
3. If significant amounts of solid material are present within 2 inches of the bottom of the container to be sampled, special procedures will be necessary to obtain a representative sample of this solid phase.

Apparatus

Coliwasas are not available commercially and must be fabricated to conform to the specifications detailed in Figure 3.2-1. Table 3.2-2 lists the parts required to fabricate a plastic or glass Coliwasa.

Table 3.2-2

PARTS FOR CONSTRUCTING A COLIWASA

Quantity	Item	Comments	Supplier
1	Sample tube, translucent PVC plastic, 4.13 cm I.D. x 1.52 m long x 0.4 cm wall thickness	Plastic Coliwasa only	Plastic supply houses
1	Sample tube, borosilicate glass, 4.13 cm I.D. x 1.52 m long	Glass Coliwasa only	Corning Glass Works #72-1602
1	Stopper, neoprene rubber #9		Laboratory supply house
1	Stopper rod, PVC, 0.95 cm O.D. x 1.67 m long	Plastic Coliwasa only	Plastic supply houses
1	Stopper rod, teflon, 0.95 cm O.D. x 1.67 m long	Glass or Plastic Coliwasa	Plastic supply houses
1	Locking block, PVC, 3.8 cm O.D. x 10.2 cm long with 0.56 cm hole in center	Fabricate by drilling 0.56 cm hole through center	Plastic supply houses
1	Locking block sleeve, PVC 4.13 cm I.D. x 6.35 cm long	Fabricate from stock 4.13 cm PVC pipe	Plastic supply houses
1	T-handle, aluminum, 18 cm long x 2.86 cm wide with 1.27 cm wide channnel	Fabricate from aluminum bar stock	Hardware stores

Quantity	Item	Comments	Supplier
1	Swivel, aluminum bar 1.27 cm square x 5.08 cm long with 3/8" NC inside thread to attach stopper rod	Fabricate from aluminum bar stock	hardware stores
1	Nut, PVC, 3/8" NC		Plastic supplier
1	Washer, PVC, 3/8" NC		Plastic supplier
1	Nut, stainless steel, 3/8" NC		Hardware stores
1	Washer, stainless steel, 3/8"		Hardware stores
1	Bolt, 3.12 cm long x 3/16" NC		Hardware stores
1	Nut, 3/16" NC		Hardware stores
1	Washer, lock 3/16"		Hardware stores

Assembly

Assemble sampler as follows:

1. Attach swivel to the T-handle with the 3.12cm long bolt and secure with the 3/16" NC washer and lock nut.
2. Shape stopper into a cone by boring a 0.95 cm hole through the center of the stopper. Insert a short piece of 0.95 cm O.D. handle through the hole until the end of the handle is flush against the bottom (smaller diameter) surface of the stopper. Carefully and uniformly turn the stopper into a cone against a grinding wheel. This is done by turning the stopper with the handle and grinding it down conically from about 0.5 cm of the top (larger diameter) surface to the edge of the 0.95 cm hole on the bottom surface. Attach neoprene stopper to one end of the stopper rod and secure with the 3/8" NC washer and lock nut.
3. Install the stopper and stopper rod assembly in the sampling tube.
4. Secure locking block sleeve on the block with glue or screws.
5. Position the locking block on top of the sampling tube so that the sleeveless portion of the block fits inside the tube, the sleeve sits against the top end of the tube, and the upper end of the stopper rod slips through the center hole of the block.
6. Attach the upper end of the stopper to the swivel of the T-handle.

7. Place the sampler in the closed position and adjust the tension on the stopper by screwing the T-handle in or out.
8. Test the tension by filling the Coliwasa with water to insure it is leak free.

Procedure

1. Clean Coliwasa.
2. Adjust sampler's locking mechanism to insure that the stopper provides a tight closure. Open sampler by placing stopper rod handle in the T-position and pushing the rod down until the handle sits against the sampler's locking block.
3. Slowly lower the sampler into the waste at a rate which permits the level of liquid inside and outside the sampler to remain the same. If the level of waste in the sampler tube is lower inside than outside, the sampling rate is too fast and will produce a non-representative sample.
4. When the sampler hits the bottom of the waste container, push sampler tube down to close and lock the stopper by turning the T-handle until it is upright and one end rests on the locking block.
5. Withdraw Coliwasa from waste and wipe the outside with a disposable cloth or rag.
6. Place sample tube at mouth of a container and discharge sample by slowly opening the sampler.

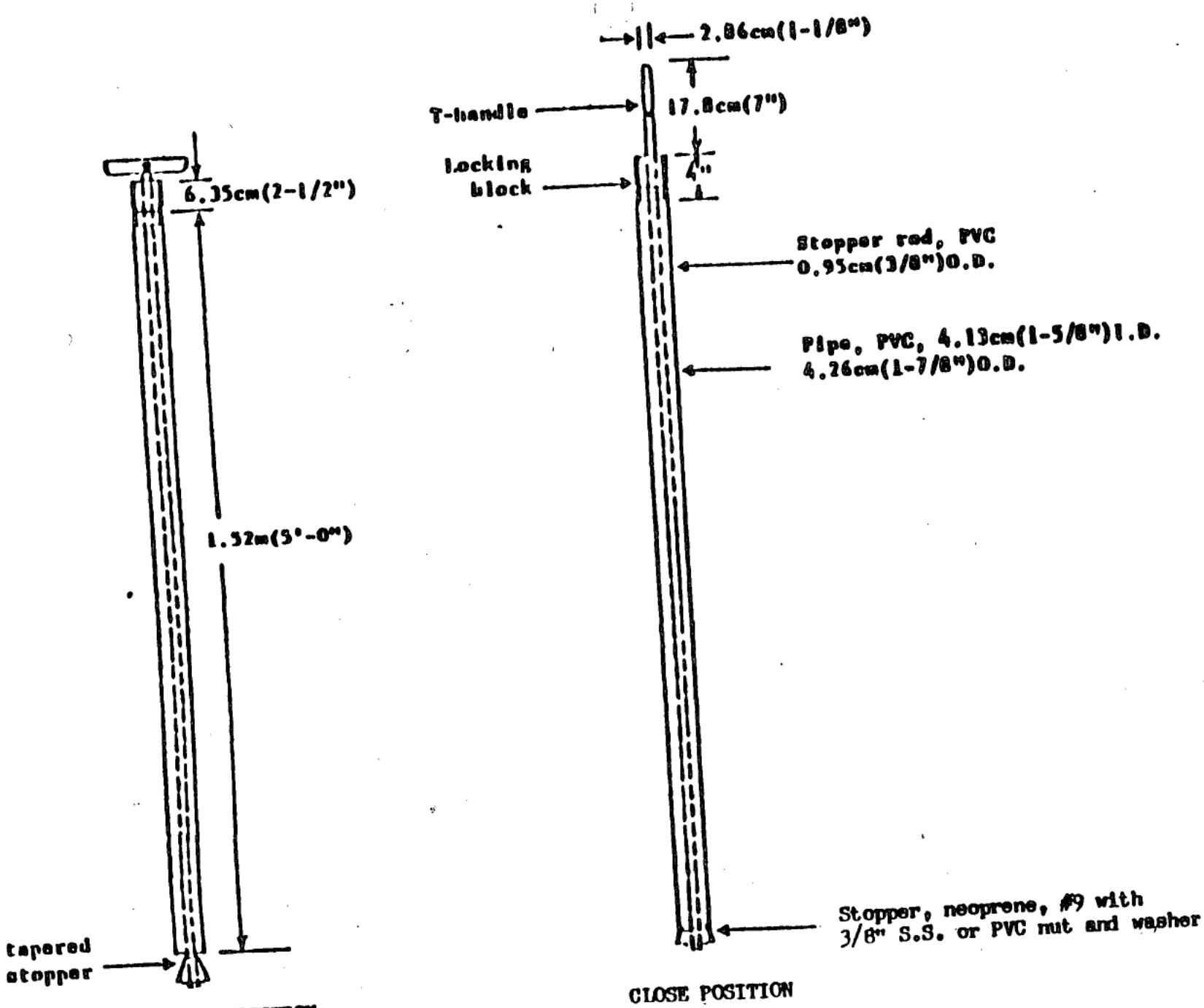


Figure 3.2-1
COMPOSITE LIQUID WASTE ' LER (COLIWASA)

APPENDIX E

SAMPLE QC RECORD

QUALITY CONTROL RECORD

PRIDE SOLVENTS & CHEMICAL CO., INC.

STANDARD (VIRGIN SOLVENT): _____

SPIKED STANDARD-% SOLVENT: ___ % MINERAL SPIRITS: ___

TEST PARAMETER	TEST METHOD	STANDARD	SPIKED STANDARD
SPECIFIC GRAVITY	HYDROMETER	_____	_____
VAPOR TEMPERATURE	BENCH TOP DISTILLATION	_____	_____
RECLAMATION YIELD	BENCH TOP DISTILLATION	_____	_____
1,1,1-TRICHLOROETHANE	GC/FID	_____	N/A
TRICHLOROETHYLENE	GC/FID	_____	N/A
TETRACHLOROETHYLENE	GC/FID	_____	N/A
METHYLENE CHLORIDE	GC/FID	_____	N/A
TRICHLOROTRIFLUOROETHANE	GC/FID	_____	N/A

CERTIFICATION

LAB MANAGER _____ DATE _____

OPERATIONS MANAGER _____ DATE _____

APPENDIX A

LETTER TO CUSTOMERS

Pride SOLVENTS AND CHEMICAL CO. INC.

88 LAMAR STREET • WEST BABYLON, NEW YORK 11704

(516) 643-4800 • (212) 895-6600

May 15, 1982

To Our Valued Customers:

I am sure you are aware of the N.Y.S D.E.C. and the Federal EPA position on the generation, storage and transportation of hazardous wastes and the current enforcement policies under RCRA.

As a generator you have the responsibility to assure that your waste is disposed of in a proper manner according to current legislation. Our intent is to protect our customers as well as ourselves and our policies are designed to accomplish this end.

The cost today to dispose of non-reclaimable waste ranges from $75.00 to $200.00 per drum. This cost plus the potential penalties under the law dictate a policy that by its very nature must be restrictive.

We have determined that to operate within the confines of the law and our own insurance requirements we must abide by the guidelines detailed below.

1. As a service to our customers we will handle spent Chlorinated and Flourocarbon solvents only.

2. Spent solvents must be of a single product, mixtures will not be accepted.

3. Spent solvents must have a reclamation value of at least fifty percent(50%); your Pride Salesman will be happy to instruct you in the procedures for checking recalmation values.

4. Spent solvents must be in full drums and the drums must be in a condition acceptable for DOT common carrier transport; you may use your own drums in good condition or Pride will supply reconditioned drums at $14.00 each.

5. All drums accepted for transport must be labeled and have documentation as prescribed by N.Y.S. EPA and DOT regulations.

(cont'd)

DISTRIBUTORS FOR:

Dow Chemical • DuPont • Eastman Chemical • Exxon Chemical • Jefferson Chemical • Shell Chemical

Pride SOLVENTS AND CHEMICAL CO. INC.

88 LAMAR STREET • WEST BABYLON, NEW YORK 11704
(516) 643-4800 • (212) 895-6600

May 15, 1982

Page 2

To Our Valued Customers

6. All spent solvents transported by Pride will be checked at our terminal to assure conformance to the conditions outlined above; any product that is found to violate our policy will be returned to the generator at a minimum fee of $25.00 per drum to cover freight and handling cost.

7. The State of New Jersey has announced that within their State there shall not be a small generator exemption; therefore all New Jersey generators must manifest their wastes according to RCRA regulations and have a valid EPA identification number.

8. The State of New York has announced their position on small generators which is in line with the Federal exemption of 1000 kilograms per month.

9. Those New York generators who have determined their exemption are required to complete a small generator exemption form.

Your assistance and understanding in the implementation of our policies will be appreciated. The information contained herein is to the best of our knowledge at this point in time; it is understood that Pride Solvents & Chemical Company is not engaged herein in rendering legal or technical service or advice.

Very truly yours,

Arthur W. Dhom
President

AWD: ra

DISTRIBUTORS FOR:

Dow Chemical • DuPont • Eastman Chemical • Exxon Chemical • Jefferson Chemical • Shell Chemical

Pride

Pride Solvents and Chemical Co. Inc.

78-88 LAMAR STREET W. BABYLON, N.Y. 11704
(516) 643-4800 (212) 895-8600

DISTRIBUTORS FOR:
Dow Chemical • DuPont • Eastman Chemical • Exxon Chemical • Jefferson Chemical • Shell Chemical

FOR CHEMICAL EMERGENCY
Spill, Leak, Fire, Exposure or Accident
CALL
CHEMTREC
DAY OR NIGHT
800-424-9300

SOLD TO MULTIMATIC PRODUCTS INC
390 OSER AVE
HAUPPAUGE, NY

231-1515

SHIP TO: (same as sold to unless otherwise specified)

DELIVER ON 1/31-2/1

CUSTOMER ACCOUNT NUMBER	CUSTOMER PURCHASE ORDER NUMBER	SLSMN	ORDER DATE	SHIP DATE	CARRIER & TRUCK NO.	DRIVER		ORDER NO.
413620	VERBAL	5	1/28			John		16440

TOTAL QUANTITY	PRODUCT CODE	QUANTITY ORDERED	UNIT OF MEASURE	DESCRIPTION / NUMBER	HAZARDOUS CLASS	LABELS REQUIRED OR EXEMPTIONS	TAX CODE	UNIT PRICE
				PICK UP 5 DRUMS OF WASTE 1,1,1 TRICHLOROETHANE FOR RECLAMATION. DRUMS MUST BE FULL (TWO INCHES FROM TOP) PROPERLY SEALED AND IN GOOD CONDITION. HAZARDOUS LABELS MUST BE ON DRUMS AND CONTENTS MUST BE IDENTIFIED. - THIS MATERIAL IS SUBJECT TO OUR INSPECTION AT OUR PLANT.				

X IN COLUMN INDICATES HAZARDOUS MATERIAL AS DEFINED BY THE APPLICABLE REGULATIONS OF THE DEPARTMENT OF TRANSPORTATION. DO NOT USE TUNNELS OR LOWER LEVEL BRIDGES. SEE REVERSE SIDE FOR TERMS AND CONDITIONS.

PLACARDS REQUIRED ?

PLACARDS SUPPLIED ?

☐ YES ☐ NO, FURNISHED BY CARRIER

DRIVER'S SIGNATURE

(M WASTE PU)
Waste Picked Up:

Delivered: (M DR DEP) Deposit Drums ____ @ ____ each TOTAL:
Non Deposit Drums ____ @ ____ each TOTAL:

Returned: (M DR DEP CR) Deposit Drums ____ @ ____ each TOTAL:
(MN DEP DR CR) Non Deposit Drums ____ @ ____ each TOTAL:

TIME IN
TIME OUT

C.O.D. TOTAL

RECEIVED IN GOOD CONDITION ____ Units - Date 2/1 Signature ____

ALL RETURNABLE CONTAINERS MUST BE PAID FOR AND NO DISCOUNT WILL BE ALLOWED.
ALL RETURNED DRUMS ARE SUBJECT TO INSPECTION AT OUR PLANT AND MUST BE IN REUSABLE CONDITION.

Pride Solvents & Chemical Co., Inc.
88 Lamar Street
West Babylon. New York 11704

Gentlemen:

With reference to the spent chlorinated solvents that you transport and store for us, we have determined that our waste generation is exempt from current Federal and New York State regulations. By virtue of our exemption we are not subject to the RCRA manifesting regulations.

Date: May 19, 1982

Company: Multimatic Products, Inc.

390 Oser Avenue

Hauppauge, New York 11787

By Irving Kigner

Authorized Representative

APPENDIX B

SAMPLE WASTE ANALYSIS REPORT

Crescent #16010

Pride SOLVENTS AND CHEMICAL CO. INC.

88 LAMAR STREET • WEST BABYLON, NEW YORK 11704 • (516) 643-4800 • (212) 895-8800

CHLORINATED WASTE REPORT

CUSTOMER NAME: MULTIMATIC PRODUCTS INC.

PO #:

DATE PICKED-UP: 2/1/83

ADDRESS:

DATE CHECKED: 2/2/83

QUAN	GALS. PER DRUM	SPEC. GRAVITY	%	RECOVER GALS.	QUAN.	GALS. PER DRUM	SPEC. GRAVITY	%	RECOVER GALS.	BATCH NO.	PRODUCT
1	54	1.260	62	33							1.1.1 TRICHLOR
2	54	1.260	62	33							
3	54	1.290	69	37							
4	54	1.28	67	36							
5	54	1.275	64	34							

CHRIS

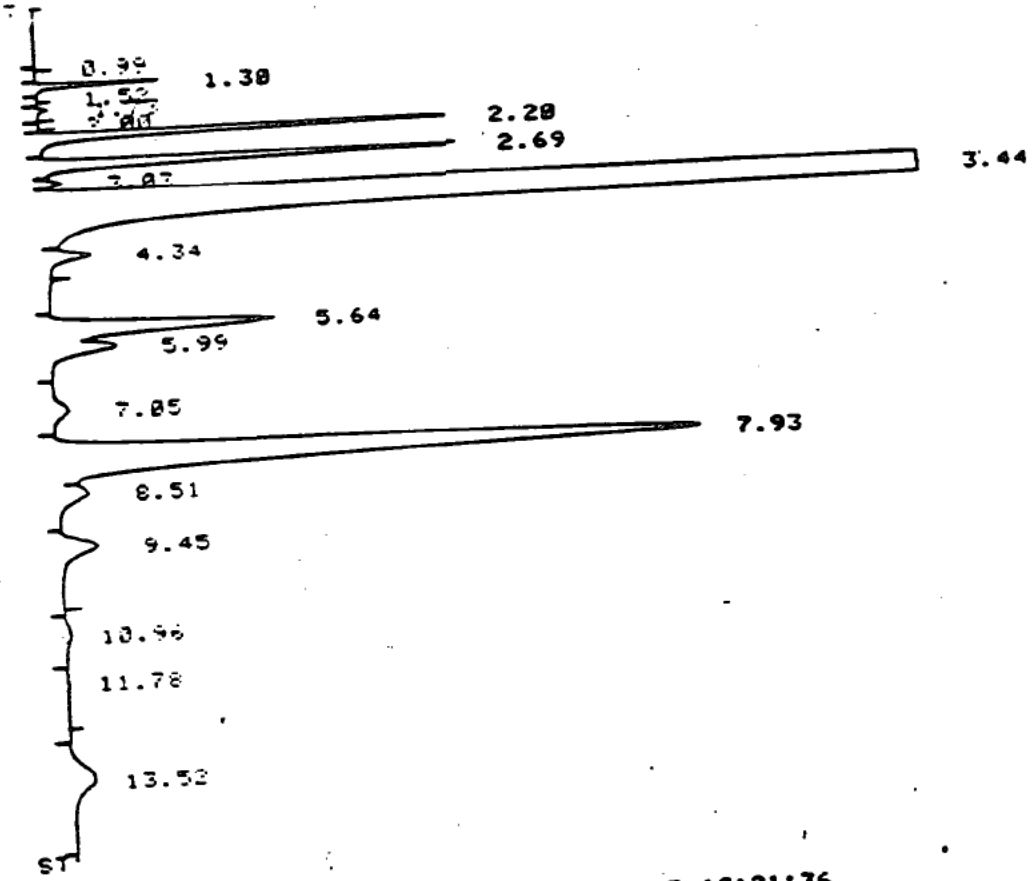
80% YIELD
H_2O = 385ppm
BENCH DISTILLATION:
NO FORM
80-83% YIELD

TEMP1	185	80	80
TIME1	0.00		
INJ TEMP	400	150	150
FID TEMP	400	200	200
AUX TEMP	348	0	52

MT SPD	1.00	
ZERO	10.0	
ATTN 21	12	
FID SGNL	A	
SLP SENS	4.00	
AREA REJ		0
FLOW A	0.0	0.0
FLOW B	25.0	25.1

15.00 STOP

OPTN 0 3 0
INJ.BTL.STROKE: 1 1 0
START



019

HP RUN # 3 FEB/17/83 TIME 18:21:36
BOTTLE 3
NORM

RT	EXP RT	AREA
2.69	2.68	1624000
3.44	3.49	131800000
7.93	7.90	7100000
9.45	9.49	442400

CAL #		AMT
	2	0.564
(R)	1	95.188
	3	3.887
	4	0.360

DIL FACTOR: 1.0000 E+ 0

APPENDIX C

SOLVENT SPECIFICATIONS AND ANALYSES

Pride SOLVENTS AND CHEMICAL CO. INC.

88 LAMAR STREET • WEST BABYLON, NEW YORK 11704
(516) 843-4800 • (212) 895-6600

SALES SPECIFICATION

EFFECTIVE: 28 DEC 82

NAME: CYCLO-THANE SOLVENT

1,1,1-TRICHLOROETHANE SOLVENT

DESC: COLORLESS LIQUID, FREE OF SUSPENDED MATTER AND SEDIMENT

TEST ITEM	UNIT	LIMITS
APPEARANCE		FREE OF SEDIMENT AND SUSPENDED MATTER
WATER CONTENT, MAX	PPM	100
COLOR, PT-CO, MAX.		10
NON-VOLATILE RESIDUE, MAX.	PPM	10
ACID ACCEPTANCE (AS NAOH) MIN.	%W	0.20
---PURITY---		
1,1,1-TRICHLOROETHANE, MIN.	%W	92.5
---TYPICAL PROPERTIES---		
FREE HALOGENS	PPM	NONE
ACIDITY (AS HOL) MAX.	PPM	10
SPECIFIC GRAVITY@ 25/25 C)		1.317-1.324
DISTIL RANGE MM, IBP-DP	C	72-88

READ PRECAUTIONARY INFORMATION AND MATERIAL SAFETY DATA SHEETS. THIS PRODUCT IS SHIPPED IN COMPLIANCE WITH APPLICABLE LAWS AND REGULATIONS REGARDING CLASSIFICATION, PACKAGING, SHIPPING, AND LABELING.

DISTRIBUTORS FOR

Dow Chemical • DuPont • Eastman Chemical • Exxon Chemical • Jefferson Chemical • Shell Chemical

THE DOW CHEMICAL COMPANY QUALITY ASSURANCE 16822
SALES SPECIFICATION

PRODUCT CODE: 16822 EFFECTIVE: 28 DEC 81 SUPERSEDES: 23 JUN 81

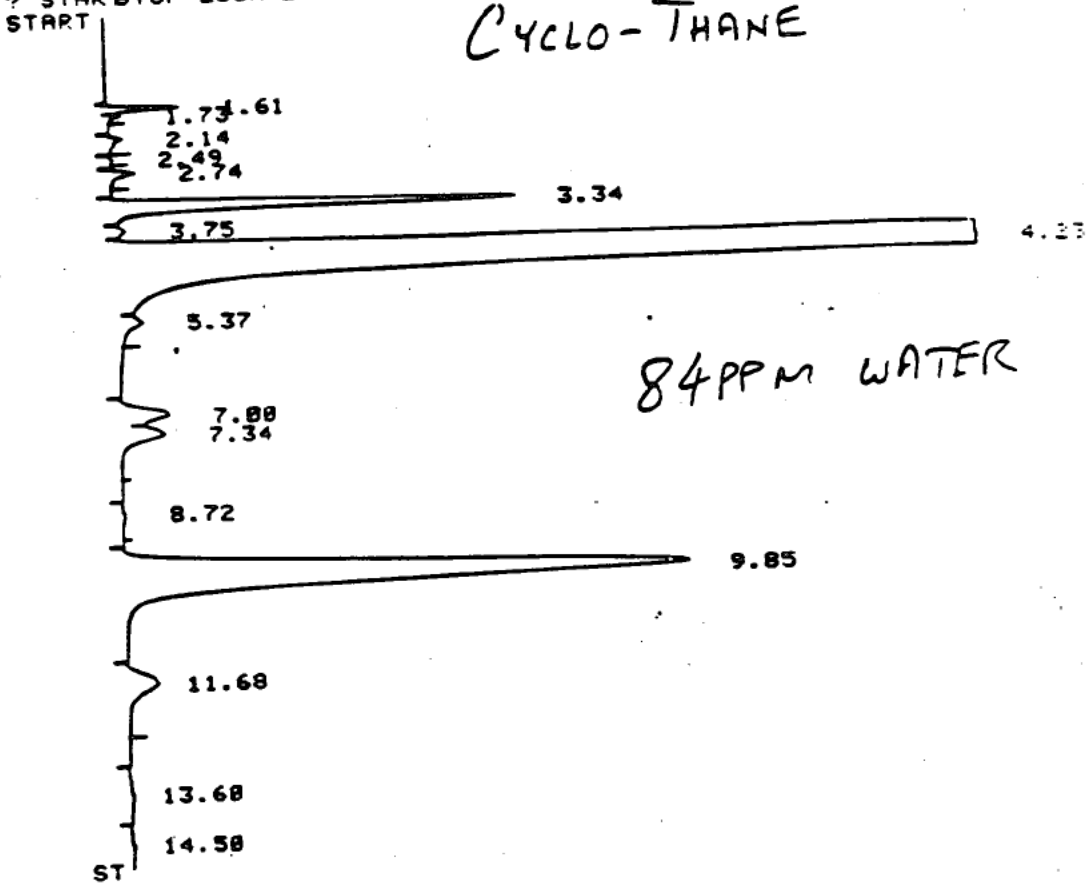
NAME: CHLOROTHENE (R) VG SOLVENT

1,1,1-TRICHLOROETHANE SOLVENT
DESC: COLORLESS LIQUID,FREE OF SUSPENDED MATTER AND SEDIMENT
APPL GOVT/IND STDS: MIL-T-81533A (USA)
: FED SPEC O-T-620C (USA)
: CANADIAN STD. 31-GP-213A
: BRITISH DEFENSE STD 68-21/1 TYPE 2
: MIL-STD-610
: MIL-STD-767C (SH)
: NASA-MSFC-PROC-166C

TEST ITEM	UNIT	LIMITS	TEST METHODS
APPEARANCE		FREE OF SEDIMENT AND SUSPENDED MATTER	VISUAL
WATER CONTENT, MAX	PPM	100	16822A
COLOR, PT-CO, MAX.		10	16822A;ASTM D2108
NON-VOLATILE RESIDUE, MAX.	PPM	10	16822A
ACID ACCEPTANCE (AS NAOH) MIN.	%W	0.20	16822A
---PURITY---			
1,1,1-TRICHLOROETHANE, MIN.	%W	94.5	16822A;MIL-T-81533A
INDIVIDUAL HALOGENATED IMPURITIES, MAX.	%V	0.5	16822A;MIL-T-81533A
TOTAL HALOGENATED IMPURITIES, MAX.		1.0	16822A;MIL-T-8153A
---TYPICAL PROPERTIES---			
FREE HALOGENS	PPM	NONE	16822A;MIL-T-81533A
ACIDITY (AS HCL) MAX.	PPM	10	16822A
ACIDITY AFTER ACCELERATED OXIDATION		PASSES MIL-T-81533A (NOTE 2)	16822A;MIL-T-81533A
METALS CORROSION		PASSES MIL-T-81533A (NOTE 2)	16822A;MIL-T-81533A
RELATIVE DENSITY (SPECIFIC			

(R) INDICATES A TRADEMARK OF THE DOW CHEMICAL COMPANY

INJ/BTL,STROKE: 1 1 0
? STARTSTOP ESCAPE



HP RUN # 8
BOTTLE 2
NORM

RT	EXP RT	AREA	CAL #		AMT
1.61	0.00	177200	(U)		0.110
1.73	0.00	27920	(U)		0.017
2.14	0.00	52040	(U)		0.032
2.49	0.00	5126	(U)		0.003
2.74	0.00	84560	(U)		0.052
3.34	3.33	1998000		2	0.645
3.75	0.00	60910	(U)		0.038
4.23	4.23	152000000	(R)	1	94.237
5.37	0.00	194800	(U)		0.121
7.00	0.00	438100	(U)		0.272
7.34	0.00	440800	(U)		0.273
8.72	0.00	15210	(U)		0.009
9.85	9.84	7000000		3	3.042
11.68	11.67	444300		4	0.312
13.60	0.00	35710	(U)		0.022
14.50	0.00	22570	(U)		0.014

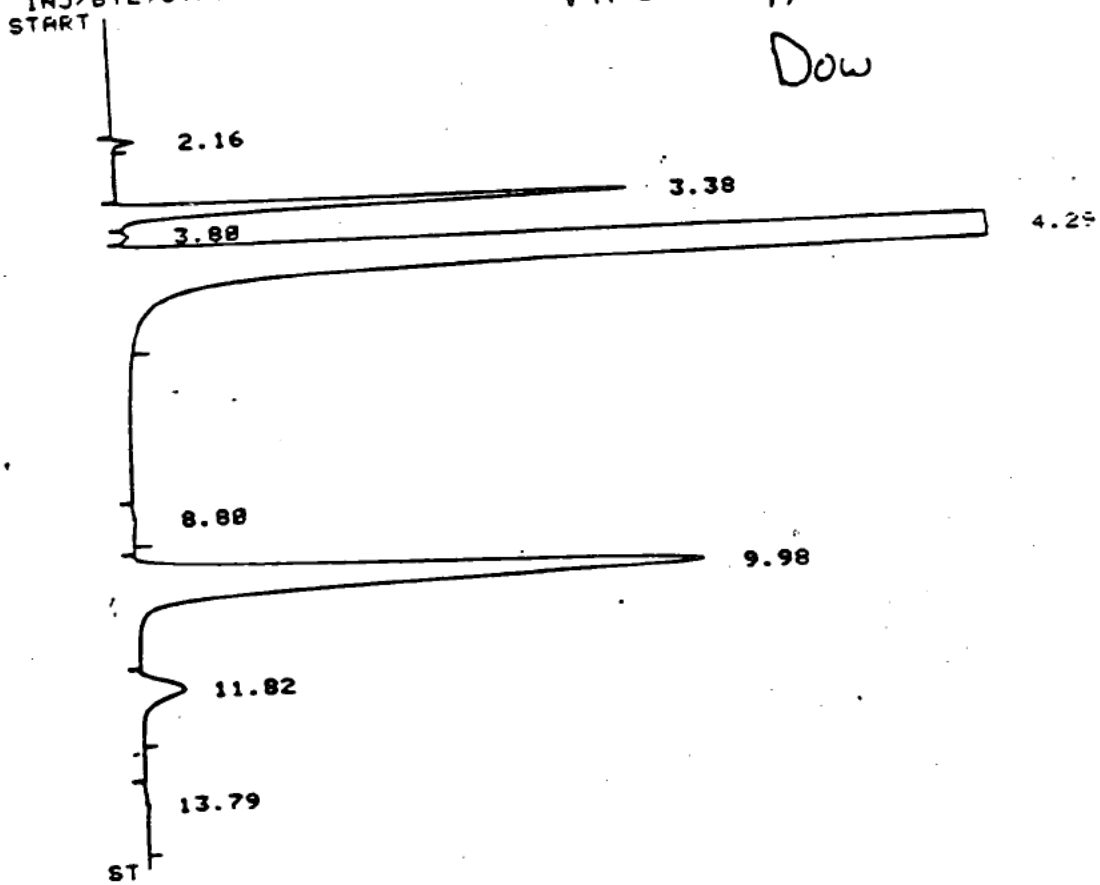
DIL FACTOR: 1.0000 E+ 0
RF UNC PKS: 6.6169 E- 7

HP RUN # 8
BOTTLE 2
AREA %

RT	AREA	AREA %
1.61	177200	0.100
1.73	27920	0.017

CHANGE RUN 8 25.0 25.1
OPTN # 3 2
INJ/BTL, STROKE: 1 1 2

VIRGIN 1,1,1 TRICHLOROETHANE
DOW



HP RUN # 1 NOV/15/84 TIME 09:48:22
BOTTLE 1
NORM

RT	EXP RT	AREA	CAL #	AMT
2.16	0.00	57070	(U)	0.032
3.38	3.38	2545000	2	0.748
3.80	0.00	42200	(U)	0.024
4.29	4.29	168100000	(R) 1	95.301
8.80	0.00	27150	(U)	0.015
9.98	9.98	7766000	3	3.466
11.82	11.83	628800	4	0.402
13.79	0.00	33300	(U)	0.019

DIL FACTOR: 1.0000 E+ 0
RF UNC PKS: 5.8749 E- 7

K. MANIFEST SYSTEM, RECORDKEEPING AND REPORTING

K. MANIFEST SYSTEM, RECORDKEEPING AND REPORTING

This section describes Pride Solvents' conformance with the requirements of 6 NYCRR 373-2.5, Manifest System, Recordkeeping and Reporting. The information presented in this section is submitted in accordance with 6 NYCRR 373-1.5(a).

K-1. USE OF MANIFEST SYSTEM

All spent solvents received by Pride Solvents are accompanied by standard hazardous waste manifests prepared by the generator. After inspecting the waste shipment, Pride Solvents notes any significant discrepancies (Manifest Item 19) and certifies receipt of the waste shipment (Manifest Item 20).

The appropriate copies of the manifest are distributed to the transporter, generator and state regulatory agency. One copy is maintained at Pride Solvents for a period of at least 3 years from the date of delivery.

K-2. MANIFEST DISCREPANCIES

As indicated in Section K-1., significant discrepancies between the wastes described on the manifest and the actual wastes delivered to Pride Solvents are noted on the manifest. Significant discrepancies may include improperly identified waste or variation in drum count.

Upon identifying a manifest discrepancy, Pride Solvents notifies the generator to resolve the discrepancy. If, within 15 days of receiving the waste, the manifest discrepancy cannot be

resolved, Pride Solvents will submit written notice describing this discrepancy and attempts to reconcile it, together with a copy of the subject manifest to the lead regulatory agency.

K-3. OPERATING RECORD

Pride Solvents maintains a facility operating record in accordance with 6 NYCRR 373-2.5(c). The operating records include the following

- A description of the types and quantities of all waste solvents received.
- The method and date of the waste solvents' disposition.
- Results of all waste solvents analyses.
- Reports detailing incidents which required implementation of this contingency plan.
- Inspection records.
- Closure cost estimates.

K-4. AVAILABILITY, RETENTION AND DISPOSITION OF RECORDS

Pride Solvents will maintain its operating records on-site for the life of the facility. Exceptions to this are as follows:

- Waste manifests will be maintained for at least 3 years from the date of waste delivery.
- Inspection reports will be maintained for at least 3 years from the date of inspection.

All facility operating records will be made available to representatives of the USEPA and NYSDEC upon their request.

K-5. ANNUAL REPORTS

Annual and quarterly reports are submitted by Pride Solvents to the NYSDEC. The annual reports contain the following information:

- Facility name, address and EPA identification number.
- Period covered by report.
- USEPA identification number of all generators from which Pride Solvents received waste solvents.
- Description of the types and quantities of wastes received by Pride Solvents for the period covered.
- Method of storage, treatment and/or disposal for each waste.
- Most recent closure cost estimate.

Annual reports shall be certified by Pride Solvents or its authorized representative.

K-6. UNMANIFESTED WASTE REPORT

Pride Solvents does not accept waste solvents from off-site generators without a manifest, unless the waste is exempt from manifest requirements. Should Pride Solvents receive an unmanifested waste which has not been excluded from the manifest requirements, a written report shall be submitted to the lead regulatory agency within 15 days of receiving the waste.

The report shall include the following information:

- Facility name, address and EPA identification number.
- Generator's name, address and EPA identification number (if available).
- A description and quantity of the unmanifested waste.
- Method of treatment, storage and/or disposal of the unmanifested waste.
- Certification by Pride Solvents or its authorized representative.
- Explanation of why waste was not manifested (if known).

K-7. ADDITIONAL REPORTS

In addition to the annual reports, manifest discrepancy reports and unmanifested waste reports, Pride Solvents will submit additional written reports to the lead regulatory agency for the following items:

- Any incident involving a release, fire or explosion.
- Certification of facility closure.

K-8. REQUIRED NOTICES

Before transferring ownership or operation of the facility, Pride Solvents will notify the new owner and/or operator in writing of the requirements of 6 NYCRR Subpart 373-1 and 373-2.

F. PROCEDURES TO PREVENT HAZARDS

This section describes the security measures, inspection procedures and emergency response equipment utilized by Pride Solvents to ensure the safe operation of its waste storage and reclamation facility.

The information presented in this section is submitted in accordance with the requirements of 6 NYCRR 373-1.5 (iv) and (v).

F-1. SECURITY

F-1a. SECURITY PROCEDURES AND EQUIPMENT

All plant personnel are required to carry on their person at all times a combination two way radio / telephone. In the event of an emergency plant personnel are able to notify each other as well as emergency response personnel from anywhere within the facility. The outdoor areas of the facility are illuminated with sodium vapor area lights.

F-1b. BARRIER

The Pride Solvents facility site is bordered on the north, east and west sides by a six foot tall barbed wire topped, chain link security fence. The reclamation building (78 Lamar Street) serves as a barrier on the south side. The fence has two locking gates: one located between the waste reclamation building and the chemical distribution building (88 Lamar Street), and the other located just north of the chemical distribution facility. The only unfenced area at the facility site is an employee's parking lot located on the south side of the reclamation building.

Rw 12/97

F. PROCEDURES TO PREVENT HAZARDS

This section describes the security measures, inspection procedures and emergency response equipment utilized by Pride Solvents to ensure the safe operation of its waste storage and reclamation facility.

The information presented in this section is submitted in accordance with the requirements of 6 NYCRR 373-1.5(iv) and (v).

F-1. SECURITY

F-1a. SECURITY PROCEDURES AND EQUIPMENT

To provide plant personnel immediate warning in case of an emergency, paging telephones, linked to the plant's public address system are located throughout the facility. These telephones have outside lines and can also be used to notify emergency response personnel. Hand-held two-way radios are used whenever plant personnel are working alone or outside the facility, away from a telephone. The outdoor areas of the facility are illuminated with sodium vapor area lights.

F-1b. BARRIER

The Pride Solvents facility site is bordered on the north, east and west sides by a six foot tall barbed wire topped, chain link security fence. The reclamation building (78 Lamar Street) serves as a barrier on the south side. The fence has two locking gates; one located between the waste reclamation building and the

F-1b. MEANS TO CONTROL ENTRY

Pride Solvents reclamation facility contains several points of entry. Doors on the south side of the facility are locked and are used as emergency exits only. A roll-up type door on the north side of the facility opens out to a fenced-in portion of the facility site. On the east side of the facility, the main entranced is attended by a receptionist and is equipped with a locked buzzer type entry. Visitors are prohibited from entry without being accompanied by plant personnel.

To prevent unauthorized entry after working hours, all entrance gates and doors are locked and the fenced-in facility site is patrolled by guard dogs.

F-1c. WARNING SIGNS

Warning signs, bearing the legend "DANGER -- UNAUTHORIZED PERSONNEL KEEP OUT", are posted along the east and west security fence and along the south side of the reclamation building. See Drawing PRID 84-01-2, Facility Site Plan. All warning signs have lettering which is legible from a distance of 25 feet.

Rev 12/97

chemical distribution building (88 Lamar Street), and the other located just north of the chemical distribution facility. The only unfenced area at the facility site is an employees parking lot located on the south side of the reclamation building.

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F-1d. WARNING SIGNS

Warning signs, bearing the legend "DANGER -- UNAUTHORIZED PERSONNEL KEEP OUT", are posted along the east and west security fence and along the south side of the reclamation building. See Drawing PRID 84-01-2, Facility Site Plan. All warning signs have lettering which is legible from a distance of 25 feet.

F-2. INSPECTIONS

F-2a. GENERAL INSPECTION REQUIREMENTS

Pride Solvents performs routine daily and weekly inspections of the facility to ensure personnel safety. The inspections include, but are not limited to, drums, tanks, containment facilities, process and safety equipment. Daily and weekly inspection logs are used as an inspection checklist and are signed by the personnel performing the inspections. An inventory of the waste on-hand is recorded in the inspection logs on a weekly basis. Inspection logs are filed and maintained for a period of not less than three (3) years from the inspection date. Sample copies of the daily and weekly inspection logs are included in Appendix D.

F-2b. TYPES OF PROBLEMS

Pride Solvents inspects its waste storage and reclamation equipment routinely for safety related problems. The drum storage area and process tanks are inspected daily for leaks and spills. Mechanical equipment is inspected for operational problems on a daily and weekly basis.

Drums containing waste solvents awaiting reclamation are inspected for leaks, spills and general drum condition. An inventory of the drums in storage is performed once a week. The spill containment area is inspected for cracks, spalling, coating deterioration and evidence of spills or leaks.

In the reclamation area, tanks and piping systems are inspected for leaks and deterioration. Pumps, valves, level controls and alarms and inspected for general operating conditions. As in the drum storage area, the spill containment provisions are checked for cracks, spalling, coating deterioration and evidence of spills or leaks.

Emergency response equipment such as telephones and fire extinguishers are inspected for general operation. Inspections also include an assessment of spare drums and absorbent material inventories. Security measures, such as door locks, fences and gates are inspected for general working order.

A summary of the items requiring inspection and inspection frequency is presented in Table F-1, Inspection Schedule.

F-2c. FREQUENCY OF INSPECTION

Depending upon the specific equipment or systems, inspections are performed on a daily and weekly basis. Drum storage, tanks, piping and valves, telephones and security systems are inspected daily. Process equipment, spill containment systems and emergency response equipment (e.g., fire extinguishers) are inspected on a weekly basis (see Table F-1, Inspection Schedule).

F-2d. REMEDIAL ACTION

Pride Solvents will correct, repair or replace any equipment which has deteriorated or failed, as noted during routine inspections, in an expeditious manner. Conditions which pose an

imminent hazard will be remedied immediately. All corrections, repairs or equipment replacement shall be noted on subsequent inspection logs. Inspection reports indicating operational or safety hazards are submitted to the reclamation manager to ensure that the appropriate corrective and/or remedial actions are taken.

F-2e. INSPECTION LOGS

Pride Solvents uses daily and weekly inspection logs to record facility inspection results. Sample inspection logs are provided in Appendix D. Inspection logs are filed and maintained for a period of not less than three (3) years from the inspection date.

F-3. PREPAREDNESS AND PREVENTION

So as to prevent the possibility of any unplanned, sudden or non-sudden release of hazardous waste to the environment, the Pride Solvents facility was specially modified to provide secondary containment. The containment, in the form of berms, is designed to prevent any spills or leaks from being discharged from within the plant. Secondary containment, designed and constructed in conformance with Article XII of the Suffolk County Sanitary Code, is provided in both the drum storage and reclamation areas. Additional provisions, such as overfill alarms on process tanks, further minimize the possibility of an uncontrolled release of hazardous waste.

F-3a. REQUIRED EQUIPMENT

SECURITY PROCEDURES AND EQUIPMENT:

All plant personnel are required to carry on their person at all times a combination two way radio / telephone. In the event of an emergency plant personnel are able to notify each other as well as emergency response personnel from anywhere within the facility.

Although the spent solvents handled by Pride Solvents are nonflammable and non-ignitable, wall mounted 10 pound ABC dry chemical fire extinguishers have been provided in the laboratory, outside the boiler room and in the front office.

All of the chemicals handled by Pride Solvents are organic solvents and water may be ineffective in fire fighting. Neither of the two plant buildings are equipped with sprinkler systems. There is a fire hydrant at the foot of Pride Solvents' driveway on Lamar Street. This hydrant is rated for a minimum working pressure of 20 psi.

An adequate supply of absorbent material is maintained at Pride Solvents to control minor spills and leaks. Portable pumps are available to transfer materials from the containment area to drums or process tanks in the event of a major spill.

F-3b. LOADING AND UNLOADING OPERATIONS

Waste solvents are received exclusively in 55-gallon drum shipments. The drums are unloaded by forklifts equipped with drum pickers in the open area between the two facility buildings

F-3a. REQUIRED EQUIPMENT

To provide plant personnel immediate warning in case of an emergency, paging telephones linked to the plant's public address system are located throughout the facility. These telephones have outside lines and can also be used to notify emergency equipment and personnel. Hand-held two-way radios are used whenever plant personnel are working alone or outside the facility away from a telephone.

Although the spent solvents handled by Pride Solvents are non-flammable and non-ignitable, wall mounted 10 pound ABC dry chemical fire extinguishers have been provided in the laboratory, outside the boiler room and in the front office.

All of the chemicals handled by Pride Solvents are organic solvents and water may be ineffective in fire fighting. Neither of the two plant buildings are equipped with sprinkler systems. There is a fire hydrant at the foot of Pride Solvents' driveway on Lamar Street. This hydrant is rated for a minimum working pressure of 20 psi.

An adequate supply of absorbent material is maintained at Pride Solvents to control minor spills and leaks. Portable pumps are available to transfer materials from the containment area to drums or process tanks in the event of a major spill.

F-3b. LOADING AND UNLOADING OPERATIONS

Waste solvents are received exclusively in 55-gallon drum shipments. The drums are unloaded by forklifts equipped with drum pickers in the open area between the two facility buildings

(78 and 88 Lamar Street) and moved immediately into the reclamation building (78 Lamar Street). Adequate aisle space between the palletized drums is provided to allow unobstructed movement of personnel and equipment.

F-3c. RUNOFF

Because Pride Solvents drum storage and waste reclamation areas are housed indoors, special requirements addressing stormwater runoff are not necessary. Spills and leaks within the building are controlled by spill containment provisions.

Stormwater runoff from the open area between the two buildings is directed to on-site stormwater dry wells. The potential for hazardous wastes entering the dry wells is minimized by transferring the wastes indoors immediately upon receipt.

F-3d. WATER SUPPLY

Groundwater is the sole source of drinking water in Suffolk County. Groundwater contamination is prevented by spill containment provisions in both the drum storage and waste reclamation areas of the Pride Solvents facility. Spill containment provisions are consistent with the requirements of the Suffolk County Sanitary Code, Article XII, Toxic and Hazardous Materials Storage and Handling Controls.

F-3e. EQUIPMENT AND POWER FAILURE

In the event of a power failure, all process equipment is shut down. To ensure safe resumption of operations, all process

equipment is inspected prior to start-up. Because the spill containment provisions are not power dependent, no special spill control measures during power failure are necessary. The drum storage and reclamation areas are equipped with D.C. powered emergency lights.

F-3f. PERSONNEL PROTECTION

All Pride Solvents personnel involved in hazardous waste activities have undergone a thorough on-the-job training program to familiarize themselves with the hazards associated with the waste solvents, safety procedures and remedial actions.

Ventilation of the drum storage and reclamation area is provided by roof mounted fans. Protective clothing for use during normal operations and emergency conditions include safety goggles, hard hats, protective gloves and mask respirators. An emergency shower is located in the reclamation area.

F-4. MANAGEMENT OF IGNITABLE, REACTIVE AND INCOMPATIBLE WASTES

Because Pride Solvents' hazardous waste activities do not involve ignitable, reactive or incompatible wastes, no special requirements are necessary.

APPENDIX D

SAMPLE INSPECTION LOGS

PRIDE SOLVENTS AND CHEMICAL CO. INC.

DAILY INSPECTION LOG

ITEM	INSPECTION	ACCEPT-ABLE	NOT ACCEPT-ABLE	COMMENTS
1) Drum Storage	Leaks, Spills, Deterioration			
2) Tanks	Leaks, Spills, Level Gauges, Operating Level, General Condition			
3) Piping & Valves	General Operation, Leaks			
4) Distillation, Automatic Feed	General Operation			
5) Communications	General Operation			
6) Door & Gate Locks	General Operation			

SIGNATURE _____ DATE _____

PRIDE SOLVENTS AND CHEMICAL CO. INC.

WEEKLY INSPECTION LOG

ITEM	INSPECTION	ACCEPT-ABLE	NOT ACCEPT-ABLE	COMMENTS
1) Containment Berms	Cracks, General Condition			
2) Storage Tanks Overfill Sensors	General Operation			
3) Settling Tank Pump	General Operation, Leaking Seals			
4) Storage Tanks Pump	General Operation, Leaking Seals			
5) Distillation Feed Pump	General Operation, Leaking Seals			
6) Dryer Feed Pump	General Operation, Leaking Seals			
7) Product Storage Feed Pump	General Operation, Leaking Seals			
8) Boiler Feedwater Pump	General Operation, Leaking Seals			
9) Boiler Fuel Pump	General Operation, Leaking Seals			
10) Condenser Pump	General Operation, Leaking Seals			
11) Cooling Water Pump	General Operation, Leaking Seals			
12) Distillation Unit	General Operation			
13) Dryer	General Operation			
14) Fire Extinguishers	Working Pressure			

SIGNATURE _____ DATE _____

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HOLZMACHER, McLENDON & MURRELL, P.C.

SHELL THICKNESS INSPECTION LOG

PRIDE SOLVENTS & CHEMICAL CO., INC.

Side Shell Thickness

	1	2	3	4	5	6	7	8	9	10	11	12	Top	Bottom
Settling Tank (650 Gals)														
Feed Tank #1 (1,500 Gals)														
Feed Tank #2 (1,500 Gals)														
Feed Tank #3 (500 Gals)														
Distillation Tank (600 Gals)														
Distillate Storage Tank #1 (2,000 Gals)														
Distillate Storage Tank #2 (500 Gals)														
Distillate Storage Tank #3 (275 Gals)														

Signature: _____ Date: _____ Time: _____

TABLE F-1

INSPECTION SCHEDULE

Area/Subject	Item	Inspection Frequency	Types of Problems	Remedial/Corrective Action
Loading/Unloading Area	General Area	Daily	Spills, Leaks	Spill Cleanup
	Pavement	Weekly	Cracks, Spalling	Patch and repair as necessary.
	Ramps	Weekly	Cracks, Spalling	Patch and repair as necessary.
	Warning Signs	Weekly	Damaged, Illegible	Replace signs.
Drum Storage Area	Drums	Daily	Leaks, General Condition	Transfer to secure drum.
	Drum Placement	Daily	Aisle Space	Relocate drums to provide adequate aisle space.
			Stacking	Relocate drums to limit stacking to two drums high.
	Drum Labeling	Daily	Improper/Incorrect Labeling	Correct labels as necessary.
	Drum Sealing	Daily	Open Drums	Seal drums as necessary.
	Pallets	Weekly	Damaged Pallets	Replace pallets as necessary.
	Floor	Weekly	Cracks, Spalling Coating Deterioration	Patch and/or repair as necessary. Recoat as necessary.
	Berms	Weekly	Cracks, Spalling, Damage Coating Deterioration	Patch and/or repair as necessary. Recoat as necessary.
	Ramps	Weekly	Cracks, Spalling, Damage Coating Deterioration	Patch and/or repair as necessary. Recoat as necessary.
	Warning Signs	Weekly	Damaged, Illegible	Replace signs.
Security	Door Locks	Daily	Lock Malfunction	Repair or replace locks.
	Fence	Weekly	Fence Damage	Repair or replace damaged fence section.
	Gates and Locks	Daily	Fence Damage Lock Malfunction	Repair or replace damaged gate/fence Repair or replace lock.

TABLE F-1 (CONT'D.)

Area/Subject	Item	Inspection Frequency	Types of Problems	Remedial/Corrective Action
Security (Continued)	Warning Signs	Weekly	Damaged, Illegible	Replace signs.
	Area Lighting	Weekly	Damage Light Bulb Malfunction	Repair damage as necessary. Replace light bulbs.
Emergency Response Equipment	Telephones	Daily	Phone Malfunction	Repair or replace as necessary.
	Paging System	Daily	System Malfunction	Repair system, replace paging horns as necessary.
	Protective Clothing	Daily	General Condition	Replace as necessary.
	Mask Respirators	Weekly	General Operation	Replace as necessary.
	Safety Shower	Weekly		
	Emergency Lighting	Weekly	Battery Failure Light Failure	Recharge or replace battery, repair or replace battery charger. Repair or replace light fixture, replace light bulb.
	Fire Extinguishers	Weekly	Inadequate Working Pressure	Recharge extinguishers.
	First Aid Equipment	Weekly	Inadequate Stock	Replenish first aid stock as necessary.
	Absorbent Material	Weekly	Inadequate Supply	Replenish stock as necessary.
	Portable Sump Pump	Weekly	General Operation	Repair or replace as necessary.
Reclamation Area	Process Tanks	Weekly	Corrosion, Cracks, Leaking Fittings	Repair or replace as necessary.
	Tank Level Sensors	Weekly	Sensor Malfunction	Repair or replace as necessary.
	Tank Level Alarms	Weekly	Alarm Malfunction	Repair or replace alarm relay and/or alarm horn.
	Transfer Pumps	Weekly	Leaking Seals Malfunction	Replace seals. Repair or replace pump.

TABLE F-1 (CONT'D.)

Area/Subject	Item	Inspection Frequency	Types of Problems	Remedial/Corrective Action
Reclamation Area (Continued)	Distillation System	Weekly	Leaks	Repair leaks, replace fittings as necessary.
			Malfunction	Repair or replace parts and components as necessary.
	Dryer System	Weekly	Leaks	Repair leaks, replace fittings as necessary.
			Resin Failure	Replace resin material as necessary.
	Piping	Daily	Leaks, Corrosion	Repair leaks, replace piping and fittings as necessary.
	Valves	Daily	Leaks, Malfunction	Repair or replace as necessary.
	Cooling Water System	Weekly	Leaks	Repair or replace pipes and fittings as necessary.
			Malfunction	Repair or replace recirculation pump as necessary.
	Steam System	Weekly	Boiler Failure	Repair boiler as necessary.
			Leaks, Corrosion	Repair or replace pipes and fittings as necessary.
	Floor	Weekly	Cracks, Spalling	Patch and/or repair as necessary
			Coating Deterioration	Recoat as necessary.
	Berms	Weekly	Cracks, Spalling, Damage	Patch and/or repair as necessary.
			Coating Deterioration	Recoat as necessary.
	Rampways	Weekly	Cracks, Spalling, Damage	Patch and/or repair as necessary.
			Coating Deterioration	Recoat as necessary.

PRIDE SOLVENTS & CHEMICALS
NEW YORK

TRAINING OF PERSONNEL

West Babylon, New York

Rev 12/97

PERSONNEL TRAINING

This section describes Pride Solvent's training programs for personnel that are involved in hazardous waste activities at the facility. The information presented in this section is submitted in accordance with 6 NYCRR 373-1.5(xii).

OUTLINE OF TRAINING PROGRAM

Facility personnel involved in the handling and reclamation of waste solvents are limited to:

1. the truck drivers, who receive and transport the waste;
2. terminal workers, who handle the waste once it is received at Pride Solvents;
3. and operators in the reclamation area.

All of the personnel in these mentioned positions have received the necessary training to perform their duties in a safe manner, and in compliance with the applicable Federal, State, and Local regulations.

An outline of Pride Solvents & Chemicals Training Program is as follows:

1.0 Chemical Hazards

- 1.1 Hazardous Waste
- 1.2 Organic Solvents
- 1.3 Safety Precautions

2.0 Waste Transportation

- 2.1 DOT Regulations
- 2.2 Wastes Manifests

3.0 Facility Operations

- 3.1 Drum Storage
- 3.2 Waste Reclamation

4.0 Waste Analyses

- 4.1 Sampling
- 4.2 Analytical Testing

5.0 Emergency Response

5.1 Contingency Plan
5.2 Emergency Procedures
5.3 Emergency Equipment
5.4 Remedial Actions
5.5 Notification

6.0 Record keeping and Reporting

6.1 Manifest System
6.2 Annual Reports

The following information, films, materials, manuals and kits were issued and utilized during initial training sessions and annuals updates and reviews where so required:

- 1993 Hazardous Waste Compliance (RCRA) Training Manual Generating, Storing and Shipping
- New York State Hazardous Waste Regulatory Guide Title 6, New York Codes, Rules and Regulations (NYCRR) - Parts: 360, 361,364,370-374,376,621 and 624.
- Hazardous Waste Management Guide - Identification, Monitoring, Treatment and Disposal.
- Hazardous Waste Regulations and You
- What You Should Know About Handling Spills and Leaks
- Working Safely With Chemicals
- Material Handling Safety
- The MSDS - Your Guide to Chemical Safety
- Hazardous Materials & Waste and the Driver - film
- HM 181: What Drivers Need to Know - film & training kit
- HM 126F - Training Program for HAZMAT Employees - film & kit
- The Hazard Communication Standard - film
- NIOSH - Pocket Guide to Chemical Hazards
- Hazardous Waste Labels and Markings

TRAINING DIRECTOR

The personnel training programs of Pride Solvents and Chemicals are under the direction of Allen and Mary Austin of ALMA Associates Inc., P.O. Box 301, Port Tobacco, Maryland 20677-0301 - (301)934-3553. Pride Solvents and Chemicals has employed ALMA Associates to handle all areas of compliance training since 1993. Credentials are attached.

RELEVANCE OF TRAINING PROGRAMS

The training for Pride Solvents & Chemicals is administered to the various personnel in accordance with their specific positions and duties with respect to Hazardous Waste Management. Although all of Pride's personnel involved in hazardous waste activities receive training in such areas as chemical hazards and emergency responses; training for waste analyses and waste transportation is limited to those specific personnel who are responsible for those functions.

IMPLEMENTATION OF TRAINING PROGRAMS

All of the current personnel at Pride Solvents and Chemicals have received the necessary training as required. All new personnel will complete the necessary training programs during the first fourteen (14) days of their employment. Until such time that they have completed the training programs, new employees will be under the supervision of fully trained personnel. Personnel who are promoted or otherwise placed in new positions will receive additional specific training as required to perform the duties associated with the new position prior to placement in said position.

Pride Solvents and Chemicals will conduct an annual review of the training programs with all employees. The purpose of the annual review is:

To review new developments in Federal, State and/or local regulations which may impact the facilities operation and management.

To update and train personnel in any new procedures or equipment and review existing operations problems.

To review and assess any incidents which called for the implementation of the contingency plan or use of emergency equipment; identification of preventive measures necessary in order to prevent recurrence.

JOB TITLES AND DUTIES

Pride Solvents and Chemicals keeps records on the various personnel involved in the handling of spent solvents. These files are inclusive of:

- Job assignments
- Job descriptions and qualifications
- Formal/informal training information of personnel

Pride Solvents & Chemicals will maintain these records on-site.

PRIDE SOLVENTS & CHEMICAL COMPANY OF WEST BABYLON

The following Health and Safety Training Programs have been completed for the year 1995 at the West Babylon location. The attendees throughout the year were Richard Fauvell and Gerald Nicholas . The training consisted of updates, modifications, lectures, video presentations, reference books and pamphlet handouts. If there is a change in regulations update training will be accomplished within 30 days of notice of change.

1. Fire Extinguisher - annual
2. Right to Know - Updated on new chemicals
3. Bloodborne Pathogens - annual
4. Material Safety Data Sheets - Update on new chemicals
5. HAZMAT Handling - bi-annual
6. Labeling - bi-annual
7. HM 126F - bi-annual
8. HM 181 - bi-annual
9. Emergency Response - annual
10. Substance Abuse
11. Lockout/Tagout - annual
12. Low Energy - annual
13. Static Electricity
14. Forklift/pallet jack - annual
15. Personal Protective Equipment - annual
16. Compound Inspections - need basis
17. Recordkeeping - need basis
18. Respirator - level 1

ALMA ASSOCIATES, INCORPORATED
"Occupational HealthSafety & Transportation Consultants"
P.O. Box 301 • Port Tobacco, MD 20677
800-HELP572
Fax 301-934-3553

PRIDE SOLVENTS & CHEMICALS
NEW EMPLOYEE HEALTH AND SAFETY ORIENTATION PROGRAM

VIDEOS shown in prospective areas		Time
"Safety Is Your Responsibility"	Safety Shorts	8 minutes
"Know Your ABC's Fire Extinguisher Training"	Safety Shorts	6 minutes
"The Right To Know"	J.J. Keller	22 minutes
"The Right To Know-MSDS"	J.J.Keller	18 minutes
"Bloodborne Pathogens"	Safety Shorts	9 minutes
"Hazardous Materials Handling"	Diversey	14 minutes
"Substance Abuse In The Workplace"	J.J. Keller	28 minutes
"Confined Space"	J.J. Keller	18 minutes
"Lockout/Tagout"	U.S. Corps of Engineers	10 minutes
"Low Energy"	U.S. Corps of Engineers	8 minutes
"Forklift Driving&Training"	National Safety Council	38 minutes
"Lifting and Bending"	J.J. Keller & Pro-Flex	14 minutes

Also included are lectures and handouts, questions and answer periods, and the proper filling out of accident and incident reports.

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"Occupational Health/Safety & Transportation Consultants"
P.O. Box 301 • Port Tobacco, MD 20677
800-HELP572
Fax 301-934-3553

PRIDE SOLVENTS & CHEMICALS INC.
HEALTH & SAFETY ORIENTATION

NAME _____ DEPARTMENT: _____

SUPERVISOR: _____ DATE COMPLETED: _____

SAFETY DEPT. SIGN OFF:

The New Employee Health & Safety Orientation will be held within 14 days of employment or prior to working with hazardous materials
The areas that you must receive orientation in are so marked by the X in the Department that you will be assigned to.

TRAINING SUBJECTS	Plant	Office	Lab	Sales	Mechanics Engineers
Fire Extinguisher	X	X	X	X	X
Right to Know	X	X	X	X	X
Bloodborne Pathogens	X	X	X	X	X
*M.S.D.S.	X	X	X	X	X
Substance Abuse	X	X	X	X	X
Audible Hearing	X		X		X
Confined Space **	X				X
Lockout/Tagout	X				X
Low Energy	X				X
Forklift	X				X
Lifting & Bending	X	X	X	X	X
Accident/Injury Rpts.	X	X	X	X	X
HAZMAT Handling	X	X	X	X	X
S.C.B.A. - M.S.A.***					X

*Material Safety Data Sheets
**Engineers, Contractors (if so required)
***Self Contained Breathing Apparatus

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"Occupational Health/Safety & Transportation Consultants"
P.O. Box 301 • Port Tobacco, MD 20677
800-HELP572
Fax 301-934-3553

ALMA ASSOCIATES INCORPORATED, CONSULTANTS
1988 to Present

Consultants to the private sector, State and Federal Agencies in the following areas: OSHA-Federal and State regulations, SARA Title 111 (Right to Know), HAZMAT, EPA, Risk Management, Plant Inspections, Facility inspections and Laboratory inspections. Employee Awareness (Substance Abuse), Underground Storage Tanks, Safety Training and Educational Programs. Accident Investigations, Seminars, DOT Compliance & Commercial Driver's License Prep. We have achieved outstanding recognition in all of the above areas along with controlling reduction of lost man hours and substantial savings by implementation of programs to be in compliance with Regulatory bodies. Operate office, set up programs, acquire positive contacts, acquire administration of programs and follow-up inspections. Public communications and marketing. Meet with Regulatory Agencies on a timely basis.

ALMA ASSOCIATES, INCORPORATED
"Occupational Health/Safety & Transportation Consultants"
P.O. Box 301 • Port Tobacco, MD 20677
800-HELP572
Fax 301-934-3553

CREDENTIALS - ALLEN E. AUSTIN

CERTIFIED DIRECTOR OF SAFETY

University of Michigan

SAFETY COUNCIL OF MARYLAND

Commercial Vehicle Division

NATIONAL SAFETY COUNCIL

Defensive Driving Instructor - Professional Truck Driver

WESTCHESTER COUNTY NEW YORK TRAFFIC SAFETY BOARD

Highway Safety Division

SAFETY BY COOOPERATIVE PARTNERSHIP EDUDATION (SCOPE)

National Instructor

ENVIRONMENTAL PROTECTION AGENCY

Certified HAZMAT First Response

AMERICAN SOCIETY OF SAFETY ENGINEERS

Consultant Division-Technical Assistance Program Monitor

CERTIFIED EMPLOYEE AWARENESS PROFESSSIONALS

ASSOCIATION OF EMPLOYEE AWARENESS PRACTITIONERS

Chemical Dependency Specialist

WASHINGTON METROPOLITAN AREA CONSTRUCTION SAFETY ASSOCIATION

MAYOR'S BUILDING CODE ADVISORY COMMITTEE - WASHINGTON, D.C.

AUTHOR "THE INFINITY OF COST" 1984

MARQUIS' "WHO'S WHO IN THE EAST" - 24TH EDITION

NATIONAL PRIVATE TRUCK COUNCIL

AMERICAN TRUCKING ASSOCIATION NATIONAL COMMITTEE

Motor Fleet Supervisor Training and Certification

1995 Safety Instructor of the Year

COMMERCIAL VEHICLE SAFETY ALLIANCE

COMMERCIAL DRIVERS LICENSE - ALL ENDORSEMENTS

CONGRESSIONAL SUBCOMMITTEES

GOVERNOR'S TASK FORCE - MARYLAND

THE AMERICAN COUNCIL FOR DRUG EDUCATION

TECHNICAL ADVISORY SERVICE FOR ATTORNEYS (TASA)

Expert Witness Program

INTERNATIONAL DAIRY FOODS ASSOCIATION

Environmental & Worker Safety Committee

THE GUARDRAIL MAGAZINE

Editorial Advisory Board - Training Editor

ALMA ASSOCIATES, INCORPORATED

"Occupational Health Safety & Transportation Consultants"

P.O. Box 301 • Port Tobacco, MD 20677

800-HELP572

Fax 301-934-1561

JOB DESCRIPTION - RECLAMATION MANAGER

GERALD NICHOLAS

1) SAMPLING OF ALL WASTES RECEIVED

2) DAILY AND WEEKLY FACILITY INSPECTIONS

3) VERIFY ACCURACY OF ALL MANIFESTS AND WASTE LABELS

4) PREPARATION OF QUARTERLY AND ANNUAL REPORTS

5) MAINTAIN INVENTORY OF WASTE AND RECLAIMED MATERIAL

6) OPERATION AND MAINTENANCE OF PROCESS TANK, DISTILLATION UNIT, AND STORAGE TANKS

7) MAINTAIN ALL OPERATING RECORDS, INSPECTIONS LOGS, AND ALL REQUIRED MATERIALS

CERTIFICATE OF ATTENDANCE

This hereby certifies that

GERALD NICHOLAS

has completed the required course

for

FIRE EXTINGUISHER REFRESHER COURSE

17 July 1995

ALMA ASSOCIATES, INC.

Allen (Al) Austin, C.D.S., Sr. Consultant

CERTIFICATE OF ATTENDANCE

This hereby certifies that

GERALD NICHOLAS

has completed the required course

for

HM 126F REFRESHER COURSE
17 July 1995

ALMA ASSOCIATES, INC.

Allen (Al) Austin, C.D.S., Sr. Consultant

CERTIFICATE OF ATTENDANCE

This hereby certifies that

GERALD NICHOLAS

has completed the required course

for

Hazardous Waste Management
17 July 1995

ALMA ASSOCIATES, INC.

Allen (Al) Austin, C.D.S., Sr. Consultant

Certificate of Achievement

Managing Hazardous Wastes in New York

This certificate has been awarded to:

Gerald E. Nicholas

at

Ronkonkoma, New York

For successful completion of a one-day managers' workshop on the applicable regulations of the New York Department of Environmental Conservation regarding the safe and legal management of wastes designated as hazardous

As of: ***23 June 1997***

National Registry of Professionals - Member PIN: 001-6141

S. C. Unnamare

INSTRUCTOR

LION TECHNOLOGY INC.

HAZARDOUS MATERIALS WASTE HANDLING EXAMINATION

Select and mark the single best answer for each statement or question.

1. Under the 1984 RCRA amendments a small quantity generator is technically defined as one who generates.

   A. less than 1,000 pounds of HW per month.
   B. between 100 and 1,000 kilograms of HW per month.
   C. over 1,000 pounds of HW per month.
   D. less than 100 kilograms per month.

2. Which of the following hazardous waste minimization (HAZMIN) examples would be considered an issue control method?

   A. Use a biodegradable, nontoxic paint thinner to replace your historic use of a very hazardous product.

   B. Issue hazardous materials to users at the minimum quantities they really need in a reasonable period of time.

   C. Keep solvents on hand after they have been contaminated, and use them as long as they perform an acceptable job of cleaning for you or for someone else in your shop.

   D. Publish a list of approved hazardous materials which can be requisitioned or procured.

3. Which of the following HAZMIN examples would be considered a recycle/reuse method?

   A. Use a biodegradable, nontoxic paint thinner to replace your historic use of a very hazardous product.

   B. Issue hazardous materials to users at the minimum quantities they really need in a reasonable period of time.

   C. Keep solvents on hand after they have been contaminated, and use them as long as they perform an acceptable job of cleaning for you or for someone else in your shop.

   D. Publish a list of approved hazardous materials which can be requisitioned or procured.

4. According to EPA's Hazardous Waste Compatibility Chart, in the reference book, which of the following chemicals are compatible with each other?

   A. Ammonia and butyraldehyde.
   B. Nitric acid and ammonia.
   C. Acetone and methyl ethyl ketone.
   D. Formaldehyde and sulfuric acid.

5. According to the NFPA "Fire Hazards of Materials" what numbers are suggested on an NFPA 704 System diamond for health, flammability, and reactivity for a building in which methyl ethyl ketone is stored?

   A. 2,3,0.
   B. 1,3,0.
   C. 2,1,1.
   D. Either A or B. (Consult your local fire department for their preference and recommendations.)

6. According to EPA's Hazardous Waste Compatibility Chart in the Reference Book, with which of the following could you store Formic acid?

   A. Benzene phosphorous dichloride.
   B. Boric acid
   C. Sulfuric acid
   D. Ammonium hydroxide

7. The DOT hazard label for aluminum nitrate is:

   A. ORM-E
   B. Flammable solid.
   C. corrosive material.
   D. oxidizer.

8. Which of the following are major problem areas associated with hazardous materials and waste management?

   A. Safety and immediate health effects.
   B. Environmental effects.
   C. Public relations.
   D. All of the above

9. Which of the following characteristics are hazards present with *all* types of highly compressed gases?

   A. Container may become a projectile if the pressure is suddenly released.
   B. Contents are toxic.
   C. Contents are flammable.
   D. Possibility of a boiling liquid expanding vapor explosion.

10. Which chemical has the greatest explosive range representing the greatest fire hazard?

   A. Gasoline
   B. JP-4
   C. Methyl alcohol
   D. Toluene

11. From the date that you as a small quantity generator begin to collect hazardous waste, you have _____ to dispose of it before you are considered to be a hazardous waste storage facility, according to the Resource Conservation and Recovery Act.

   A. 60 days
   B. 90 days
   C. 4 months
   D. 180-270 days

12. According to RCRA regulations, hazardous wastes are defined as solid wastes "which are listed in the regulation (or which contain a listed waste)" or which exhibit which of the following characteristics?

   A. Corrosivity, reactivity, explosivity, flammability, and toxicity.
   B. Flammability, corrosivity, irritability, and poisonicity.
   C. Corrosivity, reactivity, ignitability, and toxicity.
   D. Flammability, corrosivity, radioactivity, and irritability.

13. According to the Nations Fire Protection Association (NFPA) "Fire Protection Guide of Hazardous Materials", what numbers would go on an NFPA warning label for sodium hydroxide?

   A. 0,0,1.
   B. 1,0,1.
   C. 2,0,1.
   D. 3,0,1.

14. According to the National Fire Protection Association No. 704 diamond identification system, health hazards are

A. green in color and located at the bottom of the diamond.
B. red in color and located at the top of the diamond.
C. blue in color and located in the left hand corner of the diamond.
D. yellow in color and located in the left hand corner of the diamond.

15. A hazardous waste, before it can be offered by a generator for shipment off-site, must have which label(s)/marking(s) on the container?

A. The words "HAZARDOUS WASTE - Federal law prohibits improper disposal."
B. DOT diamond-shaped labels, if required, in accordance with DOT regulations for hazardous materials.
C. All required DOT markings, including proper shipping name
D. All of the above.

16. Under the 1984 Resource Conservation and Recovery Act amendments, a small quantity generator is technically defined as one who generates

A. less than 100 pounds of HW per month.
B between 100 and 1,000 kilograms of HW per month.
C. over 1,000 pounds of HW per month.
D. none of the above.

17. According to DOT regulations, what label(s) is/are required when transporting methyl acetate?

A. Flammable gas.
B. Flammable liquid,poison and corrosive.
C. Flammable liquid and dangerous when wet.
D. Flammable liquid.

18. Toxicity and dose often affect individuals differently.

A. True
B. False

19. Which of the following laws allows states to fine military installations for hazardous waste violations?

A. Toxic Substances Control Act.
B. Pollution Prevention Act.
C. Hazardous Materials Transportation Act.
D. Federal Facilities Compliance Act.

20. Training records for hazardous waste handlers must contain which of the following items?

A. The job title for each hazardous waste management position (including "non-management positions") and name of employee filling each job.
B. A job description for each position including qualifications and training requirements.
C. Documentation of training programs that each worker has completed.
D. All of the above.

21. In order to support a fire, three elements must be present called the "fire triangle". Which of the following is not one of these three elements?

A. Fuel.
B. Flame (ignition source).
C. Substrate
D. Oxygen.

22. Hazardous Substance is the term used in the Comprehensive Environmental Response, Compensation and Liability Act. (CERCLA) and the Clean Water Act.

A. True.
B. False

23. For which of the following is the shipper (generator) not responsible concerning the transportation of hazardous material or waste, according to the DOT?

A. Determine if a material is regulated by the DOT as an HM.
B. Ensure that shipping papers are visible and readily available during transportation.
c. Properly package and level all HM.
C. Provide training for its employees in HM requirements.

24. Which plan discusses response procedures and equipment, and contains a step-by-step sequence for reacting to a spill?

A. Spill Prevention, Control and Countermeasure Plan.
B. Installation Spill Contingency Plan.
C. Hazardous Materials Response Plan.
D. All of the above.

25. Which markings on a container would tell you that it meets "Performance Oriented Packaging" specifications?

A. DOT-17H
B. "NOTE" Meets OCONUS requirements for DOT.
C. Stenciled test data telling weight and cube.
D. UN with a circle around it.

26. The phenomenon that occurs when some very stable chemicals tend to concentrate in bodies of organisms at higher and higher concentrations as they are passed along up the food chain is known as

A. synergistic effects.
B. chemical exposition.
C. biological magnification.
D. persistence.

27. What is the DOT hazard class for aluminum nitrate?

A. ORM-E.
B. Oxidizer.
C. Corrosive material.
D. Flammable solid.

28. Organic peroxides are considered to be dangerous because

A. they are unstable and may react with themselves, or decompose producing a violent reaction.
B. they are combustible and increase the intensity of a fire.
C. they contain fuel and oxygen.
D. all of the above.

29. Which of the following HAZMIN examples would be considered a procurement control method?

A. Use a biodegradable, nontoxic paint thinner to replace your historic use of a very hazardous product.
B. Issue hazardous materials to users at the minimum quantities they really need in a reasonable period of time.
C. Keep solvents on hand after they have been contaminated, and use them as long as they perform an acceptable job of cleaning for you or for someone else in your shop.
D. Publish a list of approved hazardous materials which can be requisitioned or procured.

C. Codes and abbreviations can be entered for hazard class and proper shipping name only.
D. Hazardous material may be placed first on the list.

36. What is the four-digit UN identification number which would appear on a vehicle which was transporting nitric acid over 70 percent (not red fuming), according to DOT regulations?

A. 2031
B. 1796
C. 1760
D. 1826

37. The RCRA defined term "solid waste" is very broad, including not only the traditional non-hazardous solid wastes, such as municipal garbage, but also hazardous waste.

A. True
B. False

38. Which of the following health effects is most closely associated with corrosive materials?

A. Disease
B. Toxicity
C. Damage to tissue
D. Biological magnification

39. According to the Chemical Glove Selection Chart, the material which gives the best protection against penetration by alcohol is

A. natural rubber
B. neoprene
C. buna-N
D. vinyl

40. Which of the following are components of EPA's hazardous waste characteristics?

A. Danger, warning, and caution
B. Ignitable, corrosive, toxic, and reactive
C. Flammable, inflammable, ignitable, and oxidizer
D. Explosives, flammable liquids, flammable solids, oxidizers, organic peroxides, corrosives, compressed gases, poisonous materials, irritating materials, etiological agents, radioactive materials, and other regulated materials.

41. Adding a filtration process to clean a solvent and reuse it is an example of

A. material substitution
B. process change
C. treatment
D. none of the above

42. From which of the following markings on a package can you determine that the package meets DOT specifications?

A. LDC
B. DOT-5A
C. Tested 2/74
D. "Note" This single wall box meets all construction requirements of applicable freight classifications.

43. According to the DOT "Emergency Response Guidebook," what guide number would you refer to respond to a spill from a tank truck which had placards labeled "1193"?

A. 26 (methyl ethyl ketone)
B. 44 (nitric acid, fuming)
C. 46 (ammonium nitrate-fuel oil mixtures)
D. 60 (hydroxide solution)

44. Although Congress defined the tern "hazardous waste" in the Resource Conservation and Recovery Act, EPA was required to develop the regulations that would identify those solid wastes that must be managed as hazardous wastes. This regulation (40 CFR Part 261) specified that a solid waste is hazardous if it is not excluded from the regulation and

A. exhibits the characteristics of a hazardous waste
B. has been listed by EPA as a hazardous waste
C. is a mixture containing a listed hazardous waste and a non-hazardous solid waste
D. all of the above

45. The corresponding DOT classification for the United Nations hazard class number 7 is

A. corrosive material
B. radioactive material
C. etiological agent
D. flammable solid

46. Which type of glove gives the least protection against battery acid?

A. Natural rubber
B. Neoprene
C. Buna-N
D. Polyvinyl alcohol

47. "A facility or location which conforms to regulations of the EPA and other regulatory authorities governing the storage of hazardous material" is a definition of

A. a designated storage site/facility
B. a hazardous waste storage facility
C conforming storage
D. compatible storage

48. The basic color of a cylinder which contains a flammable gas should be

A. red
B. green
C. yellow
D. brown

49. In an oxygen deficient area where toxic vapors are heavily concentrated which type of protective mask should be worn?

A. Cartridge respirator
B. Self-contained breathing apparatus
C. General-purpose respirator
D. Either A or C above

50. Which type of material provides the best protection against 100 percent ammonia, according to the Chemical Glove Selection Chart?

A. Natural rubber
B. Neoprene
C. Vinyl
D. Polyvinyl alcohol

51. Which types of gloves give the best protection against battery acid?

A. Natural rubber
B. Neoprene
C. Buna-N
D. Polyvinyl alcohol

68. According to the Resource Conservation and Recovery Act regulations, a large quantity generator can accumulate a hazardous waste at the generation point up to _____ before being considered a hazard waste storage facility.

A. 6 months
B. 4 months
C. 90 days
D. 60 days

69. RCRA identifies three different categories of organizations that manage and handle hazardous waste that are required to obtain an EPA identification number. These are

A. the Environmental Protection Agency, EPA regions, and state regulators.
B. households, small quantity, and large quantity generators
C. treatment, storage, and disposal (TSD) facilities
D. generators, transporters, and TSD facilities

70. A substance which causes the development of a malignant tumor some time after exposure is a definition of a

A. teratogen
B. carcinogen
C. mutagen
D. both A and B above

71. Which of the following is an example of an administrative enforcement action citing environmental noncompliance?

A. Civil suit
B. Notice of violation
C. Judicial action
D. Criminal violation

72. Toxicity relates to

A. the amount of a material required to damage your health
B. the ability of a chemical to affect your health
C. the route of exposure a toxic chemical can take
D. none of the above

73. Which of the following does the Clean Water Act (CWA) prohibit an installation from doing?

A. Discharging pollutants into waters of the United States without proper treatment under the terms of a National Pollutant Discharge Elimination System Permit.
B. Discharging air emissions from stationary sources
C. Releasing harmful quantities of oil into waters of the United States
D. Both A and C are correct

74. Why might you find it helpful to know the vapor density of a flammable substance stored in your building?

A. Because, if it is less than 1.0, the vapors will collect in a low point in the building
B. Because, if it is greater than 1.0, the vapors will collect in a low point in the building
C. Because, if it is greater than 1.0, the vapors will rise and create a fire hazard
D. none of the above

75. According to the NFPA "Fire Protection Guide of Hazardous Materials", what are some safety precautions to be exercised while handling lindane?

A. For liquid formulations, wear full protective clothing; for dry powder wear self-contained breathing apparatus
B. Do not use water spray to flush spills away from exposures
C. Store preferably indoors, and wear safety goggles to keep liquid from splashing in face
D. Do not allow water to come in contact with containers in event of a fire

H. PERSONNEL TRAINING

H. PERSONNEL TRAINING

This section describes Pride Solvents' training program for personnel involved in hazardous waste activities at the facility. The information presented in this section is submitted in accordance with 6 NYCRR 373-1.5(xii).

H-1. OUTLINE OF TRAINING PROGRAM

Facility personnel involved in the handling and reclamation of waste solvents are limited to the truck drivers, who receive and transport the waste, terminal workers, who handle the waste once its received at Pride Solvents, and operators in the reclamation area. All personnel in these positions have received the necessary training to enable them to perform their duties in a safe manner, and in conformance with the applicable Federal, State and Local regulations.

An outline of Pride Solvents' training program is as follows:

1.0 Chemical Hazards
- 1.1 Hazardous Waste Identification
- 1.2 Organic Solvents
- 1.3 Safety Precautions

2.0 Waste Transportation
- 2.1 DOT Regulations
- 2.2 Waste Manifests

3.0 Facility Operations
- 3.1 Drum Storage
- 3.2 Waste Reclamation

4.0 Waste Analyses

4.1 Sampling

4.2 Analytical Testing

5.0 Emergency Response

5.1 Contingency Plan

5.2 Emergency Procedures

5.3 Emergency Equipment

5.4 Remedial Actions

5.5 Notification

6.0 Recordkeeping and Reporting

6.1 Manifest System

6.2 Annual Reports

The following pamphlets prepared by the Transportation Skills Program are utilized by Pride Solvents in the training program:

- RCRA Training Manual
- 1981-82 Hazardous Materials, Substances and Wastes Pocket Commodity Compliance Guide
- Introduction to Hazardous Materials and Substances
- Everything You've Wanted to Know About CFR 40/49 and Have Been Afraid to Ask
- Hazardous Waste and the Driver
- Hazardous Materials and the Driver
- Classes of Hazardous Materials
- Hazardous Wastes Labels and Markings

- Hazardous Materials Shipping Papers
- Empties - Leakers and Emergency Responses

H-2. TRAINING DIRECTOR

Pride Solvents' personnel training program is directed by John Keogh, the facility's terminal manager. Mr. Keogh has been employed by Pride Solvents for 5 years, and has received training in all aspected of hazardous materials management through a number of privately sponsored and state-run seminars on the subject.

H-3. RELEVANCE OF TRAINING PROGRAM

Pride Solvents' training program is administered to the various personnel in accordance with their specific positions and duties with respect to hazardous waste management. Although all personnel involved in hazardous waste activities receive training in such areas as chemical hazards and emergency responses, training for waste analyses and waste transportation is limited to those personnel responsible for those functions. A list of plant personnel and their required training is presented in Table H-1, Personnel Training.

H-4. SPECIALIZED TRAINING

In addition to the training program at Pride Solvents, Bruce Brehm, the facility's reclamation manager, has received specialized training by the Hewlett-Packard Analytical Group in the operation of the gas chromatograph.

TABLE H-1

PERSONNEL TRAINING

PRIDE SOLVENTS & CHEMICAL CO., INC.

	Chemical Hazards	Waste Transportation	Facility Operations	Waste Analyses	Emergency Response	Recordkeeping and Reporting
Operations Manager	X	X	X	X	X	X
Reclamation Manager	X	X	X	X	X	X
Terminal Manager	X	X	X		X	X
Terminal Workers	X		X		X	
Truck Drivers	X	X	X	Sampling Only	X	Manifests Only

H-5. IMPLEMENTATION OF TRAINING PROGRAM

All current personnel at Pride Solvents have received the necessary training as required. All new personnel will complete the training program during the first four weeks of employment. Until they have completed the training program, new employees will work under the supervision of fully trained plant personnel. Personnel who are promoted or otherwise placed in a new position will receive additional training as required to perform the duties associated with the new position within 6 months of placement.

Pride Solvents will conduct an annual review of the training program with all employees. The purpose of the annual review is threefold:

- To review new developments in Federal, State and/or Local regulations which impact the facility's operation and management.
- To update and train personnel in any new procedures or equipment and review existing operations problems.
- To review any incidents which called for implementation of the contingency plan or use of emergency equipment, assess the adequacy of the response or remediation, and identify measures to prevent and recurrence.

H-6. JOB TITLES AND DUTIES

Pride Solvents keeps records on the various personnel involved in the handling of spent solvents. These files include job assignments, job descriptions and qualifications as well as information concerning any formal or informal training the personnel has received. Typical job files are presented in Appendix I.

Pride Solvents will maintain these records on-site until the facility closure. Records on individual employees will be maintained until closure or 3 years after the employee's termination, whichever comes first.

APPENDIX I

SAMPLE JOB FILES

RCRA Job and Personell File

1. Title: Terminal Manager

   a. Background Requirements:

      1. Previous Industry experience (minimum three years)

      2. Experience gained in house while working in subordinate position.

2. Name: Keogh, John

   Date of Hire: 11-12-79
   Experience: Terminal Superintendant, Baron Blakeslee, Bay Shore, N.Y. 8/68 thru 9/78.
   Training:
   A. Transportation Skills Program, July 1981
   B. N.Y.S.D.E.C. Hazardous Waste Seminary, April 1982.
   C. J.J. Keller Hazardous Waste Course, March 1983.
   D. Continuing in house training.
   E. Periodic updates by Producers, Eg. Dow Chemical USA, E.I. Dupont, Shell Chemical Co.etc.
   F. On job experience training.

3. Job Duties:

   1. Day to day operations of Pride's Terminal.
   2. Responsibility for the incoming and outgoing shipments of products from the terminal.
   3. On job training of drivers and terminal personell.
   4. Oversees the acceptance or rejection of waste received at our site.
   5. Disseminates training aids and on the job training, Eg.:

      1. Emergency response guidebooks.
      2. Sample manifests
      3. Small generator exemption forms
      4. Transportation skills program training booklets.

J. J. Keller & Associates, Inc.

Hereby Certifies That

JOHN KEOGH

has satisfactorily completed training
in

THE SAFE TRANSPORTATION OF HAZARDOUS WASTE

AS REQUIRED BY MARYLAND AND NEW JERSEY

March 11, 1983
Date

East Brunswick, NJ
Location

K. A. Parker
Instructor

R. S. Krouse
Program Manager

250

THE TRANSPORTATION SKILLS PROGRAM

THE TRANSPORTATION SKILLS PROGRAM

This Certifies That JOHN J. KEOGH

Has Enrolled in and Completed The

Hazardous Wastes / Materials Management Compliance Seminar

and this Certificate represents a sincere effort on their company's behalf and on their own behalf to comply with the U. S. Department of Transportation Hazardous Materials Regulations, and the Environmental Protection Agency Hazardous Waste Regulations.

R. J. Keegan — Robert J. Keegan, President

Dan Cooper — Dr. Daniel Cooper, V. P. & Training Director

Pride Solvents & Chemical Co., Inc.

Hazardous Waste Training

Mr. Bruce Brehm Distillation Manager
4/29/82 Hazardous Waste Workshop N.Y.S.D.E.C.
5/4/82 Hazardous Waste Workshop N.Y.S.D.E.C.

John Keogh Terminal Manager
1/13/81 Hazardous Waste Materials Management Compliance Seminar
3/11/83 Hazardous Waste Transportation Seminar

Richard Fauvell Lead Man Warehouse
3/11/83 Hazardous Waste Handling & Transportation Seminar

Arthur Dhom Warehouse Man
3/11/83 Hazardous Waste Handling & Transportation Seminar

James Maybeck Driver trained by Pride Solvents & Chemical Co., Inc.
3/10/81 Hazardous Waste Handling & Transportation

Gerardo Alvarez Driver trained by Pride Solvents & Chemical Co., Inc.
1/5/81 Hazardous Waste Handling & Transportation

John O Bowers Driver trained by Pride Solvents & Chemical Co., Inc.
1/11/83 Hazardous Waste Handling & Transportation

Chris Gadue Warehouse Man trained by Pride Solvents & Chemical Co.,Inc.
4/29/82 Hazardous Waste Handling & Transportation

Training aids supplied to and used by all of the above:

Transportation Skills Program Inc.

(1) Empties leakers & emergency responses

(2) Introduction to hazardous materials & substances

(3) Hazardous Waste & the Driver

(4) Hazardous Materials & the Driver

(5) Hazardous Materials Labeling & Marking

(6) Emergency Phone Numbers

HEWLETT-PACKARD ANALYTICAL GROUP

IS PROUD TO PRESENT THIS

Certificate of Achievement

TO

BRUCE BREHM

FOR SUCCESSFUL COMPLETION OF

5840 OPERATOR TRAINING &
PRACTICE OF GAS CHROMATOGRAPHY

HELD AT

PRIDE SOLVENTS & CHEMICALS
WEST BABYLON, N.Y.

APRIL 14, MAY 26-27
DATE

Susan Strong
CUSTOMER TRAINING MANAGER

CONTINGENCY PLAN

PRIDE SOLVENTS & CHEMICAL CO., INC.

WEST BABYLON, NEW YORK

SEPTEMBER 1986

EPA ID No. NYD057722258

CONTINGENCY PLAN

PRIDE SOLVENTS & CHEMICAL CO., INC.

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APPENDIX 2 - MATERIAL SAFETY DATA SHEETS

CONTINGENCY PLAN

PRIDE SOLVENTS & CHEMICAL CO., INC.

WEST BABYLON, NEW YORK

SEPTEMBER 1986

1.0 - FACILITY IDENTIFICATION AND GENERAL INFORMATION

1.1 - SCOPE

This plan is intended to outline the existing operations at Pride Solvents & Chemical Co., Inc. (Pride Solvents) of 78 & 88 Lamar St., West Babylon, New York, so as to assist the various regulatory agencies and emergency response teams in the event of an emergency occurring at the facility. The plan identifies possible emergency conditions, response procedures, emergency equipment and coordination agreements with the local authorities.

The Contingency Plan has been prepared in conformance with the requirements of 6 NYCRR Subpart 373-2, New York State Department of Environmental Conservation, Final Status Standards for Owners and Operators of Hazardous Waste Treatment, Storage and Disposal Facilities, Section 373-2.4, Contingency Plan and Emergency Procedures. The plan is specifically designed to address the hazardous waste storage activities at Pride Solvents. Details on the chemical packaging, distribution and waste reclamation activities at Pride Solvents are provided solely for informational purposes.

1.2 GENERAL INFORMATION

Facility Name:	Pride Solvents & Chemical Co., Inc.
Address:	78 & 88 Lamar Street West Babylon, NY 11704
Telephone No.:	(516) 643-4801 (516) 643-0041
Owner:	Pride Solvents & Chemical Co., Inc.
Operator:	Pride Solvents & Chemical Co., Inc.
EPA Ident. No.:	NYD 057722258

1.3 INTRODUCTION

Pride Solvents (EPA I.D. No. NYD 057722258) operates a chemical solvent distribution facility out of a 5,800 square foot building located on the west side of Lamar Street in West Babylon, Suffolk County. The facility is east-southeast of the Babylon Town Landfill (see Figure 1, Location Map).

Operations conducted at this facility (88 Lamar Street) are strictly limited to bulk storage and distribution, drum storage and distribution, and drum packaging of virgin organic solvents for distribution. There are no processing or manufacturing operations conducted. The materials handled are limited to three basic categories: nonflammable, flammable and combustible organic solvents.

Pride Solvents' operations also include the reclamation of chlorinated and fluorinated solvents by distillation in an adjacent facility located at 78 Lamar Street. The facility affords approximately 7,700 square feet of available floor space and is designed to receive waste chlorinated and fluorinated solvents in

Rev 12/97

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1.3 - INTRODUCTION

Pride Solvents (EPA I.D. No. NYD 057722258) operates a chemical solvent distribution facility out of a 5,800 square foot building located on the west side of Lamar St. in West Babylon, Suffolk County. The facility is east-southeast of the Babylon Town Landfill (see Figure 1, Location Map).

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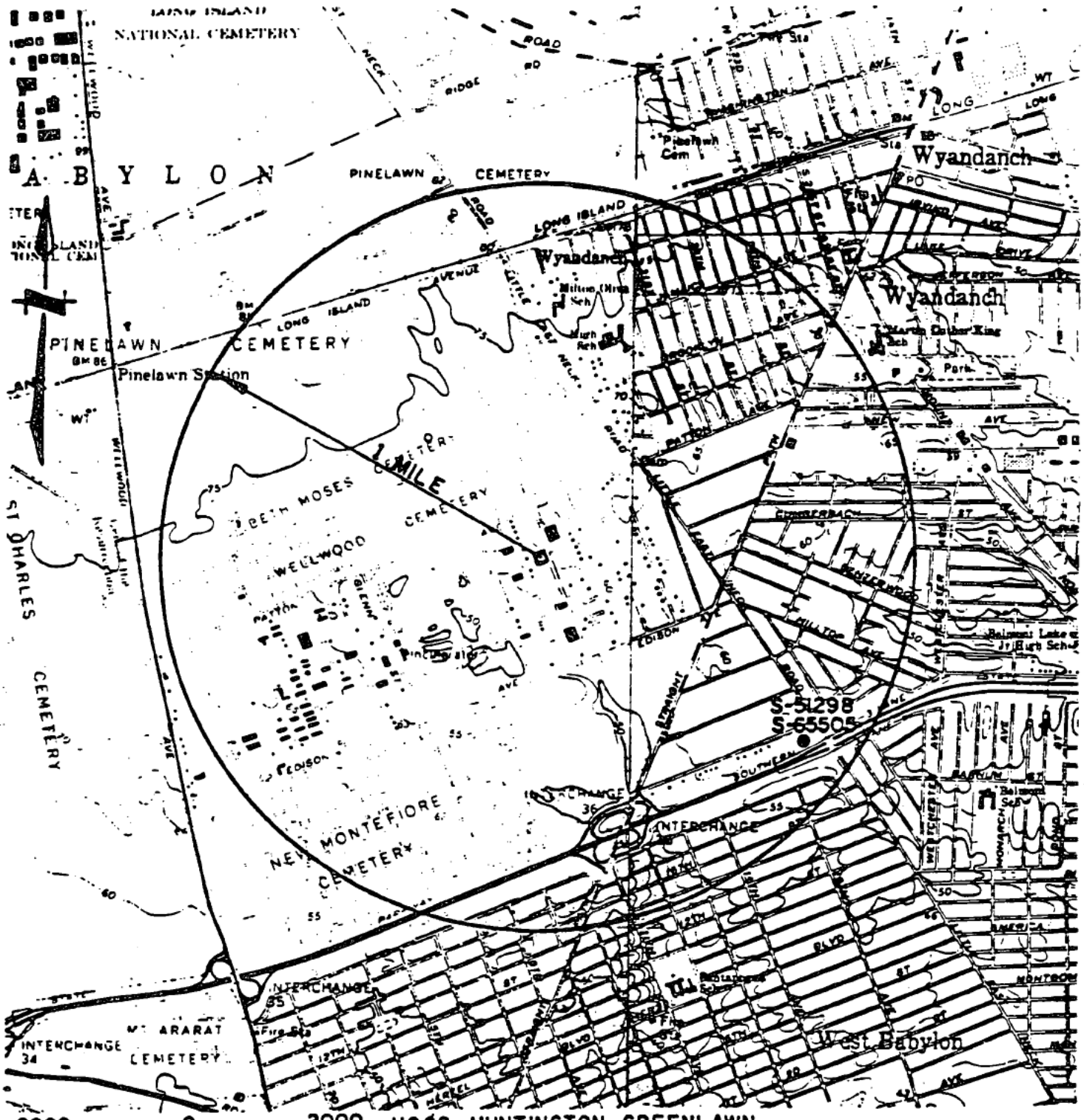

2000 0 2000

SCALE: 1" = 2000'

USGS-HUNTINGTON, GREENLAWN, AMITYVILLE & BAY SHORE WEST QUADRANGLES 7.5 MIN. SERIES

LOCATION MAP

SHOWING PUBLIC WATER

PRIDE SOLVENTS & CHEMICAL CO., INC.

WEST BABYLON, SUFFOLK CO., NEW YORK

EPA I.D. NO. NYD 057722258

55-gallon drums, store the waste solvents in an indoor containment area and reclaim the solvents by distillation.

1.4 - CURRENT OPERATIONS

Pride Solvents distributes combustible, flammable and non-flammable organic solvents. Table I lists the current organic solvents distributed, as well as the type and capacity of each storage vessel utilized.

Normal drum inventories are presented in Table II. Non-flammable and non-combustible drummed materials are stored indoors at 88 Lamar St. This is limited primarily to chlorinated solvents and freons. Flammable and combustible drummed materials are stored outdoors.

Drawing No. PRID 84-01-2, Facility Site Plan, identifies all indoor and outdoor bulk storage tanks, referencing the tank identification numbers listed in Table I.

1.5 - PRODUCT RECLAMATION

As previously mentioned, Pride Solvents' operations include the reclamation of waste solvents by a distillation process at 78 Lamar St. The facility has undergrone extensive modifications in accordance with construction plans submitted to and approved by the Suffolk County Department of Health Services (SCDHS) to ensure overall compliance with Article XII (Suffolk County Job No. HM 8220, Approval dated March 25, 1982). The finished facility was inspected by SCDHS and approved for operation on April 21, 1982.

The facility is equipped to receive and store waste chlorinated and fluorinated solvents, then reclaim the material by a

TABLE I

BULK MATERIAL STORAGE

PRIDE SOLVENTS & CHEMICAL CO., INC.

TANK NO.	PRODUCT	STORAGE GALLONS
011	TRICHLOROETHYLENE	5000
012	METHYLENE CHLORIDE	5000
013	ALBATROSS SP III BLEND	5000
014	virgin PERCHLOROETHYLENE	5000
015	ALBATROSS 211-B	5000
016	1,1,1 TRICHLOROETHANE	5000
017	RECLAIMED METHYLENE CHLORIDE	5000
018	RECLAIMED TRICHLOROETHYLENE	5000
019	PERCHLOROETHYLENE SVG	2000
020	NOT IN SERVICE	2000
021	NOT IN SERVICE	2000
022	DOWANOL TPM	5500

*** NOTE***

ALL TANK ARE ABOVE GROUND

Rev 12/97

June 11, 1996

TABLE I

BULK MATERIAL STORAGE

PRIDE SOLVENTS & CHEMICAL CO., INC.

TANK NO.	PRODUCT	STORAGE GALLONS
011 TCE	CYCLOTHANE	5000
012 mc	ALBATROSS SP III	5000
013 ✓	CYREL	5000
014 ✓	virgin RECLAIMED PERCHLOROETHYLENE	5000
015 ✓	ALBATROSS 211-B	5000
016 ✓	1,1,1 TRICHLOROETHANE	5000
017 mc recl	1,1,1 TRICHLOROETHANE	5000
018 ✓	RECLAIMED TRICHLOROETHYLENE	5000
019 ✓	PERCHLOROETHYLENE SVG	2000
020 ✓	NOT IN SERVICE	2000
021 ✓	NOT IN SERVICE	2000
022 ✓	DOWANOL TPM	5500

*** NOTE***

ALL TANK ARE ABOVE GROUND

TABLE I

BULK MATERIAL STORAGE

PRIDE SOLVENTS & CHEMICAL CO., INC.

TANK NO.	PRODUCT	STORAGE GALLONS
1	XYLOL (dimethylbenzene) (a)	3000 (1)
2	VM&P (naptha) (A)	3000 (1)
3	LAKTANE (mixture C_7-C_8) (A)	3000 (1)
4	VARSOL #3 (stoddard solvent) (C)	3000 (1)
5	METHANOL (methyl alcohol) (A)	3000 (1)
6	TECSOL 190 (ethanol) (A)	3000 (1)
7	LOPS (aliphatic solvent) (C)	3000 (1)
8	DIESEL FUEL (C)	3000 (1)
9	GASOLINE (A)	3000 (1)
10	LOPS (aliphatic solvent (C)	5000 (1)
11	TOLUOL (methyl benzene) (A)	6000 (1)
12	ACETONE (dimethyl ketone) (A)	6000 (1)
13	150 ALCOHOL (isopropyl alcohol) (A)	6000 (1)
14	MEK (methyl ethyl ketone) (A)	6000 (1)
15	VARSOL #18 (stoddard solvent) (C)	6000 (1)
16	VARSOL #1 (stoddard solvent) (C)	6000 (1)
17	CHLORO-NU (1,1,1-trichloroethane) (B)	5000 (2)
18	METHYLENE CHLORIDE (B)	5000 (2)
19	PERCHLOROETHYLENE (tetrachloroethylene) (B)	5000 (2)
20	TRICHLOROETHYLENE (B)	5000 (2)
21	CHLORO-VG (1,1,1-trichloroethane) (B)	5000 (2)

TABLE I (CONT'D.)

TANK NO.	PRODUCT	STORAGE GALLONS
22	CHLORO-VG (1,1,1-trichloroethane) (B)	5000 (2)
23	PERCHLOROETHYLENE (tetrachloroethylene) (B)	5000 (2)
24	DOW EB (butyl cellosolve) (C)	5000 (2)
25	FREON (fluorinated solvent) (B)	5500 (2)

NOTES:

(1) Outside storage, below grade

(2) Inside storage, above grade

(A) flammable

(B) non-flammable

(C) combustible

TABLE II

DRUM STORAGE

PRIDE SOLVENTS & CHEMICAL CO., INC.

CHEMICAL	DRUMS ON HAND
ACETONE	1
1,1,1 TRICHLOROETHANE	10
ISOPROPYL ALCOHOL	1
RECLAIMED METHYLENE CHLORIDE	2
RECLAIMED 141B	3
METHANOL	1
RECLAIMED PERCHLOROETHYLENE	3

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TABLE II

DRUM STORAGE

PRIDE SOLVENTS & CHEMICAL CO., INC.

CHEMICAL	DRUMS ON HAND
ACETONE	1
1,1,1 TRICHLOROETHANE	10
ISOPROPYL ALCOHOL	1
RECLAIMED FREON TMS	6
RECLAIMED METHYLENE CHLORIDE	2
FREON MCA	5
FREON TMS	5
RECLAIMED 141B	6

TABLE II

DRUM STORAGE

PRIDE SOLVENTS & CHEMICAL CO., INC.

CHEMICAL	DRUMS ON HAND
Acetone	11
1,1,1-Trichloroethane	95
Anti-freeze	17
Aromatic 150	4
NButyl Acetate	3
Sec. Butyl Alcohol	3
Carbon Tetrachloride	2
Diacetone Alcohol	15
Dibutyl Phthalate	3
Diethanolamine	2
Diethylene Glycol	9
Diethylene Triamine	2
Diisopropanolamine	1
DioctylyPhthalate	3
Dipropylene Glycol	4
Dowanol DE	4
Dowanol EB	9
Dowanol EE	3
Dowanol EM	2
EE Acetate	1
Ethyl Acetate 99	3

TABLE II (CONT'D.)

CHEMICAL	DRUMS ON HAND
Ethylene Dichloride	1
Ethylene Glycol	18
Freons: TF	80
TES	2
TMC	40
TMS	50
TA	2
TDF	3
TP35	1
MF	1
TWD602	3
TE	2
Glycerine	8
HAN	4
Heptone	2
Isobutyl Acetate	1
Isobutyl Alcohol	1
Isopropanol	10
TXIB	1
Lacquer Thinner	4
Methanol	4
Methylene Chloride	10

TABLE II (CONT'D.)

CHEMICAL	DRUMS ON HAND
MEK	7
Mineral Spirits	13
Monochlorobenzene	1
Morpholine	2
N. Propyl Acetate	4
N. Propyl Alcohol	3
Perchloroethylene	16
Polyethylene Glycol	6
Propylene Glycol	20
Rubber Solvent	1
Shell Solv 71	16
Styrene Monomer	7
Ethyl Alcohol	20
Texanol	3
Shell Sol B	6
Toluene	6
Trichloroethylene	16
Tripropylene Glycol	6
Vinyl Toluene	2
VMP	1
Xylol	10

distillation process. Waste materials are received exclusively in 55-gallon drums, and stored indoors within a bermed epoxy-coated containment area. Drums are stacked two (2) high atop wooden pallets. The containment area for drum storage and waste solvent reclamation affords a total of approximately 3,800 square feet of available floor space.

The distillation unit is Detrex solvent still, Model No. S400. The solvents from 55 gallon drums are directly transferred to the settling tank and from there to the distillation unit. Waste solvent is heated to its boiling point; thereby vaporizing the solvent, freeing it from the contaminated portion. Solvent vapors then pass over condensers, and the collected clean solvent distillate flows from the condensate pan to a water cooled water separator.

Heat to the distillation unit is provided in the form of steam by a 20 HP Fulton boiler. Cooling water to the condensers and water separator is supplied by a closed loop non-contact cooling water system.

Distillate from the water separator is pumped through a Detrex drying system. The system consists of a series of ion exchange columns designed to remove residual water from the distilled solvent. From the drying system, the reclaimed solvent is directed to one of three finished product (distillate) storage tanks.

Table III, Distillation Process Equipment, presents the design capacities of each tank and process unit in the distillation

Revised by NYSDEC to delete references to feed tanks closed by the permittee (reference: permittee's letter dated March 28, 1988)

TABLE III

DISTILLATION PROCESS EQUIPMENT

PRIDE SOLVENTS & CHEMICAL CO., INC.

TANK	PROCESS EQUIPMENT	CAPACITY IN GALLONS
A	Settling Tank	650
B	Distillation Unit	75/150 gallons/hr.
C	Drying Column System	150 gallons/hr.
D	Distillate Storage Tank-1	2000
E	Distillate Storage Tank-2	500
F	Distillate Storage Tank-3	275
G	Cooling Water Reservoir	250

operation. Every tank in the distillation process is equipped with high level sensors with audible alarms, as well as sight gauges for visual inspection to prevent the possibility of over-filling.

As in the drum storage area, the distillation process area is located within an epoxy coated bermed (8-inch) containment area.

1.6 - SPILL CONTAINMENT PROVISIONS

All 55-gallon drums containing waste solvents awaiting reclamation are stored indoors. The drum storage and reclamation areas afford a total of approximately 3,800 square feet of floor area. The perimeter of the storage and reclamation areas is surrounded by an 8-inch high concrete berm. The containment volume provided within the bermed area totals approximately 16,500 gallons. There are no floor drains. Any and all spills will be contained within the bermed area.

Concrete rampways provide access to and from the bermed containment area. All floor joints and/or cracks were sealed using "Preco-Tile" epoxy sealant. All exposed floor, berm and rampway surfaces have received one (1) coat of "Preco-Tile" epoxy sealant and one (1) coat of "Preco-Liqui-Steel".

2.0 - EMERGENCY COORDINATORS

PRIMARY EMERGENCY COORDINATOR:

ARTHUR DHOM JR.
10 SERENE COURT
DIX HILLS, NY 11746
HOME # (b) (6)
WORK # (516) 758-0200

ALTERNATE EMERGENCY COORDINATOR:

GERALD NICHOLAS
52 MAPLE DRIVE
LINDENDHURST, NY
HOME # (b) (6)
WORK # (516) 643-0041

ROBERT DHOM
9 ARON STREET
SMITHTOWN, NY 11787
HOME # (b) (6)
WORK # (516) 758-0200

WASTE CLEAN UP CONTRACTOR:

TYREE BROS.ENVIRONMENTAL
208 ROUTE 109
FARMINGDALE, NY 11735
PHONE # (b) (6)

One of the above named Emergency Coordinators will be on-site at all times during Pride Solvents' normal operating hours. All can be reached by telephone in case of an emergency during off working hours. In the event of an emergency, the Primary Emergency Coordinator should be contacted immediately. If the Primary Emergency Coordinator is not available, one (1) of the Alternate Emergency Coordinators should be contacted.

The Emergency Coordinators are authorized to instruct other plant personnel in their assistance in the event of an emergency.

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HOME # (b) (6)
WORK # (516) 758-0200

WASTE CLEAN UP CONTRACTOR:

TYREE BROS.ENVIRONMENTAL
208 ROUTE 109
FARMINGDALE, NY 11735

PHONE # (516) 249-3150

One of the above named Emergency Coordinators will be on-site at all times during Pride Solvents' normal operating hours. All can be reached by telephone in case of an emergency during off working hours. In the event of an emergency, the Primary Emergency Coordinator should be contacted immediately. If the Primary Emergency Coordinator is not available, one (1) of the Alternate Emergency Coordinators should be contacted.

The Emergency Coordinators are authorized to instruct other plant personnel in their assistance in the event of an emergency.

2.0 - EMERGENCY COORDINATORS

Primary Emergency Coordinator:	Arthur Dhom 10 Serene Ct. Dix Hills, NY 11731 Home: (b) (6) [redacted] Work: (516) 643-4800
Alternate Emergency Coordinators:	Bruce Brehm 1415 Grundy Ave. Holbrook, NY 11741 Home: (b) (6) (b) (6) [redacted] Work: (516) 643-4800
	John Keogh 127 Front St. Brentwood, NY 11717 Home: (b) (6) [redacted] Work: (516) 643-4800
Waste Cleanup Contractor:	Marine Pollution Control, Inc. 375 Dunton Ave. East Patchogue, NY 11772 (516) 654-4900

One of the above-named Emergency Coordinators will be on-site at all times during Pride Solvents' normal operating hours. All can be reached by telephone in case of an emergency during off working hours. In the event of an emergency, the Primary Emergency Coordinator should be contacted immediately. If the Primary Emergency Coordinator is not available, one of the Alternate Emergency Coordinators should be contacted.

The Emergency Coordinators are authorized to instruct other plant personnel in their assistance in the event of an emergency.

All are authorized to commit the resources necessary to implement the Contingency Plan.

Each Emergency Coordinator is thoroughly familiar with all aspects of Pride Solvents' Contingency Plan, operations and facility layout, as well as the locations and use of all safety and emergency response equipment. It will be the responsibility of the Emergency Coordinator to identify any and all imminent and actual emergency conditions, assess the situation and initiate the implementation of all or a portion of the Contingency Plan.

The Emergency Coordinator will also be responsible for all post-emergency actions including, but not limited to, post-emergency cleanup and submission of a written report on the incident to the regulatory agencies.

3.0 - IMPLEMENTATION OF THE CONTINGENCY PLAN

The provisions of this Contingency Plan shall be implemented whenever an incident (i.e., spill, fire or explosion) might present a hazard to human health or the environment. The Emergency Coordinator will have full responsibility for assessing each incident and making that determination.

Depending upon the degree of seriousness, the following potential situations may call for the implementation of the Contingency Plan:

1. The release of hazardous wastes from trucks during waste transfer operations.

2. The release of hazardous waste materials from any portable container in the waste storage area.
3. The release of hazardous waste from the waste reclamation system.
4. Any fire or explosion.
5. The release of dangerous fumes as a result of a fire or explosion.

The seriousness of any spill, leak or unplanned sudden or non-sudden release of hazardous materials (spent and reclaimed solvents) from drums or tanks within the 78 Lamar St. reclamation facility will be minimized due to the secondary spill containment provisions incorporated into the facility's design.

4.0 - EMERGENCY RESPONSE PROCEDURES

4.1 - NOTIFICATION

Any plant personnel discovering an imminent or actual emergency that is not readily controllable with equipment at hand, must immediately notify other plant personnel using the paging system and summon the Emergency Coordinator. If the emergency situation involves a fire or explosion, the employee discovering the emergency must immediately notify the Fire Department.

The Emergency Coordinator, upon being notified of an emergency condition, must assess the situation and notify the appropriate parties, identified in Section 6.0 of this plan. In the case of a fire or explosion, he will order the facility immediately evacuated, if this has not already been done. Once the

facility is evacuated, the Emergency Coordinator shall conduct a roll call of all plant personnel to determine whether any employee may be missing (see Section 7.0).

In a fire or explosion emergency, the Emergency Coordinator must notify:

1. East Farmingdale Fire Dept. - (516) 249-0047
2. Suffolk County Fire Safety Dept. - (516) 924-5252
3. Suffolk County Dept. of Health Services - (516) 451-4634
4. New York State Dept. of Environmental Conservation - (516) 751-7900, (518) 457-7362

In a non-fire emergency (hazardous waste release), the Emergency Coordinator must notify:

1. Suffolk County Police Dept. - 911
2. Suffolk County Fire Dept - (516) 924-5252
3. Suffolk County Dept. of Health Services - (516) 451-4634
4. New York State Dept. of Environmental Conservation - (516) 751-7900, (518) 457-7362

In notifying the appropriate authorities, the Emergency Coordinator should provide the following information:

1. Name, location, address and telephone number of where he is calling from.
2. Name, location and address of emergency incident.
3. Nature of emergency.
4. Materials involved.
5. Source of leak, spill, fire or explosion.
6. Areal extent of release.
7. Amount of waste involved.
8. Expected number of casualties (if applicable).

4.2 - CONTAINMENT AND CONTROL

The Emergency Coordinator, with the assistance of any emergency personnel responding to the incident, will take all necessary measures to contain and prevent the spread of any hazardous condition. In case of a leak or spill, absorbent material will be placed on and around the spill, and the contents of the leaking drum(s) or tank(s) transferred to secure containers.

In the case of a fire or explosion, dry chemical or alcohol-type foam should be used (all the chemicals handled at Pride Solvents are organic solvents and water spray may be ineffective). Respiratory protection should be provided for all fire fighting personnel.

4.3 - FIRE OR EXPLOSION

In case of fire, hand-held fire extinguishers should be used to control and contain the incident. Portable fire extinguishers are located throughout the facility, as shown on Drawing No. PRID 84-01-2, Facility Site Plan.

In case of a major fire or explosion, the Emergency Coordinator shall order the facility evacuated. The Emergency Coordinator shall be responsible for notifying fire fighting personnel as to the source of the fire and/or explosion and the locations and nature of all hazardous materials in the general vicinity.

Fire fighting personnel responding to an emergency should utilize dry chemical or foam type extinguishing equipment. Respiratory protection should be provided for all fire fighting personnel.

Specific actions to be taken by plant personnel are as follows:

1. Activities in all areas of the facility shall be shut down. (An emergency shut-off switch for the distillation unit is located at the entrance to the reclamation area).
2. Fire doors shall be closed to prevent the fire from spreading.
3. The affected area will be cleared of all non-fire fighting personnel.
4. Non-fire fighting personnel shall report to the designated muster point.
5. Fire fighting plant personnel shall attempt to contain the incident with fire extinguishers until the East Farmingdale Fire Department arrives.

4.4 - SPILLS OR RELEASES

Upon discovering a spill, leak or other release of hazardous material, plant personnel shall immediately contact the Emergency Coordinator. The Emergency Coordinator shall determine the following:

1. Source of the release.
2. Materials involved.
3. Estimated volume of release.
4. Direction in which release is headed.
5. Injuries involved.
6. Fire or explosion potential.

Based upon the above information, the Emergency Coordinator shall assess the overall hazards to personnel safety and the environment. Personnel safety shall be given first priority.

In the event of a minor spill or leak in the drum storage area, the following action shall be taken:

1. The release shall be contained by placing absorbent material on and around the perimeter of the spill.
2. Materials from the leaking container(s) shall be transferred to secure drum(s).
3. Depending upon the volume of material released, the spill shall be removed from the containment floor using either a portable pump or absorbent material, and placed in a secure drum.

In the event of major spill or release in the drum storage area or reclamation area, the following actions shall be taken:

1. All hazardous waste activities shall be shut down (an emergency shut-off switch for the distillaton unit is located at the entrance to the reclamation area).
2. The affected area shall be cleared of all personnel except those involved in the cleanup.
3. Spilled material shall be transferred from the containment area to secure drum(s) using a portable pump.
4. Residues shall be collected using absorbent material and placed in a secure drum.

In the event of a spill or release in the loading and unloading area, the following actions shall be taken:

1. The leaking drum(s) shall be immediately transferred into the containment area inside the drum storage area of the facility.
2. Absorbent material shall be placed between the spill and the stormwater dry well.
3. Materials from the leaking drum(s) shall be transferred to a secure drum(s).
4. If the spill entered the dry well, Marine Pollution Control shall be contacted to immediately pump and clean the dry well.

4.5 - POST-EMERGENCY ACTIONS

Following an emergency condition, the Emergency Coordinator will be responsible for overseeing all post-emergency cleanup operations. This may involve the removal of any contaminated soil, water or other materials affected by the emergency.

Minor cleanups following a spill or other release will be handled by Pride Solvents' personnel. Major cleanups involving the removal of contaminated soil and/or contaminated runoff will be handled by Marine Pollution Control, Inc. Marine Pollution Control is equipped to excavate soils and pump and clean contaminated stormwater dry wells.

If a spill incident involves a single product, the material recovered during the subsequent cleanup will be held for reclamation at Pride Solvents. All other materials recovered from a cleanup will be disposed of off-site at a licensed TSDF. With

the exception of materials pumped from stormwater dry wells, all contaminated materials resulting from a cleanup will be placed in secure drums for off-site disposal. Materials pumped from dry wells will be shipped off-site in bulk tanker trucks. Drummed materials may be stored temporarily in Pride Solvents' drum storage area before shipment off-site.

The Emergency Coordinator will also be responsible for ensuring that all emergency equipment is restored to full operating condition before operations in the affected area are allowed to resume. He will investigate the cause of the emergency and take the necessary action to prevent its recurrence. This may include amendments to the Contingency Plan.

All follow-up reports regarding the emergency condition will be prepared and submitted to the appropriate authorities, as outlined in Section 8.0 of this plan.

5.0 EMERGENCY EQUIPMENT

A list of the various emergency response equipment together with location and function/capacity of the equipment is presented in Table IV, Emergency Equipment.

5.1 COMMUNICATION SYSTEMS

There are telephones located at 78 and 88 Lamar Street with separate lines in the event emergency personnel need to be contacted (fire, police). Combination two way radios / telephones are carried by all plant personnel and have the capacity to communicate individually, to a group, or to emergency response personnel. (fire, police)

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the exception of materials pumped from stormwater dry wells, all contaminated materials resulting from a cleanup will be placed in secure drums for off-site disposal. Materials pumped from dry wells will be shipped off-site in bulk tanker trucks. Drummed materials may be stored temporarily in Pride Solvents' drum storage area before shipment off-site.

The Emergency Coordinator will also be responsible for ensuring that all emergency equipment is restored to full operating condition before operations in the affected area are allowed to resume. He will investigate the cause of the emergency and take the necessary action to prevent its recurrence. This may include amendments to the Contingency Plan.

All follow-up reports regarding the emergency condition will be prepared and submitted to the appropriate authorities, as outlined in Section 8.0 of this plan.

5.0 - EMERGENCY EQUIPMENT

A list of the various emergency response equipment together with location and function/capacity of the equipment is presented in Table IV, Emergency Equipment.

5.1 - COMMUNICATION SYSTEMS

Paging telephones, to be used for internal warning, are located throughout the facility. Paging horns are located both inside and outside the facility. Hand-held two-way radios are also available. The paging telephones are capable of warning personnel inside and outside the facility and calling outside emergency personnel (fire, police).

TABLE IV

EMERGENCY EQUIPMENT

PRIDE SOLVENTS & CHEMCIAL CO.

ITEMS	# OF UNITS	LOCATIONS	FUNCTION/CAPABILITY
TELEPHONES	2	OFFICE 88 LAMAR ST. LABORATORY 78 LAMAR ST.	OUTSIDE LINES
5 LB. DRY CHEMICAL FIRE EXTINGUISHER	3	THROUGH OUT PLANT - SEE SITE PLAN	CLASS A,B,C FIRE CONTROL - PORTABLE
10LB. DRY CHEMICAL FIRE EXTINGUISHER	8	THROUGH OUT PLANT - SEE SITE PLAN	CLASS A,B,C FIRE CONTROL - PORTABLE
15LB. DRY CHEMICAL FIRE EXTINGUISHER	2	THROUGH OUT PLANT - SEE SITE PLAN	CLASS A,B,C FIRE CONTROL - PORTABLE
150 LB. PORTABLE DRY CHEMICAL FIRE EXTINGUISHER	1	88 LAMAR STREET BLENDING DISTRIBUTION AREA	CLASS A,B,C FIRE CONTROL - PORTABLE
30 LB. ANSOL DRY CHEMICAL SYSTEM	1	88 LAMAR STREET BACK BLENDING AREA	CLASS A,B,C AUTOMATIC FIRE CONTROL- STATIONARY
FIRE HYDRANT	1	LAMAR STREET	CLASS A FIRE CONTROL
FIRE BLANKETS	2	78 LAMAR STREET DRUM STORAGE 88 LAMAR STREET BACK AREA	CLASS A FIRE CONTROL
FIRST AID KIT	1	88 LAMAR STREET - OFFICE	MINOR CUTS & BURNS FIRST AID, OXYGEN TANK & MASK
SAFETY SHOWERS	3	78 LAMAR ST.-RECLAMTION AREA 88 LAMAR ST.-SOUTH SIDE 88 LAMAR ST.-NORTH SIDE	WATER FLUSHING FOR CHEMICAL EXPOSURE OR CLOTHING FIRE
EYE WASH STATION	1	88 LAMAR ST.-BACK AREA	WATER FLUSHING FOR CHEMICAL EXPOSURE
SAFETY GOGGLES, HARD HATS & PROTECTIVE CLOTHING	1 SET / EMPLOYEE	88 LAMAR ST.-LOCKER AREA	PERSONNEL PROTECTION FROM CHEMICAL EXPOSURE
RESPIRATOR MASKS	1 SET / EMPLOYEE	88 LAMAR ST.-LOCKER AREA	RESPIRATOR PROTECTION
ABSORBENT MATERIAL	24-40 LB. BAGS	78 LAMAR ST.-DRUM STORAGE AREA 88 LAMAR ST.-BACK AREA	SPILL CONTROL
PORTABLE PUMP	1	78 LAMAR ST.-RECLAMATION AREA	SPILL COLLECTION TRANSFER
EMPTY DRUMS	50	78 LAMAR ST.-DRUM STORAGE AREA 88 LAMAR ST.-BACK AREA	SPILL COLLECTION
TWO-WAY RADIOS / PORTABLE TELEPHONES	2	CARRIED BY ALL PLANT PERSONNEL	INTERNAL & EXTERNAL COMMUNICATION

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TABLE IV

EMERGENCY EQUIPMENT

PRIDE SOLVENTS & CHEMCIAL CO.

ITEMS	# OF UNITS	LOCATIONS	FUNCTION/CAPABILITY
TELEPHONES	2	OFFICE 88 LAMAR ST. LABORATORY 78 LAMAR ST.	OUTSIDE LINES
5 LB. DRY CHEMICAL FIRE EXTINGUISHER	3	THROUGH OUT PLANT - SEE SITE PLAN	CLASS A,B,C FIRE CONTROL - PORTABLE
10LB. DRY CHEMICAL FIRE EXTINGUISHER	8	THROUGH OUT PLANT - SEE SITE PLAN	CLASS A,B,C FIRE CONTROL - PORTABLE
15LB. DRY CHEMICAL FIRE EXTINGUISHER	2	THROUGH OUT PLANT - SEE SITE PLAN	CLASS A,B,C FIRE CONTROL - PORTABLE
150 LB. PORTABLE DRY CHEMICAL FIRE EXTINGUISHER	1	88 LAMAR STREET BLENDING DISTRIBUTION AREA	CLASS A,B,C FIRE CONTROL - PORTABLE
30 LB. ANSOL DRY CHEMICAL SYSTEM	1	88 LAMAR STREET BACK BLENDING AREA	CLASS A,B,C AUTOMATIC FIRE CONTROL- STATIONARY
FIRE HYDRANT	1	LAMAR STREET	CLASS A FIRE CONTROL
FIRE BLANKETS	2	78 LAMAR STREET DRUM STORAGE 88 LAMAR STREET BACK AREA	CLASS A FIRE CONTROL
FIRST AID KIT	1	88 LAMAR STREET - OFFICE	MINOR CUTS & BURNS FIRST AID, OXYGEN TANK & MASK
SAFETY SHOWERS	3	78 LAMAR ST.-RECLAMTION AREA 88 LAMAR ST.-SOUTH SIDE 88 LAMAR ST.-NORTH SIDE	WATER FLUSHING FOR CHEMICAL EXPOSURE OR CLOTHING FIRE
EYE WASH STATION	1	88 LAMAR ST.-BACK AREA	WATER FLUSHING FOR CHEMICAL EXPOSURE
SAFETY GOGGLES, HARD HATS & PROTECTIVE CLOTHING	1 SET / EMPLOYEE	88 LAMAR ST.-LOCKER AREA	PERSONNEL PROTECTION FROM CHEMICAL EXPOSURE
RESPIRATOR MASKS	1 SET / EMPLOYEE	88 LAMAR ST.-LOCKER AREA	RESPIRATOR PROTECTION
ABSORBENT MATERIAL	24-40 LB. BAGS	78 LAMAR ST.-DRUM STORAGE AREA 88 LAMAR ST.-BACK AREA	SPILL CONTROL
PORTABLE PUMP	1	78 LAMAR ST.-RECLAMATION AREA	SPILL COLLECTION TRANSFER
EMPTY DRUMS	50	78 LAMAR ST.-DRUM STORAGE AREA 88 LAMAR ST.-BACK AREA	SPILL COLLECTION

TABLE IV

EMERGENCY EQUIPMENT

PRIDE SOLVENTS & CHEMICAL CO., INC.

ITEM	NO. OF UNITS	LOCATION	FUNCTION/CAPABILITY
Telephones	13	Throughout Plant See Site Plan	-Plant Paging/Warning -Outside Lines
Paging Horns	5	Throughout Plant See Site Plan	-Plant Paging/Warning
Two-Way Radios	1 Set	88 Lamar St. Office	-Two Way Contact
5 lb. Dry Chemical Fire Extinguishers	3	Throughout Plant See Site Plan	-Class A,B,C Fire Control - Portable
10 lb. Dry Chemical Fire Extinguishers	8	Throughout Plant See Site Plan	-Class A,B,C Fire Control - Portable
15 lb. Dry Chemical Fire Extinguishers	2	Throughout Plant See Site Plan	-Class A,B,C Fire Control - Portable
150 lb. Portable Dry Chemical Fire Extinguishers	1	88 Lamar St. Blending & Distribution Area	-Class A,B,C Fire Control - Portable
30 lb. Ansol Dry Chemical System	1	88 Lamar St. Back Blending Area	-Class A,B,C Automatic Fire Control - Stationary
Fire Hydrant	1	Lamar St.	-Class A Fire Control
Fire Blankets	2	78 Lamar St. - Drum Storage 88 Lamar St. - Back Area	-Class A Fire Control
First Aid Kit	1	88 Lamar St. - Office	-Minor Cuts & Burns First Aid, Oxygen Tank & Mask

TABLE IV (CONT'D.)

ITEM	NO. OF UNITS	LOCATION	FUNCTION/CAPABILITY
Safety Showers	3	78 Lamar St. - Reclamation Area 88 Lamar St. - South Side 88 Lamar St. - North Side	-Water Flushing for Chemical Exposure or Clothing Fire
Eye Wash Station	1	88 Lamar St. - Back Area	-Water Flushing for Chemical Exposure
Safety Goggles, Hard Hats & Protective Clothing	1 Set/ Employee	88 Lamar St. - Locker Area	-Personnel Protection from Chemical Exposure
Respirator Masks	1/ Employee	88 Lamar St. - Locker Area	-Respiratory Protection
Absorbent Material	24-40 lb. Bags	78 Lamar St. - Drum Storage Area 88 Lamar St. - Back Area	-Spill Control
Portable Pump	1	78 Lamar St. - Reclamation Area	-Spill Collection/ Transfer
Empty Drums	50	78 Lamar St. - Drum Storage Area 88 Lamar St. - Back Area	-Spill Collection

5.2 - FIRE CONTROL

Five, 10 and 15 pound wall-mounted ABC dry chemical fire extinguishers are located throughout the Pride Solvents' facility for fire control. In addition, a 150 pound portable wheel-type dry chemical fire extinguisher is located in the drum storage and packaging area at the 88 Lamar St. facility. The bulk chemical transfer station is equipped with an automatic 30 pound Ansol dry chemical extinguishing system, activated by thermal detection sensors. All fire extinguishers are designed to control Class A (paper, wood, cloth), Class B (gasoline, oil) and Class C (electrical) fires. There is a fire hydrant at the foot of Pride Solvents' driveway on Lamar St. See Drawing No. PRID 84-01-2, Facility Site Plan, for location of fire control equipment. Neither of the two plant buildings at Pride Solvents are equipped with sprinkler systems. All of the chemicals handled by Pride Solvents are organic solvents and water may be ineffective in fire fighting.

5.3 - PERSONNEL PROTECTION

Safety goggles, hard hats, protective gloves and respirators are maintained in the locker area inside the 88 Lamar Street facility. A first aid kit is located outside of the office area in the 88 Lamar St. facility. The kit is equipped to handle minor cuts and burns. An oxygen tank and mask are also located at the first aid station. Emergency wash showers are located on the northwest and south side of the 88 Lamar St. facility and in the reclamation area of the 78 Lamar St. facility.

5.4 - SPILL CONTROL

Each facility is stocked with an ample supply of absorbent material (Speedydri) to contain any spills or leaks. For major spills, a portable pump is available in the reclamation area to remove material from within the spill containment area. Empty 55-gallon drum containers are maintained in both the 78 and 88 Lamar Street facilities.

6.0 - COORDINATION AGREEMENTS

6.1 - NEW YORK STATE DEPT. OF ENVIRONMENTAL CONSERVATION (NYSDEC)

NYSDEC Region I (516-751-7900) has received a copy of this Contingency Plan. In case of an emergency condition, Region I should be contacted. Representatives of the NYSDEC shall assist Pride Solvents in assessing any remedial action necessary as the result of a release. If necessary, the Albany office of the NYSDEC can be contacted at (518) 457-7362.

6.2 - SUFFOLK COUNTY DEPT. OF HEALTH SERVICES (SCDHS)

SCDHS (516-451-4634) has received a copy of this Contingency Plan. They have reviewed and approved construction plans for upgrading Pride Solvents' facility to Article XII standards and are familiar with the operations. In case of a spill or other emergency condition, James Pim, Hazardous Materials Management Section, should be notified. After hours - (516) 360-5555.

6.3 - SUFFOLK COUNTY FIRE SAFETY DEPT. (SCFSD)

SCFSD (516-924-5252) has received a copy of this Contingency Plan. Upon notification of any problem at the above site SCFSD

will be responsible for notifying area hospitals, if necessary, and will notify the Town of Babylon Dept. of Fire Prevention who will work with SCFSD and the Emergency Coordinator. SCFSD will also be responsible for the coordination of local fire departments and ambulance companies with Pride Solvents' Emergency Coordinator.

6.4 - SUFFOLK COUNTY POLICE DEPT. (SCPD)

Officer Dominick Parrella, SCPD (516-286-5236), Planning and Research Center, has received a copy of this Contingency Plan. In an emergency condition, the SCPD should be contacted by calling 911.

6.5 - TOWN OF BABYLON

A copy of this Contingency Plan was forwarded to Mr. Gilbert Hanse, Jr., Fire Safety Director, Town of Babylon.

6.6 - EAST FARMINGDALE FIRE DEPT. (EFFD)

Although located in West Babylon, the EFFD (516-249-0047) would respond to any fire or rescue emergency and has received a copy of this Contingency Plan.

6.7 - BRUNSWICK HOSPITAL CENTER

Brunswick Hospital Center (516-789-7000) has received a copy of this Contingency Plan and will incorporate it into their own disaster response plan.

7.0 - EVACUATION PLAN

Personnel at Pride Solvents will be evacuated in case of a fire, explosion or other emergency condition which the Emergency

Coordinator deems as a danger to their personnel safety. If evacuation is necessary, plant personnel will be notified over the paging system.

Primary and alternative emergency routes for the various work areas are as follows:

78 LAMAR STREET:

RECLAMATION AREA	PRIMARY - Exit through loading door on the north side of the building via the drum storage area. ALTERNATE - Emergency exit on south side of reclamation area.
DRUM STORAGE AREA	PRIMARY - Exit through loading door on the north side of the building. ALTERNATE - Emergency exit in lab.
OFFICE AREA	PRIMARY - Exit through front door on east side of facility. ALTERNATE - Exit through loading door on the north side of the building via the drum storage area.

88 LAMAR STREET:

FILLING & BLENDING AREA	PRIMARY - Exit through loading door on the south side of the building. ALTERNATE - Exit through office door on the southeast corner of the building.
BACK AREA	PRIMARY - Exit through back door on the west side of the building.

ALTERNATE - Exit through loading door on the south side of the building via the filling & blending area.

OFFICE AREA

PRIMARY - Exit through the office door on the southeast corner of the building.

ALTERNATE - Exit through loading door on the south side of the building via the filling & blending area.

Personnel should evacuate the facility through the nearest safe exit and proceed to the muster point in the parking area on the south side of the facility. Once at the designated muster point, the Emergency Coordinator or one of his alternates shall conduct a roll call to ensure that all personnel are accounted for and that no employees are missing. Personnel shall not attempt to move their cars, unless authorized by the Emergency Coordinator, as this may hinder the movement of emergency vehicles.

In case of a major emergency (large fire), it may be necessary to evacuate the general area. Depending upon the extent of the fire, as well as meteorological conditions, it would appear prudent to evacuate Lamar St. between Patton Ave. to the north and Edison Ave. to the south. The evacuation should also include the two streets parallel to Lamar St. (Kean St. on the west and Mahan St. on the east) also between Patton Ave. and Edison Ave. Since the general area is bounded by Pinelawn Cemetery (north of Patton Ave., as well as south of Edison Ave.), the entire wedge into Pinelawn Cemetery bounded by Wellwood Ave. on the west and

East Neck Rd. on the east, could be used for limits, if it became necessary to extend the evacuation limits. Pride Solvents' Primary Emergency Coordinator or Alternate Emergency Coordinators will be available to assist fire and health officials in making a determination as to whether or not evacuation of local areas is warranted.

8.0 - REPORTS

Following an emergency condition which required implementation of all or a portion of this Contingency Plan, the Emergency Coordinator shall submit to the regulatory agencies, a report within fifteen (15) days after the incident. The report must contain the following information:

1. Name, address, telephone number of owner/operator (Pride Solvents).
2. Name, address, telephone number of facility (Pride Solvents).
3. Location, time, date and nature of the incident.
4. Type and quantity of material(s) involved in incident.
5. Extent of injuries, if any.
6. The cause of the incident.
7. Assessment of actual or potential hazards to human health and/or environment, if applicable.
8. All actions taken by Pride Solvents and any emergency response personnel as a result of the incident.
9. A description of the cleanup efforts taken following the incident.

10. Quantity and disposition of waste material generated as a result of cleanup/remediation.

11. Any corrective measures initiated to prevent a similar occurrence.

12. Amendments to the Contingency Plan, if warranted.

The report should be forwarded to the following agencies:

1. New York State Dept. of Environmental Conservation.
2. Suffolk County Dept. of Health Services.
3. Suffolk County Dept. of Fire Safety.

APPENDIX 1

EMERGENCY TELEPHONE NUMBERS

EMERGENCY TELEPHONE NUMBERS

EMERGENCY COORDINATORS - HOME NUMBERS:

(b) (6) [redacted] [redacted]

[redacted] [redacted]

[redacted] [redacted]

SUFFOLK COUNTY POLICE DEPARTMENT -	911
EAST FARMINGDALE FIRE DEPARTMENT -	516-249-0047
SUFFOLK COUNTY FIRE SAFETY DEPARTMENT -	516-924-5252
SUFFOLK COUNTY DEPT. OF HEALTH SERVICES -	516-451-4634
AFTER HOURS-	516-360-5555
N.Y. STATE DEPT. OF ENVIRONMENTAL CONSERVATION	444-0375
REGION I STONY BROOK	516-751-7900
ALBANY	518-457-7362
BRUNSWICK HOSPITAL CENTER	516-789-7000
TYREE BROS. ENVIRONMENTAL	516-249-3150

Rev 12/97

June 11, 1996

EMERGENCY TELEPHONE NUMBERS

EMERGENCY COORDINATORS - HOME NUMBERS:

(b) (6) [redacted] [redacted]

[redacted] [redacted]

[redacted] [redacted]

SUFFOLK COUNTY POLICE DEPARTMENT -	911
EAST FARMINGDALE FIRE DEPARTMENT -	516-249-0047
SUFFOLK COUNTY FIRE SAFETY DEPARTMENT -	516-924-5252
SUFFOLK COUNTY DEPT. OF HEALTH SERVICES -	516-451-4634
AFTER HOURS-	516-360-5555

N.Y. STATE DEPT. OF ENVIRONMENTAL CONSERVATION

REGION I	STONY BROOK	516-751-7900
	ALBANY	518-457-7362

BRUNSWICH HOSPITAL CENTER	516-789-7000
TYREE BROS. ENVIRONMENTAL	516-249-3150

EMERGENCY TELEPHONE NUMBERS

Emergency Coordinators Home Telephone Numbers	Arthur Dohm	(516) 499-7582
	Bruce Brehm	(516) 981-4882
	John Keogh	(516) 453-0274
Suffolk County Police Dept.		911
East Farmingdale Fire Dept.		(516) 249-0047
Suffolk County Fire Safety Dept.		(516) 924-5252
Suffolk County Dept. of Health Services		(516) 451-4634
After Hours		(516) 360-5555
New York State Dept. of Environmental Conservation - Region I Stony Brook		(516) 751-7900
Albany		(518) 457-7362
Brunswick Hospital Center		(516) 789-7000
Marine Pollution Control		(516) 654-4900

APPENDIX 2

MATERIAL SAFETY DATA SHEETS

TANK 1

292

ADAPTED FROM USDL FORM NO LSB-005-4-MAY 1969

SHELL OIL COMPANY
SHELL CHEMICAL COMPANY
SHELL DEVELOPMENT COMPANY
SHELL PIPE LINE CORPORATION

MSDS 761-2

HAZARD RATING

3 / 2 / 0

NFPA

MATERIAL SAFETY DATA SHEET

Information on this form is furnished solely for the purpose of compliance with the Occupational Safety and Health Act of 1970 and shall not be used for any other purpose. Use or dissemination of all or any part of this information for any other purpose may result in a violation of law or can create grounds for legal action.

SECTION I

MANUFACTURER'S NAME: Shell Chemical Company	EMERGENCY TELEPHONE NO. 713-473-9461
ADDRESS (Number, Street, City, State, and ZIP Code): One Shell Plaza, P. O. Box 2463, Houston, TX 77001	
CHEMICAL NAME AND SYNONYMS: xylene, dimethyl benzene; methyl toluene, xylol	TRADE NAME: Shell Xylene
CHEMICAL FAMILY: aromatic hydrocarbon	FORMULA: $C_6H_4(CH_3)_2$

SECTION II HAZARDOUS INGREDIENTS*

COMPOSITION	%	SPECIES	LD_{50} ORAL	LD_{50} DERMAL	LC_{50} CONCENTRATION	LC_{50} HOURS
Shell Xylene*	100	Rat	>5.0 ml/kg		5,000 ppm (approx.)	4
		Rabbit		>2.0 ml/kg		

* A mixture of ortho-, meta-, and para- xylenes plus ethylbenzene

SECTION III PHYSICAL DATA

BOILING POINT (°F)	281-284	SPECIFIC GRAVITY (H_2O=1)	0.871
VAPOR PRESSURE (mmHg) 68°F (20°C)	6	PERCENT VOLATILE BY VOLUME (%)	
VAPOR DENSITY (AIR=1)	3.7	EVAPORATION RATE (=1 nBuAc=1)	0.6
SOLUBILITY IN WATER	Negligible		

APPEARANCE AND ODOR: Colorless liquid with aromatic odor.

SECTION IV FIRE AND EXPLOSION HAZARD DATA

FLASH POINT (Method used): Tag Closed Cup 81°F	FLAMMABLE LIMITS	Lel 1.0	Uel 7.0

EXTINGUISHING MEDIA: Handle as a FLAMMABLE LIQUID. Use foam, CO_2, steam, water-fog, dry chemicals

SPECIAL FIRE FIGHTING PROCEDURES: Do not use water, exclude air. Use water spray to cool exposed drums. Wear self-contained breathing apparatus. Consult local fire marshal.

UNUSUAL FIRE AND EXPLOSION HAZARDS: None

*Modified by Shell Oil Company

SECTION V HEALTH HAZARD DATA

THRESHOLD LIMIT VALUE: 150 ppm

EFFECTS OF OVEREXPOSURE: Anesthesia - headache, nausea, dizziness, etc. Liquid slightly irritating to skin and eyes.

EMERGENCY AND FIRST AID PROCEDURES: Remove victim and restore breathing if required. Remove liquid from skin with soap and water. Flush eyes with water.

SECTION VI REACTIVITY DATA

STABILITY			CONDITIONS TO AVOID
	UNSTABLE		
	STABLE	X	

INCOMPATABILITY (Materials to avoid): Not applicable.

HAZARDOUS DECOMPOSITION PRODUCTS: CO, CO_2 when combusted

HAZARDOUS POLYMERIZATION			CONDITIONS TO AVOID
	MAY OCCUR		
	WILL NOT OCCUR	X	

SECTION VII SPILL OR LEAK PROCEDURES

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED

Avoid open flame or spark sources. Provide adequate ventilation.

WASTE DISPOSAL METHOD

Evaporate or flush with water to an open, well-ventilated area. Use oil sewer if available. Remove to container.

SECTION VIII SPECIAL PROTECTION INFORMATION

RESPIRATORY PROTECTION (Specify type): Organic canister mask or air pack.

VENTILATION		
	LOCAL EXHAUST	SPECIAL
	MECHANICAL (General) With approved Class D explosion-proof motors and switches.	OTHER

PROTECTIVE GLOVES: Normally not required.

EYE PROTECTION: conventional eye cover to guard against unexpected splashing.

OTHER PROTECTIVE EQUIPMENT

SECTION IX SPECIAL PRECAUTIONS

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORING: Avoid open flames and spark sources. Avoid splash-filling. Provide adequate ventilation. Avoid excessive heat.

OTHER PRECAUTIONS

NAME: D. M. Sheets

TITLE: Supervisor-Product Development-Resins

COMPANY: Shell Chemical

SIGNATURE:

DATE: October, 1971

THE INFORMATION CONTAINED HEREIN IS BASED ON DATA CONSIDERED ACCURATE. HOWEVER, NO WARRANTY IS EXPRESSED OR IMPLIED REGARDING THE ACCURACY OF THESE DATA OR THE RESULTS TO BE OBTAINED FROM THE USE THEREOF. VENDOR ASSUMES NO RESPONSIBILITY FOR INJURY TO VENDEE OR THIRD PERSONS PROXIMATELY CAUSED BY THE MATERIAL IF REASONABLE SAFETY PROCEDURES ARE NOT ADHERED TO AS STIPULATED IN THE DATA SHEET. ADDITIONALLY, VENDOR ASSUMES NO RESPONSIBILITY FOR INJURY TO VENDEE OR THIRD PERSONS PROXIMATELY CAUSED BY ABNORMAL USE OF THE MATERIAL EVEN IF REASONABLE SAFETY PROCEDURES ARE FOLLOWED. FURTHERMORE, VENDEE ASSUMES THE RISK IN HIS USE OF THE MATERIAL.

ADAPTED FROM USDL
FORM NO. LSD-[illegible]-A-MAY 1969

HAZARD RATING 294

SHELL OIL COMPANY
SHELL CHEMICAL COMPANY
SHELL DEVELOPMENT COMPANY
SHELL PIPE LINE CORPORATION

MATERIAL SAFETY DATA SHEET

Information on this form is furnished solely for the purpose of compliance with the Occupational Safety and Health Act of 1970 and shall not be used for any other purpose. Use or dissemination of all or any part of this information for any other purpose may result in a violation of law or constitute grounds for legal action.

SECTION I

MANUFACTURER'S NAME: Shell Chemical Company	EMERGENCY TELEPHONE NO.: 713-473-9461
ADDRESS (Number, Street, City, State, and ZIP Code): One Shell Plaza, P. O. Box 2463, Houston, Texas 77001	
CHEMICAL NAME AND SYNONYMS	TRADE NAME: Shell VM&P Naphtha EC Code 83208
CHEMICAL FAMILY: Hydrocarbon	FORMULA

SECTION II HAZARDOUS INGREDIENTS*

COMPOSITION	%	SPECIES	LD_{50} ORAL	LD_{50} DERMAL	LC_{50} CONCENTRATION	LC_{50} HOURS
PIGMENTS						
CATALYST						
VEHICLE						
SOLVENTS	100	Rat	>5.0 ml/kg			
ADDITIVES						
OTHERS						
		Rabbit		>2.82 ml/kg		

SECTION III PHYSICAL DATA

BOILING POINT (°F)	245-265	SPECIFIC GRAVITY (H_2O=1) @ 60°F	0.750
VAPOR PRESSURE (mmHg) @ 100°F	30	PERCENT VOLATILE BY VOLUME (%)	
VAPOR DENSITY (AIR=1)	3.8	EVAPORATION RATE (n-BuAc =1)	1.2*
SOLUBILITY IN WATER	Negligible		
APPEARANCE AND ODOR	Light colored liquid with hydrocarbon odor.		

SECTION IV FIRE AND EXPLOSION HAZARD DATA

FLASH POINT (Method used): Tag Closed Cup = 55°F	FLAMMABLE LIMITS	Lel: 1.0	Uel: 7.0

EXTINGUISHING MEDIA
Exclude air - use foam, CO_2, steam, water-fog, dry chemicals.

SPECIAL FIRE FIGHTING PROCEDURES
Do not use water, exclude air, consult local fire marshal.

UNUSUAL FIRE AND EXPLOSION HAZARDS
Vapor forms explosive mixture with air between upper and lower explosion limits.

*Modified by Shell Oil Company

*Time (n-butyl acetate)
Time (Shell VM&P Naphtha EC)

MSDS-762

TANK 3

LAKTANE

Form Approved
Budget Bureau No. 44-R1287
Approval Expires April 30, 1971

U.S. DEPARTMENT OF LABOR

Supersedes issue of 7/5/72

WAGE AND LABOR STANDARDS ADMINISTRATION
Bureau of Labor Standards

MATERIAL SAFETY DATA SHEET

SECTION I

MANUFACTURER'S NAME: EXXON COMPANY, U.S.A. (A Division of Exxon Corporation)	EMERGENCY TELEPHONE NO. A.C. 713 Day 221-3424 Night 668-7024 622-1422
ADDRESS (Number, Street, City, State, and ZIP Code): P. O. Box 2180 Houston, Texas 77001	
CHEMICAL NAME AND SYNONYMS: Petroleum Solvent	TRADE NAME AND SYNONYMS: LAKTANE
CHEMICAL FAMILY: Petroleum Hydrocarbon	FORMULA: Complex mixture of petroleum hydrocarbons

SECTION II HAZARDOUS INGREDIENTS

PAINTS, PRESERVATIVES, & SOLVENTS	%	TLV (Units)	ALLOYS AND METALLIC COATINGS	%	TLV (Units)
PIGMENTS		n.a.	BASE METAL		n.a.
CATALYST		n.a.	ALLOYS		n.a.
VEHICLE		n.a.	METALLIC COATINGS		n.a.
SOLVENTS	100	200 ppm	FILLER METAL PLUS COATING OR CORE FLUX		n.a.
ADDITIVES		n.a.	OTHERS		
OTHERS					

HAZARDOUS MIXTURES OF OTHER LIQUIDS, SOLIDS, OR GASES	%	TLV (Units)

SECTION III PHYSICAL DATA

BOILING POINT (°F.) IBP - FBP	214-224	SPECIFIC GRAVITY (H_2O=1)	0.769
VAPOR PRESSURE (mm Hg.) @ 20°C	53 mm	PERCENT VOLATILE BY VOLUME (%)	100
VAPOR DENSITY (AIR=1)	3.7	EVAPORATION RATE (n-Butyl Acetate = 1)	3.2
SOLUBILITY IN WATER	Negligible		

APPEARANCE AND ODOR: Water White liquid. Mild hydrocarbon odor.

SECTION IV FIRE AND EXPLOSION HAZARD DATA

FLASH POINT (Method used): Tag Closed Cup 25°F	FLAMMABLE LIMITS	Lel 1.17	Uel 6.0%

EXTINGUISHING MEDIA: CO_2, Foam, Water Fog or Dry Chemical.

SPECIAL FIRE FIGHTING PROCEDURES: Use air-supplied rescue equipment in enclosed areas. Cool exposed containers with water.

UNUSUAL FIRE AND EXPLOSION HAZARDS: Flammable liquid. Do not store with strong oxidants.

1/2/73

n.a. = not applicable

SECTION V HEALTH HAZARD DATA

THRESHOLD LIMIT VALUE
200 ppm for 8-hour working day.

EFFECTS OF OVEREXPOSURE
Inhalation of high vapor concentrations may have results ranging from mild depression to convulsions and loss of consciousness.

EMERGENCY AND FIRST AID PROCEDURES
If overcome by vapor, remove from exposure immediately; call a physician. If swallowed do not induce vomiting; call a physician. If breathing is irregular or stopped, start resuscitation, administer oxygen. Remove contaminated clothing and wash skin. Flush eyes with water until irritation subsides.

SECTION VI REACTIVITY DATA

STABILITY			CONDITIONS TO AVOID
	UNSTABLE		
	STABLE	X	

INCOMPATABILITY (Materials to avoid)
Strong oxidants like liquid chlorine and concentrated oxygen.

HAZARDOUS DECOMPOSITION PRODUCTS
Carbon monoxide in the case of incomplete combustion.

HAZARDOUS POLYMERIZATION			CONDITIONS TO AVOID
	MAY OCCUR		
	WILL NOT OCCUR	X	

SECTION VII SPILL OR LEAK PROCEDURES

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED
Remove all ignition sources. Keep people away. Recover free liquid. Add absorbent to spill area. Avoid breathing vapors. Ventilate enclosed spaces. Open all windows and doors. Keep petroleum products out of streams and waterways.

WASTE DISPOSAL METHOD
Incinerate absorbed material.

SECTION VIII SPECIAL PROTECTION INFORMATION

RESPIRATORY PROTECTION (Specify type)
Hydrocarbon vapor canister or supplied-air or a hose mask if needed.

VENTILATION		
	LOCAL EXHAUST: Face velocity > 60 fpm	SPECIAL: Use only with adequate* ventilation.
	MECHANICAL (General): Explosion-proof ventialtion equipment.	OTHER: No smoking or open lights.

PROTECTIVE GLOVES	EYE PROTECTION
Normally not needed.	Normally not needed.

OTHER PROTECTIVE EQUIPMENT
Hydrocarbon-insoluble apron if needed.

SECTION IX SPECIAL PRECAUTIONS

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORING
Keep containers closed. Keep away from heat sparks and open flame.

OTHER PRECAUTIONS
Avoid prolonged or repeated contact with skin. Remove contaminated clothing. Wash skin with soap and water after contact.

*Adequate means equivalent to outdoors ventilation.

James W. Hammond
Director of Industrial Hygiene

Wm. G. Domask, Ph.D., P.E.
Government Regulations Advisor

TANK 4

297

EXXON COMPANY, U.S.A.
A DIVISION OF EXXON CORPORATION

FORM NO. OSHA

U.S. DEPARTMENT OF LABOR

Supersedes issue of 1/2/

OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION

MATERIAL SAFETY DATA SHEET

DC-

SECTION I

MANUFACTURER'S NAME: EXXON COMPANY, U.S.A. (A Division of Exxon Corporation)	EMERGENCY TELEPHONE NO. A.C. 7 Day 221-3424; Night 668-702 622-142
ADDRESS (Number, Street, City, State and ZIP Code): P. O. Box 2180 Houston, Texas 77001	TRADE NAME AND SYNONYMS: VARSOL 3
CHEMICAL NAME AND SYNONYMS: Petroleum Solvent	FORMULA: Complex mixture of petroleum hydrocarbons.
CHEMICAL FAMILY: Petroleum Hydrocarbon	

SECTION II HAZARDOUS INGREDIENTS

PAINTS, PRESERVATIVES, & SOLVENTS	%	TLV (Units)	ALLOYS AND METALLIC COATINGS	%	TLV (Units)
PIGMENTS		n.a.	BASE METAL		n.a.
CATALYST		n.a.	ALLOYS		n.a.
VEHICLE		n.a.	METALLIC COATINGS		n.a.
SOLVENTS	100	100 ppm	FILLER METAL PLUS COATING OR CORE FLUX		n.a.
ADDITIVES			OTHERS		
OTHERS					

HAZARDOUS MIXTURES OF OTHER LIQUIDS, SOLIDS, OR GASES	%	TLV (Units)

SECTION III PHYSICAL DATA

BOILING POINT (°F) IBP - FBP	313-347	SPECIFIC GRAVITY (H_2O=1)	0.778
VAPOR PRESSURE (mm Hg.) @ 20°C	< 1 mm	PERCENT VOLATILE BY VOLUME (%)	100
VAPOR DENSITY (AIR=1)	4.76	EVAPORATION RATE (n-Butyl Acetate = 1)	0.08
SOLUBILITY IN WATER	Negligible		

APPEARANCE AND ODOR: Water-white color; mineral spirits odor

SECTION IV FIRE AND EXPLOSION HAZARD DATA

	FLAMMABLE LIMITS	Lel	Uel
FLASH POINT (Method used) Tag Closed Cup 105°F		0.9%	6.0%

EXTINGUISHING MEDIA
Foam, dry chemical, CO_2, water spray or fog.

SPECIAL FIRE FIGHTING PROCEDURES
Use air-supplied rescue equipment for enclosed areas.
Cool exposed containers with water.

UNUSUAL FIRE AND EXPLOSION HAZARDS
Do not store or mix with strong oxidants.
Combustible liquid

7/22

n.a. = not applicable

SECTION V HEALTH HAZARD DATA

THRESHOLD LIMIT VALUE
100 ppm for 8-hour working day.

EFFECTS OF OVEREXPOSURE
Inhalation of high vapor concentrations may have results ranging from mild depression to convulsions and loss of consciousness.

EMERGENCY AND FIRST AID PROCEDURES
If overcome by vapor, remove from exposure immediately; call a physician. If swallowed do not induce vomiting; call a physician. If breathing is irregular or stopped, start resuscitation, administer oxygen. Remove contaminated clothing and wash skin with soap and water. Flush eyes with water until irritation subsides.

SECTION VI REACTIVITY DATA

STABILITY			CONDITIONS TO AVOID
	UNSTABLE		
	STABLE	X	

INCOMPATABILITY (Materials to avoid)
Strong oxidants like liquid chlorine and concentrated oxygen.

HAZARDOUS DECOMPOSITION PRODUCTS
Carbon monoxide in the case of incomplete combustion.

HAZARDOUS POLYMERIZATION			CONDITIONS TO AVOID
	MAY OCCUR		
	WILL NOT OCCUR	X	

SECTION VII SPILL OR LEAK PROCEDURES

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED
Remove all ignition sources. Keep people away. Recover free liquid. Add absorbent to spill area. Avoid breathing vapors. Ventilate enclosed spaces. Open all windows and doors. Keep petroleum products out of streams and waterways.

WASTE DISPOSAL METHOD
Incinerate absorbed material.

SECTION VIII SPECIAL PROTECTION INFORMATION

RESPIRATORY PROTECTION (Specify type)
Hydrocarbon vapor canister or supplied-air hose mask if needed.

VENTILATION		
	LOCAL EXHAUST: Face velocity > 60 fpm	SPECIAL: Use only with adequate* ventilation.
	MECHANICAL (General): Explosion-proof ventilation equipment	OTHER: No smoking or open lights.

PROTECTIVE GLOVES	EYE PROTECTION
Normally not needed.	Normally not needed.

OTHER PROTECTIVE EQUIPMENT
Hydrocarbon-insoluble apron if needed.

SECTION IX SPECIAL PRECAUTIONS

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORING
Keep containers closed. Keep away from heat, sparks and open flame.

OTHER PRECAUTIONS
Avoid prolonged or repeated contact with skin. Remove contaminated clothing. Wash skin with soap and water after contact.

*Adequate means equivalent to outdoors ventilation.

James W. Hammond
Director of Industrial Hygiene

Wm. G. Domask, Ph.D., P.E.
Government Regulations Advisor

TANK 6

Form Approved
Budget Bureau No. 44-R1387
Approval Expires April 30, 1971

Form No. LSB-005-4
299

U.S. DEPARTMENT OF LABOR

WAGE AND LABOR STANDARDS ADMINISTRATION
Bureau of Labor Standards

Supersedes issue of 7/7/72

MATERIAL SAFETY DATA SHEET

SECTION I

MANUFACTURER'S NAME: EXXON COMPANY, U.S.A. (A Division of Exxon Corporation)	EMERGENCY TELEPHONE NO. A.C. 713 Day 221-3424; Night 668-7024 622-1422
ADDRESS (Number, Street, City, State, and ZIP Code): P.O. Box 2180 Houston, Texas 77001	
CHEMICAL NAME AND SYNONYMS: Aromatic Petroleum Solvent	TRADE NAME AND SYNONYMS: AROMATIC 100
CHEMICAL FAMILY: Aromatic Hydrocarbon	FORMULA: Complex mixture of petroleum hydrocarbons

SECTION II HAZARDOUS INGREDIENTS

PAINTS, PRESERVATIVES, & SOLVENTS	%	TLV (Units)	ALLOYS AND METALLIC COATINGS	%	TLV (Units)
PIGMENTS		n.a.	BASE METAL		n.a.
CATALYST		n.a.	ALLOYS		n.a.
VEHICLE		n.a.	METALLIC COATINGS		n.a.
SOLVENTS	100	100 ppm	FILLER METAL PLUS COATING OR CORE FLUX		n.a.
ADDITIVES		n.a.	OTHERS		
OTHERS					

HAZARDOUS MIXTURES OF OTHER LIQUIDS, SOLIDS, OR GASES	%	TLV (Units)

SECTION III PHYSICAL DATA

BOILING POINT (°F.) IBP-FBP	311-344	SPECIFIC GRAVITY (H_2O=1) @ 60°F	0.87
VAPOR PRESSURE (mm Hg.) @ 20°C	< 1 mm	PERCENT VOLATILE BY VOLUME (%)	100
VAPOR DENSITY (AIR=1)	4.3	EVAPORATION RATE (n-Butyl Acetate=1)	0.19
SOLUBILITY IN WATER	Negligible		

APPEARANCE AND ODOR: Water-white color. Aromatic hydrocarbon odor.

SECTION IV FIRE AND EXPLOSION HAZARD DATA

	FLAMMABLE LIMITS	Lel	Uel
FLASH POINT (Method used) Tag Closed Cup 107°F		1.0%	6.5%

EXTINGUISHING MEDIA: Foam, dry chemical, CO_2, water spray, or fog.

SPECIAL FIRE FIGHTING PROCEDURES: Use air-supplied rescue equipment for enclosed areas.

Cool exposed containers with water.

UNUSUAL FIRE AND EXPLOSION HAZARDS: Combustible liquid --- Do not store or mix with strong oxidants.

1/2/73

n.a. = not applicable

SECTION V HEALTH HAZARD DATA

THRESHOLD LIMIT VALUE
100 ppm for 8-hour working day.

EFFECTS OF OVEREXPOSURE
Inhalation of high vapor concentrations may have results ranging from mild depression to convulsions and loss of consciousness.

EMERGENCY AND FIRST AID PROCEDURES
If overcome by vapor, remove from exposure immediately; call a physician. If swallowed do not induce vomiting; call a physician. If breathing is irregular or stopped, start resuscitation, administer oxygen. Remove contaminated clothing and wash skin with soap and water. Flush eyes with water until irritation subsides.

SECTION VI REACTIVITY DATA

STABILITY			CONDITIONS TO AVOID
	UNSTABLE		
	STABLE	X	

INCOMPATABILITY *(Materials to avoid)*
Strong oxidants like liquid chlorine and concentrated oxygen.

HAZARDOUS DECOMPOSITION PRODUCTS
Carbon monoxide in the case of incomplete combustion.

HAZARDOUS POLYMERIZATION			CONDITIONS TO AVOID
	MAY OCCUR		
	WILL NOT OCCUR	X	

SECTION VII SPILL OR LEAK PROCEDURES

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED
Remove all ignition sources. Keep people away. Recover free liquid. Add absorbent to spill area. Avoid breathing vapors. Ventilate enclosed spaces. Open all windows and doors. Keep petroleum products out of streams and waterways.

WASTE DISPOSAL METHOD
Incinerate absorbed material.

SECTION VIII SPECIAL PROTECTION INFORMATION

RESPIRATORY PROTECTION *(Specify type)*
Hydrocarbon vapor canister or supplied-air hose mask if needed.

VENTILATION		
	LOCAL EXHAUST Face velocity > 60 fpm	SPECIAL Use only with adequate* ventilation.
	MECHANICAL *(General)* Explosion-proof ventilation equipment	OTHER No smoking or open lights.

PROTECTIVE GLOVES	EYE PROTECTION
Normally not needed.	Normally not needed.

OTHER PROTECTIVE EQUIPMENT
Hydrocarbon-insoluble apron if needed.

SECTION IX SPECIAL PRECAUTIONS

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORING
Keep containers closed. Keep away from heat, sparks and open flame.

OTHER PRECAUTIONS
Avoid prolonged or repeated contact with skin. Remove contaminated clothing. Wash skin with soap and water after contact.

* Adequate means equivalent to outdoors ventilation.

James W. Hammond
Director of Industrial Hygiene

Wm. G. Domask, Ph.D., P.E.
Government Regulations Advisor

TANK 10

LOW ODOR PARAFFIN SOLVENT (LOPS)

Form No. 301

EXXON COMPANY USA
A DIVISION OF EXXON CORPORATION

U.S. DEPARTMENT OF LABOR

Supersedes issue of 1/2/73

OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION

MATERIAL SAFETY DATA SHEET

SECTION I

MANUFACTURER'S NAME EXXON COMPANY, U.S.A. (A Division of Exxon Corporation)	EMERGENCY TELEPHONE NO. A.C. 213 Day 221-3424; Night 668-7024 622-1422
ADDRESS (Number, Street, City, State and ZIP Code) P. O. Box 2180 Houston, Texas 77001	
CHEMICAL NAME AND SYNONYMS Petroleum Solvent	TRADE NAME AND SYNONYMS LOW ODOR PARAFFIN SOLVENT (LOPS)
CHEMICAL FAMILY Petroleum Hydrocarbon	FORMULA Complex mixture of petroleum hydrocarbons.

SECTION II HAZARDOUS INGREDIENTS

PAINTS, PRESERVATIVES, & SOLVENTS	%	TLV (Units)	ALLOYS AND METALLIC COATINGS	%	TLV (Units)
PIGMENTS		n.a.	BASE METAL		n.a.
CATALYST		n.a.	ALLOYS		n.a.
VEHICLE		n.a.	METALLIC COATINGS		n.a.
SOLVENTS	100	400 ppm	FILLER METAL PLUS COATING OR CORE FLUX		n.a.
ADDITIVES		n.a.	OTHERS		
OTHERS					

HAZARDOUS MIXTURES OF OTHER LIQUIDS, SOLIDS, OR GASES	%	TLV (Units)

SECTION III PHYSICAL DATA

BOILING POINT (°F) IBP - FBP	383-485	SPECIFIC GRAVITY (H_2O=1)	0.799
VAPOR PRESSURE (mm Hg.) @ 20°C	<2 mm	PERCENT VOLATILE BY VOLUME (%)	100
VAPOR DENSITY (AIR=1)	6	EVAPORATION RATE (n-Butyl Acetate = 1)	0.02
SOLUBILITY IN WATER	Negligible		

APPEARANCE AND COLOR: Water-white color; very mild, pleasant hydrocarbon odor.

SECTION IV FIRE AND EXPLOSION HAZARD DATA

FLASH POINT (Method used) Tag Closed Cup 152°F	FLAMMABLE LIMITS Vol.% at 77°F	Lel 0.6%	Uel 6.5%

EXTINGUISHING MEDIA
Foam, dry chemical, CO_2, water spray or fog.

SPECIAL FIRE FIGHTING PROCEDURES
Use air-supplied rescue equipment for enclosed areas.
Cool exposed containers with water.

UNUSUAL FIRE AND EXPLOSION HAZARDS
Do not store or mix with strong oxidants.

7/27/73

n.a. = not applicable

SECTION V HEALTH HAZARD DATA

THOLD LIMIT VALUE
5 mg/m³ for oil mist or 400 ppm for vapor for 8-hour working day.

EFFECTS OF OVEREXPOSURE
Prolonged contact with the skin may lead to extraction of natural oils with resultant mild irritation.

EMERGENCY AND FIRST AID PROCEDURES
If ingested do not induce vomiting; call a physician. Remove oil-soaked clothing and wash skin with soap and water. In case of contact with eyes, flush eyes with water.

SECTION VI REACTIVITY DATA

STABILITY			CONDITIONS TO AVOID
	UNSTABLE		
	STABLE	X	

INCOMPATABILITY (Materials to avoid)
Strong oxidants like liquid chlorine and concentrated oxygen.

HAZARDOUS DECOMPOSITION PRODUCTS
Carbon monoxide in the case of incomplete combustion.

HAZARDOUS POLYMERIZATION			CONDITIONS TO AVOID
	MAY OCCUR		
	WILL NOT OCCUR	X	

SECTION VII SPILL OR LEAK PROCEDURES

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED
Recover free liquid. Add absorbent to spill area. Keep petroleum products out of public ...ers, ditches, and bodies of water.

WASTE DISPOSAL METHOD
Incinerate absorbed material.

SECTION VIII SPECIAL PROTECTION INFORMATION

RESPIRATORY PROTECTION (Specify type)
Normally not needed

VENTILATION		
	LOCAL EXHAUST	SPECIAL
	MECHANICAL (General)	OTHER

PROTECTIVE GLOVES
Normally not needed

EYE PROTECTION
Normally not needed

OTHER PROTECTIVE EQUIPMENT
Normally not needed

SECTION IX SPECIAL PRECAUTIONS

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORING
...p containers closed. Keep away from heat and open flame.

OTHER PRECAUTIONS

James W. Hammond
Director of Industrial Hygiene

Wm. G. Domask, Ph.D., P.E.
Government Regulations Advisor

TANK 11

ADAPTED FROM USDL FORM NO. 18 003 4 MAY 1964

SHELL OIL COMPANY
SHELL CHEMICAL COMPANY
SHELL DEVELOPMENT COMPANY
SHELL PIPE LINE CORPORATION

HAZARD RATING

3
2 0

MATERIAL SAFETY DATA SHEET

Information on this form is furnished solely for the [illegible] safety [illegible] 1970 [illegible] [illegible] for any other purpose. [illegible] [illegible] [illegible] [illegible]

SECTION I

MANUFACTURER'S NAME: Shell Chemical Company	EMERGENCY TELEPHONE NO.: 713-473-9461
ADDRESS (Number, Street, City, State, and ZIP Code): One Shell Plaza, Box 2463, Houston, Texas 77001	TRADE NAME: Shell Toluene
CHEMICAL NAME AND SYNONYMS: Toluene, Methyl Benzene	FORMULA: $C_6H_5 - CH_3$
CHEMICAL FAMILY: Aromatic Hydrocarbon	

SECTION II HAZARDOUS INGREDIENTS*

COMPOSITION		SPECIES	LD_{50} ORAL	LD_{50} DERMAL	LC_{50} CONCENTRATION	LC_{50} HOURS
PIGMENTS						
CATALYST						
VEHICLE						
SOLVENTS	100	Rats	1.7 gm/kg		5,300 ppm	4
ADDITIVES		Rabbit		4 gm/kg		
OTHERS						

SECTION III PHYSICAL DATA

BOILING POINT (°F)	230-231	SPECIFIC GRAVITY (H_2O =) @ 60°F	0.871
VAPOR PRESSURE (mmHg) @ 68°F (20°C)	22	PERCENT VOLATILE BY VOLUME	
VAPOR DENSITY (AIR =1)	3.2	EVAPORATION RATE n-BuAc =	2.0
SOLUBILITY IN WATER	Negligible		
APPEARANCE AND ODOR	Colorless liquid with aromatic odor.		

SECTION IV FIRE AND EXPLOSION HAZARD DATA

FLAMMABLE LIMITS	LB 1.0	LB 7.0

FLASH POINT (Method used): Tag Closed Cup - 41°F

EXTINGUISHING MEDIA: Exclude air, use foam, CO_2, steam, water-fog, dry chemicals.

SPECIAL FIRE FIGHTING PROCEDURES: Do not use water, exclude air. Consult local fire marshal.

UNUSUAL FIRE AND EXPLOSION HAZARDS: Vapor forms explosive mixture with air between upper and lower explosive limits.

MSDS-775

*Modified by Shell Oil Company

SECTION V HEALTH HAZARD DATA

THRESHOLD LIMIT VALUE: 800 ppm

EFFECTS OF OVEREXPOSURE: Anesthesia - headache, nausea, dizziness, etc. Liquid moderately irritating to skin and eyes.

EMERGENCY AND FIRST AID PROCEDURES: Remove victim and restore breathing if required. Remove from skin with soap and water. Flush eyes with water.

SECTION VI REACTIVITY DATA

STABILITY			CONDITIONS TO AVOID
	UNSTABLE		
	STABLE	X	

INCOMPATIBILITY (Materials to avoid): Not applicable

HAZARDOUS DECOMPOSITION PRODUCTS: CO, CO_2 when combusted

HAZARDOUS POLYMERIZATION			CONDITIONS TO AVOID
	MAY OCCUR		
	WILL NOT OCCUR	X	

SECTION VII SPILL OR LEAK PROCEDURES

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED: Avoid open flames or spark sources. Provide adequate ventilation.

WASTE DISPOSAL METHOD: Evaporate or flush with water to open, well-ventilated area. Use oil sewer if available. Remove to container.

SECTION VIII SPECIAL PROTECTION INFORMATION

RESPIRATORY PROTECTION (Specify type): Organic canister mask or air pack.

VENTILATION			
	LOCAL EXHAUST	Desirable	SPECIAL
	MECHANICAL (General)		OTHER

PROTECTIVE GLOVES: Normally not required

EYE PROTECTION: Conventional eye cover to guard against unexpected splashing.

OTHER PROTECTIVE EQUIPMENT:

SECTION IX SPECIAL PRECAUTIONS

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORING: Avoid open flames and spark sources. Avoid splash-filling. Provide adequate ventilation. Avoid excessive heat.

OTHER PRECAUTIONS:

NAME: D. M. Sheets

TITLE: Supervisor-Product Development-Resins

COMPANY: Shell Chemical Company

SIGNATURE: D M Sheets

DATE: October, 1971

THE INFORMATION CONTAINED HEREIN IS BASED ON DATA CONSIDERED ACCURATE. HOWEVER, NO WARRANTY IS EXPRESSED OR IMPLIED REGARDING THE ACCURACY OF THESE DATA OR THE RESULTS TO BE OBTAINED FROM THE USE THEREOF. VENDOR ASSUMES NO RESPONSIBILITY FOR INJURY TO VENDEE OR THIRD PERSONS PROXIMATELY CAUSED BY THE MATERIAL IF REASONABLE SAFETY PROCEDURES ARE NOT ADHERED TO AS STIPULATED IN THE DATA SHEET. ADDITIONALLY, VENDOR ASSUMES NO RESPONSIBILITY FOR INJURY TO VENDEE OR THIRD PERSONS PROXIMATELY CAUSED BY ABNORMAL USE OF THE MATERIAL EVEN IF REASONABLE SAFETY PROCEDURES ARE FOLLOWED. IF ABNORMAL USE OF THE MATERIAL IS ANTICIPATED, VENDOR ASSUMES THE RISK OF THE USE OF THE MATERIAL.

EXXON COMPANY, U.S.A
A DIVISION OF EXXON CORPORATION

Form No. OSHA-3
305
Supersedes issue of 1/2/73

U.S. DEPARTMENT OF LABOR

OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION

MATERIAL SAFETY DATA SHEET

DC-1P

SECTION I

MANUFACTURER'S NAME EXXON COMPANY, U.S.A. (A Division of Exxon Corporation)	EMERGENCY TELEPHONE NO. A.C. 713 Day 221-3424; Night 668-7024 622-1422
ADDRESS (Number, Street, City, State and ZIP Code) P. O. Box 2180 Houston, Texas 77001	
CHEMICAL NAME AND SYNONYMS Petroleum Solvent	TRADE NAME AND SYNONYMS VARSOL 18
CHEMICAL FAMILY Petroleum Hydrocarbon	FORMULA Complex mixture of petroleum hydrocarbons.

SECTION II HAZARDOUS INGREDIENTS

PAINTS, PRESERVATIVES, & SOLVENTS	%	TLV (Units)	ALLOYS AND METALLIC COATINGS	%	TLV (Units)
PIGMENTS		n.a.	BASE METAL		n.a.
CATALYST		n.a.	ALLOYS		n.a.
VEHICLE		n.a.	METALLIC COATINGS		n.a.
SOLVENTS	100	100 ppm	FILLER METAL PLUS COATING OR CORE FLUX		n.a.
ADDITIVES		n.a.	OTHERS		
OTHERS					

HAZARDOUS MIXTURES OF OTHER LIQUIDS, SOLIDS, OR GASES	%	TLV (Units)

SECTION III PHYSICAL DATA

BOILING POINT (°F) IBP - FBP	315-390	SPECIFIC GRAVITY (H_2O=1)	0.785
VAPOR PRESSURE (mm Hg.) @ 20°C	< 5 mm	PERCENT VOLATILE BY VOLUME (%)	100
VAPOR DENSITY (AIR =1)	4.8	EVAPORATION RATE (n-Butyl Acetate = 1)	0.09
SOLUBILITY IN WATER	Negligible		

APPEARANCE AND COLOR
Water white liquid. Mild mineral spirits odor.

SECTION IV FIRE AND EXPLOSION HAZARD DATA

FLASH POINT (Method used) Tag Closed Cup 110°F	FLAMMABLE LIMITS	Lel 0.97	Uel 6.02

EXTINGUISHING MEDIA
Foam, dry chemical, CO_2, water spray or fog.

SPECIAL FIRE FIGHTING PROCEDURES
Use air-supplied rescue equipment for enclosed areas.

Cool exposed containers with water.

UNUSUAL FIRE AND EXPLOSION HAZARDS
Do not store or mix with strong oxidants.

Combustible liquid.

n.a. = not applicable

7/22/7

SECTION V HEALTH HAZARD DATA

THRESHOLD LIMIT VALUE
100 ppm for 8-hour working day.

EFFECTS OF OVEREXPOSURE
Inhalation of high vapor concentrations may have results ranging from mild depression to convulsions and loss of consciousness.

EMERGENCY AND FIRST AID PROCEDURES
Overcome by vapor, remove from exposure immediately; call a physician. If swallowed do not induce vomiting; call a physician. If breathing is irregular or stopped, start resuscitation, administer oxygen. Remove contaminated clothing and wash skin with soap and water. Flush eyes with water until irritation subsides.

SECTION VI REACTIVITY DATA

STABILITY			CONDITIONS TO AVOID
	UNSTABLE		
	STABLE	X	

INCOMPATABILITY (Materials to avoid)
Strong oxidants like liquid chlorine and concentrated oxygen.

HAZARDOUS DECOMPOSITION PRODUCTS
Carbon monoxide in the case of incomplete combustion.

HAZARDOUS POLYMERIZATION			CONDITIONS TO AVOID
	MAY OCCUR		
	WILL NOT OCCUR	X	

SECTION VII SPILL OR LEAK PROCEDURES

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED
Remove all ignition sources. Keep people away. Recover free liquid. Add absorbent to spill area. Avoid breathing vapors. Ventilate enclosed spaces. Open all windows and doors. Keep petroleum products out of streams and waterways.

WASTE DISPOSAL METHOD
Incinerate absorbed material.

SECTION VIII SPECIAL PROTECTION INFORMATION

RESPIRATORY PROTECTION (Specify type)
Hydrocarbon vapor canister or supplied-air hose mask if needed.

VENTILATION		
	LOCAL EXHAUST: Face velocity > 60 fpm	SPECIAL: Use only with adequate* ventilation.
	MECHANICAL (General): Explosion-proof ventilation equipment	OTHER: No smoking or open lights.

PROTECTIVE GLOVES
Normally not needed.

EYE PROTECTION
Normally not needed.

OTHER PROTECTIVE EQUIPMENT
Hydrocarbon-insoluble apron if needed.

SECTION IX SPECIAL PRECAUTIONS

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORING
Keep containers closed. Keep away from heat, sparks and open flame.

OTHER PRECAUTIONS
Avoid prolonged or repeated contact with skin. Remove contaminated clothing. Wash skin with soap and water after contact.

*Adequate means equivalent to outdoors ventilation.

James W. Hammond
Director of Industrial Hygiene

Wm. C. Domask, Ph.D., P.E.
Government Regulations Advisor

TANK 16 · 2

Form No. OSHA-2

EXXON COMPANY, USA
A DIVISION OF EXXON CORPORATION

U.S. DEPARTMENT OF LABOR

Supersedes issue of 1/2/7

OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION

DG-1

MATERIAL SAFETY DATA SHEET

SECTION I

MANUFACTURER'S NAME: EXXON COMPANY, U.S.A. (A Division of Exxon Corporation)	EMERGENCY TELEPHONE NO. A.C. 71 Day 221-3424; Night 668-7024 622-1422
ADDRESS (Number, Street, City, State and ZIP Code): P. O. Box 2180 Houston, Texas 77001	TRADE NAME AND SYNONYMS: VARSOL 1
CHEMICAL NAME AND SYNONYMS: Petroleum Solvent	FORMULA: Complex mixture of petroleum hydrocarbons
CHEMICAL FAMILY: Petroleum Hydrocarbon	

SECTION II HAZARDOUS INGREDIENTS

PAINTS, PRESERVATIVES, & SOLVENTS	%	TLV (Units)	ALLOYS AND METALLIC COATINGS	%	TLV (Units)
PIGMENTS		n.a.	BASE METAL		n.a.
CATALYST		n.a.	ALLOYS		n.a.
VEHICLE		n.a.	METALLIC COATINGS		n.a.
SOLVENTS	100	100 ppm	FILLER METAL PLUS COATING OR CORE FLUX		n.a.
ADDITIVES		n.a.	OTHERS		
OTHERS					

HAZARDOUS MIXTURES OF OTHER LIQUIDS, SOLIDS, OR GASES	%	TLV (Units)

SECTION III PHYSICAL DATA

BOILING POINT (°F) IBP-FBP	315-395	SPECIFIC GRAVITY (H_2O=1) @60°F	0.797
VAPOR PRESSURE (mm Hg.) @ 20°C	< 5mm	PERCENT VOLATILE BY VOLUME (%)	100
VAPOR DENSITY (AIR =1)	4.83	EVAPORATION RATE (n-Butyl Acetate = 1)	0.08
SOLUBILITY IN WATER	Negligible		

APPEARANCE AND COLOR: Water-white color. Mineral spirits odor.

SECTION IV FIRE AND EXPLOSION HAZARD DATA

		Lel	Uel
FLASH POINT (Method used) Tag Closed Cup 108°F	FLAMMABLE LIMITS	0.9%	6.0%

EXTINGUISHING MEDIA
Foam, dry chemical, CO_2, water spray or fog.

SPECIAL FIRE FIGHTING PROCEDURES
Use air-supplied rescue equipment for enclosed areas.

Cool exposed containers with water.

UNUSUAL FIRE AND EXPLOSION HAZARDS
Do not store or mix with strong oxidants.

Combustible liquid.

7/22/7

n.a. = not applicable

SECTION V HEALTH HAZARD DATA

THRESHOLD LIMIT VALUE
100 ppm for 8-hour working day.

EFFECTS OF OVEREXPOSURE
Inhalation of high vapor concentrations may have results ranging from mild depression to convulsions and loss of consciousness.

EMERGENCY AND FIRST AID PROCEDURES
If overcome by vapor, remove from exposure immediately; call a physician. If swallowed do not induce vomiting; call a physician. If breathing is irregular or stopped, start resuscitation, administer oxygen. Remove contaminated clothing and wash skin with soap and water. Flush eyes with water until irritation subsides.

SECTION VI REACTIVITY DATA

STABILITY			CONDITIONS TO AVOID
	UNSTABLE		
	STABLE	X	

INCOMPATABILITY (Materials to avoid)
Strong oxidants like liquid chlorine and concentrated oxygen.

HAZARDOUS DECOMPOSITION PRODUCTS
Carbon monoxide in the case of incomplete combustion.

HAZARDOUS POLYMERIZATION			CONDITIONS TO AVOID
	MAY OCCUR		
	WILL NOT OCCUR	X	

SECTION VII SPILL OR LEAK PROCEDURES

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED
Remove all ignition sources. Keep people away. Recover free liquid. Add absorbent to spill area. Avoid breathing vapors. Ventilate enclosed spaces. Open all windows and doors. Keep petroleum products out of streams and waterways.

WASTE DISPOSAL METHOD
Incinerate absorbed material.

SECTION VIII SPECIAL PROTECTION INFORMATION

RESPIRATORY PROTECTION (Specify type)
Hydrocarbon vapor canister or supplied-air hose mask if needed.

VENTILATION		
	LOCAL EXHAUST: Face velocity > 60 fpm	SPECIAL: Use only with adequate* ventilation.
	MECHANICAL (General): Explosion-proof ventilation equipment	OTHER: No smoking or open lights.

PROTECTIVE GLOVES	EYE PROTECTION
Normally not needed.	Normally not needed.

OTHER PROTECTIVE EQUIPMENT
Hydrocarbon-insoluble apron if needed.

SECTION IX SPECIAL PRECAUTIONS

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORING
Keep containers closed. Keep away from heat, sparks and open flame.

OTHER PRECAUTIONS
Avoid prolonged or repeated contact with skin. Remove contaminated clothing. Wash skin with soap and water after contact.

*Adequate means equivalent to outdoors ventilation.

James W. Hammond
Director of Industrial Hygiene

Wm. G. Domask, Ph.D., P.E.
Government Regulations Advisor

EASTMAN KODAK COMPANY
APPROVED BY U.S. DEPARTMENT OF LABOR
"ESSENTIALLY SIMILAR" TO FORM OSHA-20

MATERIAL SAFETY DATA SHEET

SECTION I

PRODUCT NAME: n-Butyl Acetate	SIZE: Not applicable
CHEMICAL NAME: Same	
FORMULA: $CH_3COOC_4H_9$	
MANUFACTURER: Marketed by Eastman Chemical Products, Inc.	
ADDRESS: Kingsport, Tennessee 37662	
FOR INFORMATION ON HEALTH HAZARDS CALL: 615-2474411, Extension 3613	
FOR OTHER INFORMATION CALL: Same number as above Extension 4675	INFORMATION EFFECTIVE AS OF: August, 1976

SECTION II HAZARDOUS INGREDIENTS OF MIXTURES

PRINCIPAL HAZARDOUS COMPONENT (S)	%	TLV (Units)
Not applicable		

SECTION III PHYSICAL DATA

BOILING POINT (°F.)	257°F (125°C)	SPECIFIC GRAVITY (H_2O = 1)	0.883 @ 20°/20°C
VAPOR PRESSURE (mm Hg.)	10 @ 20°C	PERCENT VOLATILE BY VOLUME (%)	>99
VAPOR DENSITY (AIR = 1)	4.01	EVAPORATION RATE (n-butyl acetate = 1)	1.0
SOLUBILITY IN WATER	Slight		
APPEARANCE AND ODOR	Clear liquid, fruity odor		

SECTION IV FIRE AND EXPLOSION HAZARD DATA

			Lel	Uel
FLASH POINT (Method used)	81°F (27°C) TCC	FLAMMABLE LIMITS @ 100°F (38°C)	1.38%	7.6%

EXTINGUISHING MEDIA	Carbon Dioxide, Dry Chemical
SPECIAL FIRE FIGHTING PROCEDURES	Approved respirators should be worn.
UNUSUAL FIRE AND EXPLOSION HAZARDS	None known to Eastman

SECTION V. HEALTH HAZARD DATA

THRESHOLD LIMIT VALUE	150 ppm
EFFECTS OF OVEREXPOSURE	Exposure to vapors may be irritating to eyes and respiratory passages. Prolonged exposure to high concentrations may lead to corneal irritation. Prolonged or repeated skin contact may result in defatting of skin.
EMERGENCY AND FIRST AID PROCEDURES	Skin and eye contact: Flush affected areas immediately and thoroughly with water.

SECTION VI. REACTIVITY DATA

STABILITY	UNSTABLE		CONDITIONS TO AVOID
	STABLE	X	Not applicable

INCOMPATIBILITY (Materials to avoid)	Oxidizing materials can cause a reaction.
HAZARDOUS DECOMPOSITION PRODUCTS	As with any other organic material, combustion will produce carbon dioxide and probably carbon monoxide.

HAZARDOUS POLYMERIZATION		CONDITIONS TO AVOID
May Occur	Will Not Occur	
	X	Not applicable

SECTION VII. SPILL OR LEAK PROCEDURES

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED	Eliminate all ignition sources. Contain spill, wipe up with absorbent material for incineration.
WASTE DISPOSAL METHOD	Incineration

SECTION VIII. SPECIAL PROTECTION INFORMATION

RESPIRATORY PROTECTION (Specify type)	Approved respirators should be worn if needed.		
VENTILATION	LOCAL EXHAUST	X	SPECIAL None known to Eastman
	MECHANICAL (general)	X	OTHER None known to Eastman
PROTECTIVE GLOVES	X		EYE PROTECTION Safety glasses should be worn in any type of industrial operation
OTHER PROTECTIVE EQUIPMENT	None should be needed		

SECTION IX. SPECIAL PRECAUTIONS

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORING	Keep away from heat, sparks, and open flame. Avoid prolonged breathing of vapor. Avoid prolonged or repeated contact with skin. Use with ventilation adequate to maintain vapor concentrations below the TLV of 150 ppm.
OTHER PRECAUTIONS	None known to Eastman

The information contained herein is furnished without warranty of any kind. Employers should use this information only as a supplement to other information gathered by them and must make independent determinations of suitability and completeness of information from all sources to assure proper use of these materials and the safety and health of employees.

SECTION 5 HEALTH HAZARD DATA

INGESTION: LOW ACUTE ORAL TOXICITY IN RATS; LD50 2920 MG/KG; BUT MAY BE MODERATELY TOXIC TO HUMANS.
EYE CONTACT: TRANSIENT IRRITATION, BUT NO SIGNIFICANT CORNEAL INJURY.
SKIN CONTACT: SHORT SINGLE EXPOSUPE - NO SIGNIFICANT IRRITATION. PROLONGED OR REPEATED EXPOSURES - UP TO MODERATE IRRITATION AND DRYING.
SKIN ABSORPTION: NOT READILY ABSORBED THROUGH THE SKIN. LD50 RABBITS GREATER THAN 2000 MG/KG.
INHALATION: OSHA GUIDE AND ACGIH TLV IS 10 PPM.
EFFECTS OF OVEREXPOSURE: DIZZINESS, INCOORDINATION, ANESTHESIA; MAY BE ACCOMPANIED BY NAUSEA, LIVER AND KIDNEY DAMAGE. CAN CAUSE DEATH IF TOO MUCH IS BREATHED.

SECTION 6 FIRST AID--NOTE TO PHYSICIAN

FIRST AID PROCEDURES:

EYES: IRRIGATE WITH FLOWING WATER IMMEDIATELY AND CONTINUOUSLY FOR FIFTEEN MINUTES. REFER TO MEDICAL PERSONNEL.
SKIN: IN CASE OF CONTACT, IMMEDIATELY FLUSH SKIN WITH PLENTY OF WATER FOR AT LEAST 15 MINUTES WHILE REMOVING CONTAMINATED CLOTHING. CALL A PHYSICIAN. WASH CLOTHING BEFORE REUSE. DESTROY CONTAMINATED SHOES.
INHALATION: REMOVE TO FRESH AIR IF EFFECTS OCCUR. CALL PHYSICIAN AND/OR TRANSPORT TO MEDICAL FACILITY. IF RESPIRATION STOPS, GIVE MOUTH-TO-MOUTH RESUSCITATION.
INGESTION: DO NOT INDUCE VOMITING. CALL A PHYSICIAN AND/OR TRANSPORT TO EMERGENCY FACILITY.

NOTE TO PHYSICIAN:
EYES: MAY CAUSE MILD IRRITATION. STAIN FOR EVIDENCE OF CORNEAL INJURY.
SKIN: MAY CAUSE MODERATE IRRITATION WITH PROLONGED EXPOSURE. CHRONIC EXPOSURE MAY CAUSE DEFATTING TYPE OF DERMATITIS. TREAT AS ANY CONTACT DERMATITIS. NOT LIKELY TO BE ABSORBED IN ACUTELY TOXIC AMOUNTS.
RESPIRATORY: MAY CAUSE DRUNKENNESS. ANESTHETIC OR NARCOTIC EFFECT MAY OCCUR. MAY CAUSE PULMONARY DAMAGE. MECHANICAL SUPPORT OF RESPIRATION MAY BE NEEDED. ADMINISTER OXYGEN IF AVAILABLE. BRONCHODILATORS, EXPECTORANTS, AND ANTITUSSIVES MAY BE OF HELP.
ORAL: MODERATELY TOXIC. MAY CAUSE CHEMICAL PNEUMONIA IF ASPIRATED INTO LUNGS. IF LAVAGE IS PERFORMED, SUGGEST ENDOTRACHEAL AND/OR ESOPHAGOSCOPIC CONTROL. MODERATELY TOXIC.
SYSTEMIC: MAY CAUSE NAUSEA OR VOMITING. MAY CAUSE SEVERE KIDNEY DAMAGE. MAY CAUSE SEVERE LIVER DAMAGE. MAY INCREASE MYOCARDIAL IRRITABILITY. AVOID EPINEPHRINE OR SIMILAR ACTING DRUGS IF AT ALL POSSIBLE. ALCOHOL CONSUMED BEFORE AND AFTER EXPOSURE MAY INCREASE INJURY. POTENTIALLY LETHAL. CONSULT STANDARD LITERATURE. NO SPECIFIC ANTIDOTE. TREATMENT BASED ON THE SOUND JUDGMENT OF THE PHYSICIAN AND THE INDIVIDUAL REACTIONS OF THE

(CONTINUED ON PAGE 3)
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SECTION 6 FIRST AID--NOTE TO PHYSICIAN (CONTINUED)

NOTE TO PHYSICIAN: (CONTINUED)
PATIENT. SOME ANIMAL STUDIES HAVE SHOWN THAT CCL4 CAN CAUSE LIVER TUMORS BY ORAL INGESTION AND INHALATION.

SECTION 7 SPECIAL HANDLING INFORMATION

VENTILATION: RECOMMEND CONTROL OF VAPORS TO SUGGESTED GUIDE.
RESPIRATORY PROTECTION: NIOSH APPROVED RESPIRATORY PROTECTION REQUIRED IN ABSENCE OF PROPER ENVIRONMENTAL CONTROL. FOR EMERGENCIES, A SELF-CONTAINED BREATHING APPARATUS OR A FULL-FACE RESPIRATOR AS APPROVED BY NIOSH IS RECOMMENDED.
PROTECTIVE CLOTHING: NONE REQUIRED. IF HAND PROTECTION IS REQUIRED, USE NEOPRENE OR POLYVINYLALCOHOL IMPREGNATED GLOVES.
EYE PROTECTION: SAFETY GLASSES WITHOUT SIDE SHIELDS.

SECTION 8 SPECIAL PRECAUTIONS AND ADDITIONAL INFORMATION

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORAGE: AVOID PITS, DEPRESSIONS, AND BASEMENTS WHERE VAPORS MAY ACCUMULATE. STRONG CONSIDERATION SHOULD BE GIVEN TO AIR MONITORING SYSTEM WHERE MATERIAL IS STORED AND HANDLED ROUTINELY. AVOID EYE AND PROLONGED OR REPEATED SKIN CONTACT. DO NOT BREATHE VAPORS.
ADDITIONAL INFORMATION: REVISIONS 5/15/79 --- DISPOSAL METHOD, EFFECTS OF OVEREXPOSURE, ABSORPTION - LD50.

LAST PAGE

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M A T E R I A L S A F E T Y D A T A S H E E T PAGE: 1

DOW CHEMICAL U.S.A. MIDLAND MICHIGAN 48640 EMERGENCY PHONE: 517-636-4400

EFFECTIVE DATE: 03 OCT 80 PRODUCT CODE: 16820

PRODUCT NAME: CHLOROTHENE (R) NU SOLVENT MSD: 0030

INGREDIENTS (TYPICAL VALUES-NOT SPECIFICATIONS)	%
1,1,1-TRICHLOROETHANE (MINIMUM)	93.5

SECTION 1 PHYSICAL DATA

BOILING POINT: 165F (74C) : SOL. IN WATER: 0.07G/100G @ 25C
VAP PRESS: 100 MMHG @ 20C : SP. GRAVITY: 1.314 @ 25/25C
VAP DENSITY (AIR=1): 4.55 : % VOLATILE BY VOL: 100 (ESSEN.)
APPEARANCE AND ORDER: COLORLESS LIQUID.

SECTION 2 FIRE AND EXPLOSION HAZARD DATA

FLASH POINT: NONE : FLAMMABLE LIMITS (STP IN AIR)
METHOD USED: T.O.C.,T.C.C.,C.O.C. : LFL: 7.5% @ 25C UFL: 15% @ 25C
EXTINGUISHING MEDIA: WATER FOG
SPECIAL FIRE FIGHTING EQUIPMENT AND HAZARDS: SELF - CONTAINED RESPIRATORY EQUIPMENT. NOT CONSIDERED A FLAMMABLE LIQUID HAZARD UNDER NORMAL INDUSTRIAL USE CONDITIONS.

SECTION 3 REACTIVITY DATA

STABILITY: ----
INCOMBATIBILITY: WATER - SLOW HYDROLYSIS PRODUCES CORROSIVE ACID.
HAZARDOUS DECOMPOSITION PRODUCTS: HYDROGEN CHLORIDE AND VERY SMALL AMOUNTS OF PHOSGENE AND CHLORINE.
HAZARDOUS POLYMERIZATION: WILL NOT OCCUR.

SECTION 4 SPILL,LEAK,AND DISPOSAL PROCEDURES

ACTION TO TAKE FOR SPILLS (USE APPROPRIATE SAFETY EQUIPMENT): SMALL LEAKS: MOP UP, WIPE UP, OR SOAK UP IMMEDIATELY. REMOVE TO OUT OF DOORS. LARGE SPILLS: EVACUATE AREA. CONTAIN LIQUID; TRANSFER TO CLOSED METAL CONTAINERS. KEEP OUT OF WATER SUPPLY.
DISPOSAL METHOD: (IN ORDER OF PREFERENCE) SEND SOLVENT TO LICENSED RECLAIMER, INCINERATION, EVAPORATION OF VERY SMALL QUANTITIES, OR APPROVED LANDFILL BURIAL IN COMPLIANCE WITH LOCAL, STATE, AND FEDERAL REGULATIONS. DUMPING INTO SEWERS, ON THE GROUND, OR INTO ANY BODY OF WATER IS STRONGLY

(CONTINUED ON PAGE 2)
(R) INDICATES A REGISTERED OR TRADEMARK NAME OF THE DOW CHEMICAL COMPANY

EFFECTIVE DATE: 03 OCT 80 PRODUCT CODE: 16820
PRODUCT (CONT'D): CHLOROTHENE (R) NU SOLVENT MSD: 0030

SECTION 4 SPILL,LEAK,AND DISPOSAL PROCEDURES (CONTINUED)

DISPOSAL METHOD: (CONTINUED)
DISCOURAGED, AND MAY BE ILLEGAL.

SECTION 5 HEALTH HAZARD DATA

INGESTION: VERY LOW TOXICITY. LD50 (LABORATORY ANIMALS) RANGES FROM 8.6 TO 15.0 G/KG.
EYE CONTACT: MILD IRRITATION, BUT ESSENTIALLY NO CORNEAL INJURY.
SKIN CONTACT: SHORT CONTACT - NO IRRITATION. PROLONGED OR FREQUENT EXPOSURE - MINOR IRRITATIONS. IF CONFINED TO THE SKIN - UP TO MODERATE IRRITATION.
SKIN ABSORPTION: VERY LOW. LD50 (RABBITS) - 24 HOUR EXPOSURE GREATER THAN 15 G/KG.
INHALATION: OSHA GUIDE IS 350 PPM (1975).
EFFECTS OF OVEREXPOSURE: ANESTHETIC EFFECTS - MAY OCCUR IN THE RANGE OF 1000 PPM. CAN CAUSE DEATH IF TOO MUCH IS BREATHED.

SECTION 6 FIRST AID--NOTE TO PHYSICIAN

FIRST AID PROCEDURES:

EYES: IRRIGATION OF THE EYE IMMEDIATELY WITH WATER FOR FIVE MINUTES IS GOOD SAFETY PRACTICE.
SKIN: CONTACT WILL PROBABLY CAUSE NO MORE THAN IRRITATION. WASH OFF IN FLOWING WATER OR SHOWER. WASH CLOTHING BEFORE REUSE.
INHALATION: FAIREMOVE TO FRESH AIR IF EFFECTS OCCUR. CALL PHYSICIAN AND/OR TRANSPORT TO MEDICAL FACILITY. IF RESPIRATION STOPS, GIVE MOUTH-TO-MOUTH RESUSCITATION.
INGESTION: DO NOT INDUCE VOMITING. CALL A PHYSICIAN AND/OR TRANSPORT TO EMERGENCY FACILITY.
NOTE TO PHYSICIAN: EYES: MAY CAUSE CONJUNCTIVITIS. STAIN FOR EVIDENCE OF CORNEAL INJURY.
SKIN: MAY CAUSE MILD IRRITATION. CHRONIC EXPOSURE MAY CAUSE DEFATTING TYPE OF DERMATITIS. TREAT AS ANY CONTACT DERMATITIS. NOT LIKELY TO BE ABSORBED IN ACUTELY TOXIC AMOUNTS.
RESPIRATORY: ANESTHETIC OR NARCOTIC EFFECT MAY OCCUR. ADMINISTER OXYGEN IF AVAILABLE. BRONCHODILATORS, EXPECTORANTS, AND ANTITUSSIVES MAY BE OF HELP.
ORAL: LOW IN TOXICITY. MAY CAUSE REACTION SIMILAR TO PETROLEUM OR PETROLEUM LIKE SOLVENT. DANGER OF CHEMICAL PNEMONIA MUST BE WEIGHED AGAINST TOXICITY WHEN CONSIDERING EMPTYING THE STOMACH. IF LAVAGE IS PERFORMED, SUGGEST ENDOTRACHEAL AND/OR ESOPHAGOSCOPIC CONTROL.
SYSTEMIC: MAY INCREASE MYOCARDIAL IRRITABILITY. AVOID EPINEPHRINE

(CONTINUED ON PAGE 3)
(R) INDICATES A REGISTERED OR TRADEMARK NAME OF THE DOW CHEMICAL COMPANY

EFFECTIVE DATE: 03 OCT 80 PRODUCT CODE: 16820
PRODUCT (CONT'D): CHLOROTHENE (R) NU SOLVENT MSD: 0030

SECTION 6 FIRST AID--NOTE TO PHYSICIAN (CONTINUED)

NOTE TO PHYSICIAN: (CONTINUED)
OR SIMILAR ACTING DRUGS IF AT ALL POSSIBLE. CONSULT STANDARD LITERATURE. NO SPECIFIC ANTIDOTE. TREATMENT BASED ON THE SOUND JUDGMENT OF THE PHYSICIAN AND THE INDIVIDUAL REACTIONS OF THE PATIENT.

SECTION 7 SPECIAL HANDLING INFORMATION

VENTILATION: RECOMMEND CONTROL OF VAPORS TO SUGGESTED GUIDE.
RESPIRATORY PROTECTION: NONE NORMALLY NEEDED. APPROVED RESPIRATORY PROTECTION REQUIRED IN ABSENCE OF PROPER ENVIRONMENTAL CONTROL. FOR EMERGENCIES, A SELF-CONTAINED BREATHING APPARATUS OR A FULL-FACE RESPIRATOR IS RECOMMENDED. CARTRIDGE RESPIRATORS ARE NOT RECOMMENDED EXCEPT FOR EVACUATION.
PROTECTIVE CLOTHING: NO SPECIAL PROTECTIVE CLOTHING NEEDED.
EYE PROTECTION: SAFETY GLASSES WITHOUT SIDE SHIELDS. EYE-WASH STATIONS AND SAFETY SHOWERS SHOULD BE READILY AVAILABLE.

SECTION 8 SPECIAL PRECAUTIONS AND ADDITIONAL INFORMATION

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORAGE: HANDLE WITH REASONABLE CARE. AVOID BREATHING VAPORS. STORE IN A COOL DRY PLACE. VAPORS OF THIS PRODUCT ARE HEAVIER THAN AIR AND WILL COLLECT IN LOW AREAS SUCH AS PITS, DEGREASERS, STORAGE TANKS, AND OTHER CONFINED AREAS. DO NOT ENTER THESE AREAS WHERE VAPORS OF THIS PRODUCT ARE SUSPECTED UNLESS SPECIAL BREATHING APPARATUS IS USED AND AN OBSERVER IS PRESENT FOR ASSISTANCE.

ADDITIONAL INFORMATION: 03 OCT 80 REVISIONS OF 24 SEP 79 -- DISPOSAL METHOD.

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Occupational Safety and Health Administration

MATERIAL SAFETY DATA SHEET

Required under USDL Safety and Health Regulations for Ship Repairing, Shipbuilding, and Shipbreaking (29 CFR 1915, 1916, 1917)

CELANESE CHEMICAL COMPANY

SECTION I

MANUFACTURER'S NAME: CELANESE CHEMICAL COMPANY	EMERGENCY TELEPHONE NO: 512-584-3511
ADDRESS (Number, Street, City, State, and ZIP Code): 1211 AVE. OF AMERICAS, NEW YORK, N.Y. 10036	
TRADE NAME AND SYNONYMS: Diacetone Alcohol (4-Hydroxy-4-Methyl-2-Pentanone)	TRADE NAME AND SYNONYMS: Diacetone Alcohol
CHEMICAL FAMILY: Ketone	FORMULA: $(CH_3)_2C(OH)CH_2COCH_3$

SECTION II – HAZARDOUS INGREDIENTS

	%	TLV (Units)		%	TLV (Units)

SECTION III – PHYSICAL DATA

BOILING POINT (°F): @ 760 mm Hg	336.6	SPECIFIC GRAVITY: @ 20°/20°C	0.9394
VAPOR PRESSURE (mm Hg): @ 20°C	1.1	PERCENT VOLATILE BY VOLUME:	None
VAPOR DENSITY (AIR = 1):	4.0	EVAPORATION RATE: Butyl Acetate = 1	0.14

SOLUBILITY IN WATER: Complete

APPEARANCE AND ODOR: Clear, colorless liquid; faint, pleasant odor

SECTION IV – FIRE AND EXPLOSION HAZARD DATA

FLASH POINT: 150°F, Tag Open Cup, 146°F, Tag Closed Cup	FLAMMABLE LIMITS:	LEL: 1.8%	UEL: 6.9%

EXTINGUISHING MEDIA: Dry chemical, carbon dioxide for small fires. "Alcohol" foam and water spray for large fires.

SPECIAL FIRE FIGHTING PROCEDURES: Dilution of burning liquid with water will reduce intensity of flame.

UNUSUAL FIRE AND EXPLOSION HAZARDS: None

SECTION V – HEALTH HAZARD DATA

THRESHOLD LIMIT VALUE: 50 ppm

EFFECTS OF OVEREXPOSURE: Irritating to eyes and mucous membranes. Narcotic in high concentration. Experimentally has caused anemia and damage to kidneys and liver.

EMERGENCY AND FIRST AID PROCEDURES: Remove to uncontaminated area. Remove all contaminated clothing immediately and wash affected areas with warm water and soap. Flush eyes with water for at least 10 minutes. Call a physician. Artificial respiration and oxygen should be given if necessary.

(Continued on reverse side)

SECTION VI – REACTIVITY DATA

PRODUCT IS [X] STABLE [ ] UNSTABLE

CONDITIONS TO AVOID
None

INCOMPATIBILITY (Materials to avoid)
Inorganic acids, caustics, amines, alkanol amines, pyridines, ammonia & isocyanates.

HAZARDOUS DECOMPOSITION PRODUCTS
Thermal decomposition products - carbon dioxide and carbon monoxide.

HAZARDOUS POLYMERIZATION [ ] MAY OCCUR [X] WILL NOT OCCUR

CONDITIONS TO AVOID
None

SECTION VII SPILL OR LEAK PROCEDURES

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED
Eliminate all ignition sources. Flush spill with water. Dike large spills and dump to salvage tanks or incinerate . Notify authorities in the event of major spills. Excessive quantities should not be permitted to enter drains where there is danger of vapors becoming ignited.

WASTE DISPOSAL METHOD
Chemical incinerator

SECTION VIII SPECIAL PROTECTION INFORMATION

RESPIRATORY PROTECTION
Wear self-contained breathing apparatus

VENTILATION
LOCAL EXHAUST
Preferable
MECHANICAL (General)
Acceptable
SPECIAL
OTHER

PROTECTIVE GLOVES
Impervious gloves

EYE PROTECTION
Chemical safety goggles

OTHER PROTECTIVE EQUIPMENT
Impervious apron and boots; eye bath and safety shower.

SECTION IX – SPECIAL PRECAUTIONS

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORING
Keep away form heat, sparks, and open flame. Avoid prolonged or repeated contact with skin.

OTHER PRECAUTIONS
None

WE HOPE THIS INFORMATION IS HELPFUL BASED ON OUR BEST TECHNOLOGY. IT IS FROM SOURCES WE REGARD AS EXPERT. SINCE USE CONDITIONS ARE NOT WITHIN OUR KNOWLEDGE OR CONTROL, THE USE OF THESE RECOMMENDATIONS, SUGGESTIONS AND/OR DATA IS AT THE RESPONSIBILITY AND DISCRETION OF THE USER WITHOUT OBLIGATION OR LIABILITY OF ANY SORT ON THE PART OF CELANESE. THIS PUBLICATION IS NEITHER A LICENSE UNDER ANY APPLICABLE PATENTS NOR AN ASSURANCE OF FREEDOM FROM CLAIMS UNDER ANY PENDING OR ISSUED PATENT.

EASTMAN KODAK COMPANY
APPROVED BY U.S. DEPARTMENT OF LABOR
"ESSENTIALLY SIMILAR" TO FORM OSHA-20

MATERIAL SAFETY DATA SHEET

SECTION I

PRODUCT NAME:	KODAFLEX® DBP Plasticizer	SIZE:	Not applicable
CHEMICAL NAME:	Dibutyl Phthalate		
FORMULA:	$C_{16}H_{22}O_4$		
MANUFACTURER:	Marketed by Eastman Chemical Products, Inc.		
ADDRESS:	Kingsport, Tennessee 37662		
FOR INFORMATION ON HEALTH HAZARDS CALL:	615-247-4411, Extension 3613		
FOR OTHER INFORMATION CALL:	Same number as above Extension 5109	INFORMATION EFFECTIVE AS OF:	July, 1976

SECTION II HAZARDOUS INGREDIENTS OF MIXTURES

PRINCIPAL HAZARDOUS COMPONENT (S)	%	TLV (Units)
Not applicable		

SECTION III PHYSICAL DATA

BOILING POINT (°F.)	644°F (340°C)	SPECIFIC GRAVITY (H_2O = 1)	1.048
VAPOR PRESSURE (mm Hg.)	1.0 @ 298°F (147°C)	PERCENT VOLATILE BY VOLUME (%)	Not known
VAPOR DENSITY (AIR = 1)	9.6	EVAPORATION RATE (_____ = 1)	Not known
SOLUBILITY IN WATER	<0.03 g/liter		
APPEARANCE AND ODOR	Oily, colorless liquid; essentially odorless		

SECTION IV FIRE AND EXPLOSION HAZARD DATA

FLASH POINT (Method used)	375°F/190°C (COC)	FLAMMABLE LIMITS @ 456°F (236°C)	Lel	Uel
			0.47%	Not known
EXTINGUISHING MEDIA	Dry Chemical, Water Spray, CO_2			
SPECIAL FIRE FIGHTING PROCEDURES	None should be needed			
UNUSUAL FIRE AND EXPLOSION HAZARDS	None known			

SECTION V HEALTH HAZARD DATA

THRESHOLD LIMIT VALUE	5 mg/m^3
EFFECTS OF OVEREXPOSURE	None expected
EMERGENCY AND FIRST AID PROCEDURES	None should be needed

SECTION VI REACTIVITY DATA

STABILITY			CONDITIONS TO AVOID
	UNSTABLE		Not applicable
	STABLE	X	

INCOMPATIBILITY (Materials to avoid)	Avoid contact with strong oxidizers
HAZARDOUS DECOMPOSITION PRODUCTS	None known

HAZARDOUS POLYMERIZATION		CONDITIONS TO AVOID
May Occur	Will Not Occur X	Not applicable

SECTION VII SPILL OR LEAK PROCEDURES

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED	Remove all sources of ignition. Wear suitable protective clothing. Use absorbent material. Place in fiber drum and incinerate
WASTE DISPOSAL METHOD	Incineration

SECTION VIII SPECIAL PROTECTION INFORMATION

RESPIRATORY PROTECTION (Specify type)	None should be needed

VENTILATION					
	LOCAL EXHAUST	X	If needed to control vapor at elevated temperatures	SPECIAL	None known to Eastman
	MECHANICAL (general)		X	OTHER	None known to Eastman

PROTECTIVE GLOVES	None should be needed	EYE PROTECTION	Safety glasses should be worn in any type of industrial operation
OTHER PROTECTIVE EQUIPMENT	None should be needed		

SECTION IX SPECIAL PRECAUTIONS

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORING	Use with ventilation adequate to maintain atmospheric concentrations below the TLV of 5 mg/m^3.
OTHER PRECAUTIONS	None known to Eastman

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M A T E R I A L S A F E T Y D A T A S H E E T

DOW CHEMICAL U.S.A. MIDLAND MICHIGAN 48640 EMERGENCY PHONE: 517-636-4400

EFFECTIVE DATE: 27 JUN 80 PRODUCT CODE: 21100

PRODUCT NAME: DIETHANOLAMINE MSD: 0069

INGREDIENTS (TYPICAL VALUES-NOT SPECIFICATIONS)	%
DIETHANOLAMINE, MIN.	99.0

SECTION 1 PHYSICAL DATA

BOILING POINT: 514F, 268C
VAP PRESS: LOW
VAP DENSITY (AIR=1): ----
SOL. IN WATER: COMPLETELY MISCIBLE.
SP. GRAVITY: 1.08 @ 30/4C
% VOLATILE BY VOL: NOT APPLICABLE
APPEARANCE AND ODOR: COLORLESS, SL. AMMONIACAL LIQUID.

SECTION 2 FIRE AND EXPLOSION HAZARD DATA

FLASH POINT: 342F, 172C
METHOD USED: PMCC
FLAMMABLE LIMITS (STP IN AIR)
LFL: NOT DETER. UFL: NOT DETER.
EXTINGUISHING MEDIA: WATER FOG, ALCOHOL FOAM, CO2, DRY CHEMICAL.
SPECIAL FIRE FIGHTING EQUIPMENT AND HAZARDS: NONE.

SECTION 3 REACTIVITY DATA

STABILITY: WILL IGNITE IN AIR AT 1224F, 662C.
INCOMPATIBILITY: OXIDIZING MATERIAL.
HAZARDOUS DECOMPOSITION PRODUCTS: ----
HAZARDOUS POLYMERIZATION: WILL NOT OCCUR.

SECTION 4 SPILL, LEAK, AND DISPOSAL PROCEDURES

ACTION TO TAKE FOR SPILLS (USE APPROPRIATE SAFETY EQUIPMENT): SOAK UP WITH ABSORBENT MATERIAL. SCOOP INTO DRUMS.
DISPOSAL METHOD: BURN ACCORDING TO FEDERAL, STATE AND LOCAL REGULATIONS.

SECTION 5 HEALTH HAZARD DATA

INGESTION: LOW SINGLE DOSE ORAL TOXICITY; LD50 (GUINEA PIGS) IN THE RANGE OF 2000 MG/KG, RAT 1820 MG/KG.
EYE CONTACT: MAY CAUSE SEVERE PAIN, IRRITATION AND INJURY.
SKIN CONTACT: SINGLE SHORT CONTACT - NO IRRITATION. REPEATED PROLONGED EXPOSURE - UP TO MODERATE IRRITATION, EVEN A MINOR BURN.
SKIN ABSORPTION: NOT LIKELY TO BE ABSORBED IN ACUTELY TOXIC AMOUNTS.
INHALATION: DOW INDUSTRIAL HYGIENE GUIDE AND ACGIH TLV IS 3 PPM.
EFFECTS OF OVEREXPOSURE: BAD ODOR AND IRRITATION OF NOSE AND EYES.

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EFFECTIVE DATE: 27 JUN 80 PRODUCT CODE: 21100
PRODUCT (CONT'D): DIETHANOLAMINE MSD: 0069

SECTION 6 FIRST AID--NOTE TO PHYSICIAN

FIRST AID PROCEDURES:

EYES: IRRIGATE WITH FLOWING WATER IMMEDIATELY AND CONTINUOUSLY FOR 15 MINUTES. REFER TO MEDICAL PERSONNEL.
SKIN: IN CASE OF CONTACT, IMMEDIATELY FLUSH SKIN WITH PLENTY OF WATER FOR AT LEAST 15 MINUTES WHILE REMOVING CONTAMINATED CLOTHING AND SHOES. CALL A PHYSICIAN. WASH CLOTHING BEFORE REUSE. DISCARD CONTAMINATED SHOES.
INHALATION: REMOVE TO FRESH AIR IF EFFECTS OCCUR. CALL PHYSICIAN AND/OR TRANSPORT TO MEDICAL FACILITY.
INGESTION: IF SWALLOWED, INDUCE VOMITING IMMEDIATELY BY GIVING TWO GLASSES OF WATER AND STICKING FINGER DOWN THROAT. CALL A PHYSICIAN. (NEVER GIVE ANYTHING BY MOUTH TO AN UNCONSCIOUS PERSON).

NOTE TO PHYSICIAN:
EYES: MAY CAUSE CORNEAL INJURY OR BURN. STAIN FOR EVIDENCE OF CORNEAL INJURY. IF CORNEA IS BURNED, INSTILL ANTIBIOTIC STEROID PREPARATION FREQUENTLY. CONSULT OPHTHALMOLOGIST.
SKIN: MAY CAUSE MODERATE IRRITATION. MAY CAUSE BURN. TREAT AS ANY CONTACT DERMATITIS. IF BURN IS PRESENT, TREAT AS ANY THERMAL BURN.
RESPIRATORY: MAY CAUSE MODERATE IRRITATION. ADMINISTER OXYGEN IF AVAILABLE. BRONCHODILATORS, EXPECTORANTS, AND ANTITUSSIVES MAY BE OF HELP.
ORAL: LOW TO MODERATELY TOXIC.
GENERAL: HUMAN EFFECTS NOT ESTABLISHED. CONSULT STANDARD LITERATURE. NO SPECIFIC ANTIDOTE. TREATMENT BASED ON THE SOUND JUDGMENT OF THE PHYSICIAN AND THE INDIVIDUAL REACTIONS OF THE PATIENT.

SECTION 7 SPECIAL HANDLING INFORMATION

VENTILATION: RECOMMEND CONTROL OF VAPORS TO SUGGESTED GUIDE.
RESPIRATORY PROTECTION: NONE NORMALLY NEEDED. NIOSH APPROVED RESPIRATORY PROTECTION REQUIRED IN ABSENCE OF PROPER ENVIRONMENTAL CONTROL.
PROTECTIVE CLOTHING: CLEAN, BODY-COVERING CLOTHING. IN ADDITION, IMPERVIOUS GLOVES, BOOTS, APRON DEPENDING UPON THE EXTENT AND SEVERITY OF EXPOSURE LIKELY.
EYE PROTECTION: CHEMICAL WORKERS GOGGLES. EYE FOUNTAIN AND WASHING FACILITIES AT OR NEAR WORK AREA.

SECTION 8 SPECIAL PRECAUTIONS AND ADDITIONAL INFORMATION

(CONTINUED ON PAGE 3)
(R) INDICATES A REGISTERED OR TRADEMARK NAME OF THE DOW CHEMICAL COMPANY

EFFECTIVE DATE: 27 JUN 80
PRODUCT (CONT'D): DIETHANOLAMINE

PRODUCT CODE: 21100
MSD: 0069

SECTION 8 SPECIAL PRECAUTIONS AND ADDITIONAL INFORMATION (CONTINUED)

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORAGE: AVOID EYE AND PROLONGED SKIN CONTACT. AVOID BREATHING VAPORS IF GENERATED.

ADDITIONAL INFORMATION: 27 JUN 80 REVISIONS OF 20 OCT 78 -- SECTIONS 1, 2, 3 AND 5.

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M A T E R I A L S A F E T Y D A T A S H E E T

DOW CHEMICAL U.S.A. MIDLAND MICHIGAN 48640 EMERGENCY PHONE: 517-636-4400

PRODUCT CODE: 21148

EFFECTIVE DATE: 18 SEP 78

MSD: 0070

PRODUCT NAME: DIETHYLENE GLYCOL (REGULAR GRADE)

INGREDIENTS (TYPICAL VALUES-NOT SPECIFICATIONS)	%
DIETHYLENE GLYCOL	99

SECTION 1 — PHYSICAL DATA

BOILING POINT: 472.6F
VAP PRESS: < 0.01 MMHG @ 20C
VAP DENSITY (AIR=1): 2.14
APPEARANCE AND ODOR: COLORLESS, MILD, LIQUID.

SOL. IN WATER: COMPLETELY MISCIBLE
SP. GRAVITY: 1.118 @ 20/20C
% VOLATILE BY VOL: NOT APPLICABLE

SECTION 2 — FIRE AND EXPLOSION HAZARD DATA

FLASH POINT: 255F
METHOD USED: PMCC
EXTINGUISHING MEDIA: WATER FOG, ALCOHOL FOAM, CO2, DRY CHEMICAL.
SPECIAL FIRE FIGHTING EQUIPMENT AND HAZARDS: NONE.

FLAMMABLE LIMITS (STP IN AIR)
LFL: NOT DETER. UFL: NOT DETER.

SECTION 3 — REACTIVITY DATA

STABILITY: IGNITES IN AIR AT 444F.
INCOMPATIBILITY: OXIDIZING MATERIAL.
HAZARDOUS DECOMPOSITION PRODUCTS: ----
HAZARDOUS POLYMERIZATION: WILL NOT OCCUR.

SECTION 4 — SPILL, LEAK, AND DISPOSAL PROCEDURES

ACTION TO TAKE FOR SPILLS (USE APPROPRIATE SAFETY EQUIPMENT): DAM TO PREVENT WATER POLLUTION. SOAK UP WITH ABSORBENT MATERIAL. USE VACUUM TRUCK TO RECOVER. RETURN TO PLANT FOR REPROCESSING.
DISPOSAL METHOD: BURN ACCORDING TO LOCAL, STATE, AND FEDERAL LAWS.

SECTION 5 — HEALTH HAZARD DATA

INGESTION: LOW SINGLE DOSE ORAL TOXICITY FOR LAB ANIMALS; MODERATE FOR HUMANS.
EYE CONTACT: UP TO MILD IRRITATION.
SKIN CONTACT: ESSENTIALLY NON-IRRITATING.
SKIN ABSORPTION: ABSORBED THROUGH SKIN BUT LOW IN TOXICITY BY THIS RO

(CONTINUED ON PAGE 2)

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SECTION 5 HEALTH HAZARD DATA (CONTINUED)

INHALATION: NO GUIDE FOR CONTROL KNOWN. NOT LIKELY A PROBLEM BECAUSE OF LOW VOLATILITY. A LEVEL OF 100 PPM HAS BEEN SUGGETED AS A GUIDE IF MATERIAL IS HANDLED HOT.
EFFECTS OF OVEREXPOSURE: DEGENERATION OF THE KIDNEY AND TO A LESSER EXTENT THE LIVER.

SECTION 6 FIRST AID--NOTE TO PHYSICIAN

FIRST AID PROCEDURES:

EYES: IRRIGATION OF THE EYE IMMEDIATELY WITH WATER FOR 5 MINUTES IS GOOD SAFETY PRACTICE. CONSULT MEDICAL.
SKIN: WASH OFF IN FLOWING WATER. DECONTAMINATE CLOTHING AND ACCESSORIES BEFORE REUSE. GOOD PERSONAL HYGIENE.
INHALATION: REMOVE TO FRESH AIR IF EFFECTS OCCUR.
INGESTION: TOXIC BY INGESTION. INDUCE VOMITING IMMEDIATELY. CALL A PHYSICIAN AND/OR TRANSPORT TO EMERGENCY FACILITY.
NOTE TO PHYSICIAN: STAIN FOR EVIDENCE OF CORNEAL ABRASION OR INJURY. MAY CAUSE NEUROLOGIC SIGNS AND SYMPTOMS. MAY CAUSE KIDNEY DAMAGE. MAY CAUSE ELECTROLYTE IMBALANCE. SUGGEST BASELINE CBC, UA, AND 12 TEST. SUGGEST BASELINE ELECTROLYTES. CONSULT STANDARD LITERATURE. USE OF ALCOHOL MAY BE HELPFUL.

SECTION 7 SPECIAL HANDLING INFORMATION

VENTILATION: GOOD VENTILATION USUALLY ADEQUATE FOR MOST OPERATIONS.
RESPIRATORY PROTECTION: IF HANDLING HOT MATERIAL, CONTROL VAPORS TO 100 PPM OR LESS. NONE NORMALLY NEEDED.
PROTECTIVE CLOTHING: CLEAN CLOTHING.
EYE PROTECTION: NOT NORMALLY NECESSARY.

SECTION 8 SPECIAL PRECAUTIONS AND ADDITIONAL INFORMATION

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORAGE: PRACTICE REASONABLE CAUTION TO AVOID SKIN AND EYE CONTACT. AVOID BREATHING VAPORS FROM HOT MATERIAL.
ADDITIONAL INFORMATION: ----

LAST PAGE

(R) INDICATES A REGISTERED OR TRADEMARK NAME OF THE DOW CHEMICAL COMPANY

THE INFORMATION HEREIN IS GIVEN IN GOOD FAITH, BUT NO WARRANTY, EXPRESSED OR IMPLIED, IS MADE.

MATERIAL SAFETY DATA SHEET

DOW CHEMICAL U.S.A. MIDLAND MICHIGAN 48640 EMERGENCY PHONE: 517-636-4400

EFFECTIVE DATE: 18 JUN 79 PRODUCT CODE: 21189

PRODUCT NAME: DIETHYLENETRIAMINE MSD: 0071

INGREDIENTS (TYPICAL VALUES-NOT SPECIFICATIONS)	%
DIETHYLENETRIAMINE, MINIMUM	98.5

SECTION 1 PHYSICAL DATA

BOILING POINT: IBP-DP 199-207C
VAP PRESS: < 1 MMHG @ 20C
VAP DENSITY (AIR=1): 3.56
SOL. IN WATER: COMPLETELY MISCIBLE.
SP. GRAVITY: 0.947-0.951 25/25C
% VOLATILE BY VOL: LOW VOLATILITY
APPEARANCE AND ODOR: COLORLESS TO LIGHT STRAW LIQUID - AMINE ODOR.

SECTION 2 FIRE AND EXPLOSION HAZARD DATA

FLASH POINT: 208F, 98C
METHOD USED: PENSKY MARTENS C.C.
FLAMMABLE LIMITS (STP IN AIR)
LFL: 2.0% @ 150C UFL: 6.7% @ 150C
EXTINGUISHING MEDIA: WATER FOG, ALCOHOL FOAM, CO2, DRY CHEMICAL.
SPECIAL FIRE FIGHTING EQUIPMENT AND HAZARDS: USE FULL PROTECTIVE CLOTHING (SEE SECTION 7) AND A SELF - CONTAINED BREATHING APPARATUS.

SECTION 3 REACTIVITY DATA

STABILITY: CAN AUTOIGNITE IN AIR AT APPROXIMATELY 676F, 358C.
INCOMPATIBILITY: ACID, OXIDIZING MATERIAL, CHLORINATED ORGANIC COMPOUNDS.
HAZARDOUS DECOMPOSITION PRODUCTS: NITROGEN OXIDES WHEN BURNED.
HAZARDOUS POLYMERIZATION: WILL NOT OCCUR.

SECTION 4 SPILL, LEAK, AND DISPOSAL PROCEDURES

ACTION TO TAKE FOR SPILLS (USE APPROPRIATE SAFETY EQUIPMENT): LARGE SPILL - DIKE UP AND DILUTE WITH COPIOUS QUANTITIES OF WATER. PUMP INTO APPROPRIATE CONTAINERS. SMALL SPILL - SOAK UP WITH ABSORBENT MATERIAL; SHOVEL INTO APPROPRIATE CONTAINERS.
DISPOSAL METHOD: LARGE QUANTITIES COULD BE RECOVERED. OTHERWISE, DISPOSE IN A LANDFILL IN ACCORDANCE WITH LOCAL REGULATIONS. KEEP OUT OF PUBLIC WATER SUPPLIES. THE DOW CHEMICAL COMPANY MAY BE CONTACTED FOR ADVICE.

(CONTINUED ON PAGE 2)
(R) INDICATES A REGISTERED OR TRADEMARK NAME OF THE DOW CHEMICAL COMPANY

SECTION 5 HEALTH HAZARD DATA

INGESTION: LOW SINGLE DOSE ORAL TOXICITY; LD50 (RATS) IS 1400 MG/KG. INGESTION MAY CAUSE BURNS OF MOUTH, ESOPHAGUS AND POSSIBLY STOMACH.
EYE CONTACT: MAY CAUSE A SERIOUS BURN WITH POSSIBLE LOSS OF VISION.
SKIN CONTACT: BRIEF CONTACT (3-5 MINUTES) MAY CAUSE A SERIOUS BURN. THIS MATERIAL MAY CAUSE SIGNIFICANT SENSITIZATION OR ALLERGENIC RESPONSE.
SKIN ABSORPTION: MAY BE ABSORBED IN MODERATELY TOXIC AMOUNTS.
INHALATION: ACGIH TLV IS 1 PPM (1978); 4 MG/CU METER (1978). MAY CAUSE ALLERGENIC ASTHMA.
EFFECTS OF OVEREXPOSURE: DISAGREEABLE ODOR; IRRITATION OF EYES, NOSE, THROAT AND LUNGS. MAY CAUSE SENSITIZATION BY LIQUID OR VAPOR.

SECTION 6 FIRST AID--NOTE TO PHYSICIAN

FIRST AID PROCEDURES:

EYES: IMMEDIATE AND CONTINUOUS IRRIGATION WITH FLOWING WATER FOR AT LEAST 30 MINUTES IS IMPERATIVE. PROMPT MEDICAL CONSULTATION ESSENTIAL.
SKIN: SKIN BURN LIKELY. IMMEDIATE CONTINUOUS AND THOROUGH WASHING IN FLOWING WATER FOR 30 MINUTES IS INDICATED. REMOVE CLOTHING IMMEDIATELY. CALL PHYSICIAN AND/OR TRANSPORT TO MEDICAL FACILITY. DESTROY CONTAMINATED SHOES. WASH CLOTHING BEFORE REUSE.
INHALATION: REMOVE TO FRESH AIR IF EFFECTS OCCUR. CALL PHYSICIAN AND/OR TRANSPORT TO MEDICAL FACILITY.
INGESTION: CORROSIVE. DO NOT INDUCE VOMITING. GIVE LARGE AMOUNTS OF WATER OR MILK OF AVAILABLE AND TRANSPORT TO MEDICAL FACILITY.

NOTE TO PHYSICIAN:
EYES: MAY CAUSE SEVERE CORNEAL INJURY OR BURN. MAY CAUSE IMPAIRMENT OF VISION. STAIN FOR EVIDENCE OF CORNEAL INJURY. IF CORNEA IS BURNED, INSTILL ANTIBIOTIC STEROID PREPARATION FREQUENTLY. CONSULT OPHTHALMOLOGIST.
SKIN: MAY CAUSE SEVERE BURN. IF BURN IS PRESENT, TREAT AS ANY THERMAL BURN. MAY BE ABSORBED IN ACUTELY TOXIC AMOUNTS. KNOWN OR SUSPECTED SKIN SENSITIZER.
RESPIRATORY: MAY CAUSE SEVERE IRRITATION. ADMINISTER OXYGEN IF AVAILABLE. BRONCHODILATORS, EXPECTORANTS, AND ANTITUSSIVES MAY BE OF HELP. MAY CAUSE RESPIRATORY SENSITIZATION OR ASTHMA.
ORAL: MODERATELY TOXIC. MAY CAUSE BURN OF MUCOUS MEMBRANES. IF LAVAGE IS PERFORMED, SUGGEST ENDOTRACHEAL AND/OR ESOPHAGOSCOPIC CONTROL.
SYSTEMIC: CONSULT STANDARD LITERATURE. NO SPECIFIC ANTIDOTE. TREATMENT BASED ON SOUND JUDGMENT OF THE PHYSICIAN AND THE INDIVIDUAL REACTIONS OF THE PATIENT. RAT STUDIES INDICATE KIDNEY AND LIVER ARE TARGET ORGANS WITH OVEREXPOSURE.

(CONTINUED ON PAGE 3)
(R) INDICATES A REGISTERED OR TRADEMARK NAME OF THE DOW CHEMICAL COMPANY

U.S. DEPARTMENT OF LABOR

Occupational Safety & Health Administration

MATERIAL SAFETY DATA SHEET

SECTION I

MANUFACTURER'S NAME: E. I. DuPont de Nemours and Company	EMERGENCY TELEPHONE NO.: (302) 774-1000
ADDRESS (Number, Street, City, State, and ZIP Code): Freon® Products Division, Wilmington, Delaware 19898	
CHEMICAL NAME AND SYNONYMS: Trichlorotrifluoroethane and Acetone	TRADE NAME AND SYNONYMS: Freon® TA
CHEMICAL FAMILY: Halogenated Hydrocarbon	FORMULA: CCl_2FCClF_2 and CH_3COCH_3

SECTION II HAZARDOUS INGREDIENTS

PAINTS, PRESERVATIVES, & SOLVENTS	%	TLV (Units)	ALLOYS AND METALLIC COATINGS	%	TLV (Units)
PIGMENTS			BASE METAL		
CATALYST			ALLOYS		
VEHICLE			METALLIC COATINGS		
SOLVENTS Acetone	11	1000	FILLER METAL PLUS COATING OR CORE FLUX		
ADDITIVES			OTHERS		
OTHERS					

HAZARDOUS MIXTURES OF OTHER LIQUIDS, SOLIDS, OR GASES	%	TLV (Units)
None		

SECTION III PHYSICAL DATA

BOILING POINT (°F.)		110.5	SPECIFIC GRAVITY (H_2O=1)	77°F.	1.41
VAPOR PRESSURE (mm Hg.)	77°F.	380	PERCENT VOLATILE BY VOLUME (%)		100
VAPOR DENSITY (AIR=1)	77°F.	2.6	EVAPORATION RATE (CCl_4=1)		0.3
SOLUBILITY IN WATER	See Sect IV				
APPEARANCE AND ODOR	Colorless Liquid - faint solvent odor.				

SECTION IV FIRE AND EXPLOSION HAZARD DATA

FLASH POINT (Method used): None	FLAMMABLE LIMITS: None	Lel	Uel
EXTINGUISHING MEDIA			
SPECIAL FIRE FIGHTING PROCEDURES			
UNUSUAL FIRE AND EXPLOSION HAZARDS	Addition of excess water (>0.2%) will extract acetone and may form a flammable, supernatant liquid layer.		

NOTICE FROM DU PONT

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SECTION V HEALTH HAZARD DATA

THRESHOLD LIMIT VALUE: 1000 ppm

EFFECTS OF OVEREXPOSURE: Light-headedness, shortness of breath, possible narcosis, possible cardiac arrhythmias at high concentrations.

EMERGENCY AND FIRST AID PROCEDURES: Inhalation: Remove to fresh air, call a physician. Do not give epinephrine or similar drugs.

Skin or Eye Contact: Flush with water.

SECTION VI REACTIVITY DATA

STABILITY			CONDITIONS TO AVOID
	UNSTABLE		Open flames or high temperatures.
	STABLE	X	

INCOMPATABILITY (Materials to avoid): Alkali or alkaline earth metals - powdered Al, Zn, Be, etc.

HAZARDOUS DECOMPOSITION PRODUCTS: Hydrochloric and hydrofluoric acids - possible phosgene.

HAZARDOUS POLYMERIZATION			CONDITIONS TO AVOID
	MAY OCCUR		
	WILL NOT OCCUR	X	

SECTION VII SPILL OR LEAK PROCEDURES

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED: Ventilate area - especially low places where heavy vapors might collect. Remove open flames.

WASTE DISPOSAL METHOD: Evaporate outdoors.

SECTION VIII SPECIAL PROTECTION INFORMATION

RESPIRATORY PROTECTION (Specify type): Use air mask in high concentrations.

VENTILATION		
	LOCAL EXHAUST: When large amounts are released.	SPECIAL
	MECHANICAL (General): Especially in low places	OTHER

PROTECTIVE GLOVES: When handling liquid.

EYE PROTECTION: When handling liquid.

OTHER PROTECTIVE EQUIPMENT:

SECTION IX SPECIAL PRECAUTIONS

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORING: Store containers in a clean, dry area. Do not heat above 125°F.

OTHER PRECAUTIONS: For further information see Freon® Products Bulletins FST-5B, S-16, S-30.

U.S. DEPARTMENT OF LABOR

Occupational Safety & Health Administration

MATERIAL SAFETY DATA SHEET

SECTION I

MANUFACTURER'S NAME: E. I. du Pont de Nemours and Company	EMERGENCY TELEPHONE NO.: (302)-774-1000
ADDRESS (Number, Street, City, State, and ZIP Code): Freon® Products Division, Wilmington, Delaware 19898	
CHEMICAL NAME AND SYNONYMS: Trichlorotrifluoroethane + *	TRADE NAME AND SYNONYMS: Freon® T-DFC
CHEMICAL FAMILY: Halogenated hydrocarbon + *	FORMULA: CCl_2FCClF_2 + *

SECTION II HAZARDOUS INGREDIENTS

PAINTS, PRESERVATIVES, & SOLVENTS	%	TLV (Units)	ALLOYS AND METALLIC COATINGS	%	TLV (Units)
PIGMENTS	by wgt.		BASE METAL		
CATALYST			ALLOYS		
VEHICLE			METALLIC COATINGS		
SOLVENTS toluene	.07	ppm 100	FILLER METAL PLUS COATING OR CORE FLUX		
ADDITIVES surfactant*	.07		OTHERS		
OTHERS					

HAZARDOUS MIXTURES OF OTHER LIQUIDS, SOLIDS, OR GASES	%	TLV (Units)
* Quaternary ammonium alkyl phosphate - the TLV for the surfactant has not been established, however such low concentrations are not expected to significantly alter the properties of trichlorotrifluoroethane.		

SECTION III PHYSICAL DATA

BOILING POINT (°F.)		118	SPECIFIC GRAVITY (H_2O=1)	77°F	1.57
VAPOR PRESSURE (mm Hg.)	77°F	334	PERCENT VOLATILE BY VOLUME (%)		99.9+
VAPOR DENSITY (AIR=1)	77°F	2.90	EVAPORATION RATE (_____=1)		0.3
SOLUBILITY IN WATER	77°F % by wgt.	0.02			
APPEARANCE AND ODOR	Colorless liquid, slight ethereal odor				

SECTION IV FIRE AND EXPLOSION HAZARD DATA

FLASH POINT (Method used)	None	FLAMMABLE LIMITS	Lel	Uel
		None		
EXTINGUISHING MEDIA	Non-flammable			
SPECIAL FIRE FIGHTING PROCEDURES				
UNUSUAL FIRE AND EXPLOSION HAZARDS	None			

NOTICE FROM DU PONT

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SECTION V HEALTH HAZARD DATA

THRESHOLD LIMIT VALUE: 1000 ppm

EFFECTS OF OVEREXPOSURE: Lightheadedness, giddiness, shortness of breath, possible narcosis, possible cardiac arrhythmias at high concentrations.

EMERGENCY AND FIRST AID PROCEDURES

Inhalation: Remove to fresh air, call a physician, do not give epinephrine or similar drugs.

Eye contact: Flush copiously with water, call physician

Skin contact: Wash with soap and water.

SECTION VI REACTIVITY DATA

STABILITY			CONDITIONS TO AVOID
	UNSTABLE		Open flames or high temperatures
	STABLE	X	

INCOMPATABILITY (Materials to avoid): Alkaki or alkaline earth metals - powdered aluminum, zinc, beryllium etc.

HAZARDOUS DECOMPOSITION PRODUCTS: Hydrochloric and hydrofluoric acids - possible phosgene

HAZARDOUS POLYMERIZATION			CONDITIONS TO AVOID
	MAY OCCUR		
	WILL NOT OCCUR	X	

SECTION VII SPILL OR LEAK PROCEDURES

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED: Ventilate area - especially low places where heavy vapors might collect.

WASTE DISPOSAL METHOD: Evaporate outdoors

SECTION VIII SPECIAL PROTECTION INFORMATION

RESPIRATORY PROTECTION (Specify type): Use air mask with independent supply in high concentrations.

VENTILATION		
LOCAL EXHAUST: When large amounts are released	SPECIAL	
MECHANICAL (General): Especially in low places	OTHER	

PROTECTIVE GLOVES: When handling liquid

EYE PROTECTION: When handling liquid

OTHER PROTECTIVE EQUIPMENT

SECTION IX SPECIAL PRECAUTIONS

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORING: Store containers in a clean dry area.

Do not heat above 125°F.

OTHER PRECAUTIONS: For further information see Freon® Products Laboratory Bulletin S-16.

U.S. DEPARTMENT OF LABOR

Occupational Safety & Health Administration

MATERIAL SAFETY DATA SHEET

SECTION I

MANUFACTURER'S NAME: E. I. duPont de Nemours and Company	EMERGENCY TELEPHONE NO.: (302) 774-1000
ADDRESS (Number, Street, City, State, and ZIP Code): Freon® Products Division, Wilmington, Delaware 19898	
CHEMICAL NAME AND SYNONYMS: Trichlorotrifluoroethane & Ethyl Alcohol	TRADE NAME AND SYNONYMS: Freon® TE
CHEMICAL FAMILY: Halogenated Hydrocarbon	FORMULA: CCl_2FCClF_2 & CH_3CH_2OH

SECTION II HAZARDOUS INGREDIENTS

PAINTS, PRESERVATIVES, & SOLVENTS	%	TLV (Units)	ALLOYS AND METALLIC COATINGS	%	TLV (Units)
PIGMENTS	-		BASE METAL	-	
CATALYST	-		ALLOYS	-	
VEHICLE	-		METALLIC COATINGS	-	
SOLVENTS Ethyl Alcohol	4.1	1000	FILLER METAL PLUS COATING OR CORE FLUX	-	
ADDITIVES Methyl Alcohol	0.4	200	OTHERS	-	
OTHERS	-			-	

HAZARDOUS MIXTURES OF OTHER LIQUIDS, SOLIDS, OR GASES	%	TLV (Units)
None		

SECTION III PHYSICAL DATA

BOILING POINT (°F.)		112.3	SPECIFIC GRAVITY (H_2O = 1)	77°F	1.51
VAPOR PRESSURE (mm Hg.)	77°F	362	PERCENT VOLATILE BY VOLUME (%)		100
VAPOR DENSITY (AIR = 1)	77°F	2.9	EVAPORATION RATE (CCl_4 = 1)		0.5
SOLUBILITY IN WATER	See Section IV				
APPEARANCE AND ODOR	Colorless liquid - faint solvent odor.				

SECTION IV FIRE AND EXPLOSION HAZARD DATA

FLASH POINT (Method used)	None	FLAMMABLE LIMITS	Lel	Uel
EXTINGUISHING MEDIA	Nonflammable			
SPECIAL FIRE FIGHTING PROCEDURES				
UNUSUAL FIRE AND EXPLOSION HAZARDS	Addition of excess water (>0.2%) will extract alcohol and may form a flammable, supernatant liquid layer.			

NOTICE FROM DU PONT

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SECTION V HEALTH HAZARD DATA

THRESHOLD LIMIT VALUE: 1000 (estimated)

EFFECTS OF OVEREXPOSURE: Light-headedness, giddiness, shortness of breath, possible cardiac arrhythmias at high concentrations.

EMERGENCY AND FIRST AID PROCEDURES: Inhalation: Remove to fresh air, call a physician. Do not give epinephrine or similar drugs. Skin or eye contact: Flush with water.

SECTION VI REACTIVITY DATA

STABILITY			CONDITIONS TO AVOID
	UNSTABLE		Open flames or high temperatures.
	STABLE	X	

INCOMPATABILITY (Materials to avoid): Alkali or alkaline earth metals - powdered al, zinc, beryllium etc.

HAZARDOUS DECOMPOSITION PRODUCTS: Hydrochloric and hydrofluoric acids - possible phosgene.

HAZARDOUS POLYMERIZATION			CONDITIONS TO AVOID
	MAY OCCUR		
	WILL NOT OCCUR	X	-

SECTION VII SPILL OR LEAK PROCEDURES

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED: Ventilate area - especially low places where heavy vapors might collect. Remove open flames.

WASTE DISPOSAL METHOD: Evaporate outdoors.

SECTION VIII SPECIAL PROTECTION INFORMATION

RESPIRATORY PROTECTION (Specify type): Use air mask in high concentrations.

VENTILATION		
	LOCAL EXHAUST: When large amounts are released.	SPECIAL
	MECHANICAL (General): Especially in low places.	OTHER

PROTECTIVE GLOVES: When handling liquid.

EYE PROTECTION: When handling liquid.

OTHER PROTECTIVE EQUIPMENT:

SECTION IX SPECIAL PRECAUTIONS

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORING: Store containers in a clean, dry area. Do not heat above 125°F.

OTHER PRECAUTIONS: For further information see Freon® Products Bulletins FST-5G, S-16, S-30.

U.S. DEPARTMENT OF LABOR

Occupational Safety & Health Administration

MATERIAL SAFETY DATA SHEET

SECTION I

MANUFACTURER'S NAME: E.I. DuPont de Nemours and Company	EMERGENCY TELEPHONE NO.: (302) 774-1000
ADDRESS (Number, Street, City, State, and ZIP Code): Freon® Products Division, Wilmington, Delaware 19898	
CHEMICAL NAME AND SYNONYMS: Trichlorotrifluoroethane/ Ethyl Alcohol/ Nitromethane	TRADE NAME AND SYNONYMS: Freon® TES Solvent
CHEMICAL FAMILY: Halogenated Hydrocarbon/Solvent	FORMULA: $CCl_2FCClF_2/C_2H_5OH/CH_3NO_2$

SECTION II HAZARDOUS INGREDIENTS

PAINTS, PRESERVATIVES, & SOLVENTS	%	TLV (Units)	ALLOYS AND METALLIC COATINGS	%	TLV (Units)
PIGMENTS	-		BASE METAL	-	
CATALYST	-		ALLOYS	-	
VEHICLE	-		METALLIC COATINGS	-	
SOLVENTS Ethyl Alcohol	3.64	1000	FILLER METAL PLUS COATING OR CORE FLUX		
ADDITIVES *Inhibitor	1.06	100	OTHERS	-	
OTHERS	-			-	

HAZARDOUS MIXTURES OF OTHER LIQUIDS, SOLIDS, OR GASES	%	TLV (Units)
*Nitromethane, Boiling point 214°F.		

SECTION III PHYSICAL DATA

BOILING POINT (°F.)	111.9	SPECIFIC GRAVITY (H_2O=1) g/cc, 77°F	1.499
VAPOR PRESSURE (mm Hg.) @77°F	287	PERCENT VOLATILE BY VOLUME (%)	100
VAPOR DENSITY (AIR=1)	2.8	EVAPORATION RATE (_____=1)	-
SOLUBILITY IN WATER	0.3 wt. %		
APPEARANCE AND ODOR	Colorless liquid-faint solvent odor		

SECTION IV FIRE AND EXPLOSION HAZARD DATA

FLASH POINT (Method used): None	FLAMMABLE LIMITS: None	LEL	UEL
EXTINGUISHING MEDIA: Nonflammable			
SPECIAL FIRE FIGHTING PROCEDURES			
UNUSUAL FIRE AND EXPLOSION HAZARDS: Addition of excess water (>0.2%) will extract alcohol and may form a flammable, supernatant liquid layer.			

NOTICE FROM DU PONT

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SECTION V HEALTH HAZARD DATA

THRESHOLD LIMIT VALUE: 750 (Calculated)

EFFECTS OF OVEREXPOSURE: Light-headedness, giddiness, shortness of breath, possible cardiac arrhythmias at high concentrations.

EMERGENCY AND FIRST AID PROCEDURES: Inhalation: Remove to fresh air, call a physician. Do not give epinephrine or similar drugs.

Skin or Eye Contact: Flush with water.

SECTION VI REACTIVITY DATA

STABILITY			CONDITIONS TO AVOID
	UNSTABLE		Open flames or high temperatures.
	STABLE	X	

INCOMPATIBILITY (Materials to avoid): Alkali or alkaline earth metals-powdered Al, Zn, Be, etc.

HAZARDOUS DECOMPOSITION PRODUCTS: Hydrochloric and hydrofluoric acids, possible phosgene.

HAZARDOUS POLYMERIZATION			CONDITIONS TO AVOID
	MAY OCCUR		
	WILL NOT OCCUR	X	

SECTION VII SPILL OR LEAK PROCEDURES

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED: Ventilate area-especially low places where heavy vapors might collect. Remove open flames.

WASTE DISPOSAL METHOD: Evaporate outdoors.

SECTION VIII SPECIAL PROTECTION INFORMATION

RESPIRATORY PROTECTION (Specify type): Use air mask in high concentrations.

VENTILATION		
	LOCAL EXHAUST: When large amounts are released.	SPECIAL
	MECHANICAL (General): Especially in low places.	OTHER

PROTECTIVE GLOVES: When handling liquid.

EYE PROTECTION: When handling liquid.

OTHER PROTECTIVE EQUIPMENT

SECTION IX SPECIAL PRECAUTIONS

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORING: Store containers in a clean, dry area. Do not store above 125°F.

OTHER PRECAUTIONS: For further information see Freon® Products Bulletin S-30.

U.S. DEPARTMENT OF LABOR

Occupational Safety & Health Administration

MATERIAL SAFETY DATA SHEET

SECTION I

MANUFACTURER'S NAME: E. I. duPont de Nemours & Company	EMERGENCY TELEPHONE NO.: (302) 774-1000
ADDRESS (Number, Street, City, State, and ZIP Code): Freon® Products Division, Wilmington, Delaware 19898	
CHEMICAL NAME AND SYNONYMS: Trichlorotrifluoroethane	TRADE NAME AND SYNONYMS: Freon® TF
CHEMICAL FAMILY: Halogenated Hydrocarbon	FORMULA: CCl_2FCClF_2

SECTION II HAZARDOUS INGREDIENTS

PAINTS, PRESERVATIVES, & SOLVENTS	%	TLV (Units)	ALLOYS AND METALLIC COATINGS	%	TLV (Units)
PIGMENTS	-		BASE METAL	-	
CATALYST	-		ALLOYS	-	
VEHICLE	-		METALLIC COATINGS	-	
SOLVENTS	-		FILLER METAL PLUS COATING OR CORE FLUX	-	
ADDITIVES	-		OTHERS	-	
OTHERS	-			-	

HAZARDOUS MIXTURES OF OTHER LIQUIDS, SOLIDS, OR GASES	%	TLV (Units)
None		

SECTION III PHYSICAL DATA

BOILING POINT (°F.)		117.6	SPECIFIC GRAVITY (H_2O=1) 77°F	1.57
VAPOR PRESSURE (mm Hg.)	77°F	334	PERCENT VOLATILE BY VOLUME (%)	100
VAPOR DENSITY (AIR=1)	77°F	2.9	EVAPORATION RATE (CCl_4=1)	0.3
SOLUBILITY IN WATER 77°F, % by wt.		0.02		
APPEARANCE AND ODOR	Colorless liquid - slight ethereal odor.			

SECTION IV FIRE AND EXPLOSION HAZARD DATA

FLASH POINT (Method used) None	FLAMMABLE LIMITS None	Lel	Uel
EXTINGUISHING MEDIA	Nonflammable		
SPECIAL FIRE FIGHTING PROCEDURES			
UNUSUAL FIRE AND EXPLOSION HAZARDS	None		

NOTICE FROM DU PONT

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SECTION V HEALTH HAZARD DATA

THRESHOLD LIMIT VALUE: 1000 ppm.

EFFECTS OF OVEREXPOSURE: Light-headedness, giddiness, shortness of breath, possible narcosis, possible cardiac arrhythmias at high concentrations.

EMERGENCY AND FIRST AID PROCEDURES: Inhalation: Remove to fresh air, call a physician. Do not give epinephrine or similar drugs.

Skin or eye contact: Flush with water.

SECTION VI REACTIVITY DATA

STABILITY			CONDITIONS TO AVOID
	UNSTABLE		Open flames or high temperatures.
	STABLE	X	

INCOMPATABILITY (Materials to avoid): Alkali or alkaline earch metals - powdered Al, Zinc, Beryllium, etc.

HAZARDOUS DECOMPOSITION PRODUCTS: Hydrochloric and hydrofluoric acids - possible phosgene.

HAZARDOUS POLYMERIZATION			CONDITIONS TO AVOID
	MAY OCCUR		
	WILL NOT OCCUR	X	

SECTION VII SPILL OR LEAK PROCEDURES

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED: Ventilate area - especially low places where heavy vapors might collect. Remove open flames.

WASTE DISPOSAL METHOD: Evaporate outdoors.

SECTION VIII SPECIAL PROTECTION INFORMATION

RESPIRATORY PROTECTION (Specify type): Use air mask in high concentrations.

VENTILATION		
	LOCAL EXHAUST: When large amounts are released.	SPECIAL
	MECHANICAL (General): Especially in low places.	OTHER

PROTECTIVE GLOVES: When handling liquid.

EYE PROTECTION: When handling liquid.

OTHER PROTECTIVE EQUIPMENT

SECTION IX SPECIAL PRECAUTIONS

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORING: Store containers in a clean, dry, area. Do not heat above 125°F.

OTHER PRECAUTIONS: For further information see Freon® Products Bulletins FST-1, S-16, S-24, S-30.

U.S. DEPARTMENT OF LABOR

Occupational Safety & Health Administration

MATERIAL SAFETY DATA SHEET

SECTION I

MANUFACTURER'S NAME: E. I. DuPont de Nemours and Company	EMERGENCY TELEPHONE NO.: (302) 774-1000
ADDRESS (Number, Street, City, State, and ZIP Code): Freon® Products Division, Wilmington, Delaware 19898	
CHEMICAL NAME AND SYNONYMS: Trichlorotrifluoroethane & Methylene Chloride	TRADE NAME AND SYNONYMS: Freon® TMC
CHEMICAL FAMILY: Halogenated Hydrocarbon	FORMULA: CCl_2FCClF_2 and CH_2Cl_2

SECTION II HAZARDOUS INGREDIENTS

PAINTS, PRESERVATIVES, & SOLVENTS	%	TLV (Units)	ALLOYS AND METALLIC COATINGS	%	TLV (Units)
PIGMENTS		-	BASE METAL		-
CATALYST		-	ALLOYS		-
VEHICLE		-	METALLIC COATINGS		-
SOLVENTS Methylene Chloride	50	100 ppm 200*	FILLER METAL PLUS COATING OR CORE FLUX		-
ADDITIVES		-	OTHERS		-
OTHERS		-			-

HAZARDOUS MIXTURES OF OTHER LIQUIDS, SOLIDS, OR GASES	%	TLV (Units)
* Intended change for 1975		

SECTION III PHYSICAL DATA

BOILING POINT (°F.)		97.7	SPECIFIC GRAVITY (H_2O=1)	77°F	1.42
VAPOR PRESSURE (mm Hg.)	77°F	500	PERCENT VOLATILE BY VOLUME (%)		100
VAPOR DENSITY (AIR=1)	77°F	2.7	EVAPORATION RATE (_____=1)		0.3
SOLUBILITY IN WATER		Slight			
APPEARANCE AND ODOR					

SECTION IV FIRE AND EXPLOSION HAZARD DATA

FLASH POINT (Method used)	None	FLAMMABLE LIMITS	None	Lel / Uel
EXTINGUISHING MEDIA	Nonflammable			
SPECIAL FIRE FIGHTING PROCEDURES				
UNUSUAL FIRE AND EXPLOSION HAZARDS	None			

NOTICE FROM DU PONT

The data in this Material Safety Data Sheet relates only to the specific material designated herein and does not relate to use in combination with any other material or in any process.

SECTION V HEALTH HAZARD DATA

THRESHOLD LIMIT VALUE: 140 (est'd)* 270 (est'd)** TWA 600 (est'd)***

EFFECTS OF OVEREXPOSURE: Light-headedness, shortness of breath, possible narcosis, possible cardiac arrhythmias at high concentrations

EMERGENCY AND FIRST AID PROCEDURES: Inhalation: Remove to fresh air, call a physician. Do not give epinephrine or similar drugs.

Skin or eye contact: Flush with water.

SECTION VI REACTIVITY DATA

STABILITY			CONDITIONS TO AVOID
	UNSTABLE		Open flames or high temperatures
	STABLE	X	

INCOMPATABILITY (Materials to avoid): Alkali or alkaline earth metals - pdrd. al, zinc, beryllium, etc.

HAZARDOUS DECOMPOSITION PRODUCTS: Hydrochloric and hydrofluoric acids - possible phosgene

HAZARDOUS POLYMERIZATION			CONDITIONS TO AVOID
	MAY OCCUR		
	WILL NOT OCCUR	X	

SECTION VII SPILL OR LEAK PROCEDURES

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED: Ventilate area - especially low places where heavy vapors might collect. Remove open flames.

WASTE DISPOSAL METHOD: Evaporate outdoors.

SECTION VIII SPECIAL PROTECTION INFORMATION

RESPIRATORY PROTECTION (Specify type): Use air mask in high concentrations

VENTILATION		
	LOCAL EXHAUST: When large amounts are released	SPECIAL
	MECHANICAL (General): Especially in low places	OTHER

PROTECTIVE GLOVES: When handling liquid

EYE PROTECTION: When handling liquid

OTHER PROTECTIVE EQUIPMENT

SECTION IX SPECIAL PRECAUTIONS

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORING: Store containers in a clean, dry, area. Do not heat above 125°F.

OTHER PRECAUTIONS: For further information see Freon® Products bulletins EST-5A, S-16, S-30.

* If TLV for CH_2Cl_2 is 100,
** If TLV for CH_2Cl_2 is 200,
*** Federal Register Vol. 36, No. 105, May 29, 1971

U.S. DEPARTMENT OF LABOR

Occupational Safety & Health Administration

MATERIAL SAFETY DATA SHEET

SECTION I

MANUFACTURER'S NAME: E. I. DuPont de Nemours and Company	EMERGENCY TELEPHONE NO.: (302) 774-1000
ADDRESS (Number, Street, City, State, and ZIP Code): Freon® Products Division, Wilmington, Delaware 19898	
CHEMICAL NAME AND SYNONYMS: Trichlorotrifluoroethane/ Methyl alcohol/Nitromethane	NAME AND SYNONYMS: Freon® TMS Solvent
CHEMICAL FAMILY: Halogenated Hydrocarbon/Solvent	FORMULA: $CCl_2FCClF_2/CH_3OH/CH_3NO_2$

SECTION II HAZARDOUS INGREDIENTS

PAINTS, PRESERVATIVES, & SOLVENTS	%	TLV (Units)	ALLOYS AND METALLIC COATINGS	%	TLV (Units)
PIGMENTS	-		BASE METAL	-	
CATALYST	-		ALLOYS	-	
VEHICLE	-		METALLIC COATINGS	-	
SOLVENTS Methyl Alcohol	5.5	200	FILLER METAL PLUS COATING OR CORE FLUX	-	
ADDITIVES *Inhibitor	0.2	100	OTHERS	-	
OTHERS	-			-	

HAZARDOUS MIXTURES OF OTHER LIQUIDS, SOLIDS, OR GASES	%	TLV (Units)
*Nitromethane, Boiling point 214°F.		

SECTION III PHYSICAL DATA

BOILING POINT (°F.)	103.3	SPECIFIC GRAVITY (H_2O=1) g/cc 77°F	1.52
VAPOR PRESSURE (mm Hg.) Calculated, 77°F.	273	PERCENT VOLATILE BY VOLUME (%) Calc.	100
VAPOR DENSITY (AIR=1) Calculated	2.8	EVAPORATION RATE (_____=1)	N.D.
SOLUBILITY IN WATER Est.	<0.5%		
APPEARANCE AND ODOR Colorless liquid-faint solvent odor.			

SECTION IV FIRE AND EXPLOSION HAZARD DATA

FLASH POINT (Method used) None	FLAMMABLE LIMITS None	Lel	Uel
EXTINGUISHING MEDIA Noneflammable			
SPECIAL FIRE FIGHTING PROCEDURES			
UNUSUAL FIRE AND EXPLOSION HAZARDS Addition of excess water (>0.2%) will extract alcohol and may form a flammable, supernatant liquid layer.			

NOTICE FROM DU PONT

The data in this Material Safety Data Sheet relates only to the specific material designated herein and does not relate to use in combination with any other material or in any process.

SECTION V HEALTH HAZARD DATA

THRESHOLD LIMIT VALUE: 480 (Calculated)

EFFECTS OF OVEREXPOSURE: Light-headedness, giddiness, shortness of breath, possible cardiac arrhythmias at high concentrations.

EMERGENCY AND FIRST AID PROCEDURES: Inhalation: Remove to fresh air, call a physician. Do not give epinephrine or similar drugs.

Skin or Eye Contact: Flush with water.

SECTION VI REACTIVITY DATA

STABILITY			CONDITIONS TO AVOID
	UNSTABLE		Open flames or high temperatures.
	STABLE	X	

INCOMPATABILITY (Materials to avoid): Alkali or alkaline earth metals-powdered Al, Zn, Be, etc.

HAZARDOUS DECOMPOSITION PRODUCTS: Hydrochloric and hydrofluoric acids-possible phosgene.

HAZARDOUS POLYMERIZATION			CONDITIONS TO AVOID
	MAY OCCUR		
	WILL NOT OCCUR	X	

SECTION VII SPILL OR LEAK PROCEDURES

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED: Ventilate area-especially low places where heavy vapors might collect. Remove open flames.

WASTE DISPOSAL METHOD: Evaporate outdoors.

SECTION VIII SPECIAL PROTECTION INFORMATION

RESPIRATORY PROTECTION (Specify type): Use air mask in high concentrations.

VENTILATION		
	LOCAL EXHAUST: When large amounts are released.	SPECIAL
	MECHANICAL (General): Especially in low places.	OTHER

PROTECTIVE GLOVES: When handling liquid.

EYE PROTECTION: When handling liquid.

OTHER PROTECTIVE EQUIPMENT

SECTION IX SPECIAL PRECAUTIONS

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORING: Store containers in a clean, dry area. Do not store above 125°F.

OTHER PRECAUTIONS: For further information see Freon® Products Bulletin S-30.

M A T E R I A L S A F E T Y D A T A S H E E T PAGE: 1

DOW CHEMICAL U.S.A. MIDLAND MICHIGAN 48640 EMERGENCY PHONE: 517-636-4400

EFFECTIVE DATE: 26 SEP 79 PRODUCT CODE: 56530

PRODUCT NAME: NEU-TRI (R) SOLVENT MSD: 0168

INGREDIENTS (TYPICAL VALUES-NOT SPECIFICATIONS)	%
TRICHLOROETHYLENE (MINIMUM)	95

SECTION 1 PHYSICAL DATA

BOILING POINT: 189F (87C)
VAP PRESS: 60 MMHG @ 20C
VAP DENSITY (AIR=1): 4.53
APPEARANCE AND ODOR: COLORLESS LIQUID.

: SOL. IN WATER: 0.1 G/100G @ 25C
: SP. GRAVITY: 1.46 @ 25/25C
: % VOLATILE BY VOL: 100 (ESSENTIALLY)

SECTION 2 FIRE AND EXPLOSION HAZARD DATA

FLASH POINT: NONE
METHOD USED: TCC
EXTINGUISHING MEDIA: WATER FOG.

: FLAMMABLE LIMITS (STP IN AIR)
: LFL: 7.8VOL% 100C UFL: 52 VOL% 100C
8.0 VOL% 25C 10.5 VOL% 25C

SPECIAL FIRE FIGHTING EQUIPMENT AND HAZARDS: PRESSURE DEMAND SELF-CONTAINED RESPIRATORY PROTECTION. STRONG UNPLEASANT ODOR. NOT CONSIDERED A FLAMMABLE LIQUID UNDER NORMAL INDUSTRIAL USE CONDITIONS. AUTOIGNITION TEMPERATURE IS 788F, 420C.

SECTION 3 REACTIVITY DATA

STABILITY: AVOID OPEN FLAMES, WELDING ARCS, OR OTHER HIGH TEMPERATURE SOURCES WHICH INDUCE THERMAL DECOMPOSITION.
INCOMPATIBILITY: STRONG BASES: CAUSTIC SODA, CAUSTIC POTASH.
HAZARDOUS DECOMPOSITION PRODUCTS: INVOLVEMENT IN FIRE FORMS HYDROGEN CHLORIDE AND VERY SMALL AMOUNTS OF PHOSGENE & CHLORINE.
HAZARDOUS POLYMERIZATION: WILL NOT OCCUR.

SECTION 4 SPILL, LEAK, AND DISPOSAL PROCEDURES

ACTION TO TAKE FOR SPILLS (USE APPROPRIATE SAFETY EQUIPMENT): SMALL SPILLS MOP UP, WIPE UP OR SOAK UP IMMEDIATELY. REMOVE TO OUT OF DOORS. LARGE SPILLS: EVACUATE AREA. CONTAIN LIQUID; TRANSFER TO CLOSED METAL CONTAINERS. KEEP OUT OF WATER SUPPLY.
DISPOSAL METHOD: SEND SOLVENT TO A RECLAIMER. IN SOME CASES, SMALL AMOUNTS MAY BE TRANSPORTED TO AN AREA WHERE IT CAN BE PLACED ON THE GROUND AND ALLOWED TO EVAPORATE SAFELY IF LOCAL, STATE AND FEDERAL REGULATIONS PERMIT.

(CONTINUED ON PAGE 2)
(R) INDICATES A REGISTERED OR TRADEMARK NAME OF THE DOW CHEMICAL COMPANY

MATERIAL SAFETY DATA SHEET

DOW CHEMICAL U.S.A. MIDLAND MICHIGAN 48640 EMERGENCY PHONE: 517-636-4400

EFFECTIVE DATE: 26 SEP 79 PRODUCT CODE: 56530
PRODUCT (CONT'D): NEU-TRI (R) SOLVENT MSD: 0168

SECTION 5 HEALTH HAZARD DATA

INGESTION: LOW ACUTE ORAL TOXICITY IN RATS, LD50 > 4 G/KG. BUT MAY BE MODERATELY TOXIC IN HUMANS.
EYE CONTACT: PAIN AND IRRITATION, BUT NO (OR ONLY MINOR) CORNEAL INJURY LIKELY.
SKIN CONTACT: SHORT CONTACT - NO IRRITATION. PROLONGED OR REPEATED CONTACT - MODERATE IRRITATION AND DRYING MAY OCCUR. IF CONFINED TO SKIN - PAIN AND A BURN.
SKIN ABSORPTION: VERY LOW TOXICITY; NOT A HAZARD.
INHALATION: ACGIH TLV AND OSHA GUIDE IS 100 PPM.
EFFECTS OF OVEREXPOSURE: ANESTHESIA. PROLONGED OR REPEATED EXPOSURES TO LEVELS OVER 100 PPM - POSSIBLE ORGANIC INJURY. CAN CAUSE DEATH IF TOO MUCH IF BREATHED.

SECTION 6 FIRST AID--NOTE TO PHYSICIAN

FIRST AID PROCEDURES:

EYES: IRRIGATE WITH FLOWING WATER IMMEDIATELY AND CONTINUOUSLY FOR FIFTEEN MINUTES. REFER TO MEDICAL PERSONNEL.
SKIN: IN CASE OF CONTACT, IMMEDIATELY FLUSH SKIN WITH PLENTY OF WATER FOR AT LEAST 15 MINUTES WHILE REMOVING CONTAMINATED CLOTHING. CALL A PHYSICIAN. WASH CLOTHING BEFORE REUSE.
INHALATION: REMOVE TO FRESH AIR IF EFFECTS OCCUR. IF RESPIRATION STOPS, GIVE MOUTH-TO-MOUTH RESUSCITATION. CALL PHYSICIAN AND/OR TRANSPORT TO MEDICAL FACILITY.
INGESTION: DO NOT INDUCE VOMITING. CALL A PHYSICIAN OR TRANSPORT TO EMERGENCY FACILITY.

NOTE TO PHYSICIAN:
EYES: MAY CAUSE MODERATE IRRITATION. STAIN FOR EVIDENCE OF CORNEAL INJURY. IF CORNEA IS BURNED, INSTILL ANTIBIOTIC STEROID PREPARATION FREQUENTLY. CONSULT OPHTHALMOLOGIST.
SKIN: MAY CAUSE MILD IRRITATION. CHRONIC EXPOSURE MAY CAUSE DEFATTING TYPE OF DERMATITIS. TREAT AS ANY CONTACT DERMATITIS.
RESPIRATORY: MAY CAUSE DRUNKENNESS. ANESTHETIC OR NARCOTIC EFFECT MAY OCCUR. ADMINISTER OXYGEN IF AVAILABLE. BRONCHODILATORS, EXPECTORANTS, AND ANTITUSSIVES MAY BE OF HELP. MECHANICAL SUPPORT OF RESPIRATION MAY BE NEEDED.
ORAL: MAY CAUSE CHEMICAL PNEUMONIA IF ASPIRATED INTO LUNGS. IF LAVAGE IS PERFORMED, SUGGEST ENDOTRACHEAL AND/OR ESOPHAGOSCOPIC CONTROL. LOW IN TOXICITY.
SYSTEMIC: MAY INCREASE MYOCARDIAL IRRITABILITY. AVOID EPINEPHRINE OR SIMILAR ACTING DRUGS IF AT ALL POSSIBLE. LIVER AND KIDNEY INJURY POSSIBLE WITH OVEREXPOSURE. MAY CAUSE NAUSEA OR VOMITING. ALCOHOL CONSUMED BEFORE AND AFTER EXPOSURE MAY INCREASE INJURY. NO SPECIFIC ANTIDOTE. CONSULT STANDARD LITERATURE. SUPPORTIVE CARE. ANIMAL STUDIES SUGGEST IT MAY BE A CARCINOGEN.

(CONTINUED ON PAGE 3)
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SECTION 7 SPECIAL HANDLING INFORMATION

VENTILATION: RECOMMEND CONTROL OF VAPORS TO SUGGESTED GUIDE.
RESPIRATORY PROTECTION: NIOSH APPROVED RESPIRATORY PROTECTION REQUIRED IN ABSENCE OF PROPER ENVIRONMENTAL CONTROL. FOR EMERGENCIES, A SELF-CONTAINED BREATHING APPARATUS OR A FULL-FACE RESPIRATOR AS APPROVED BY NIOSH IS RECOMMENDED.
PROTECTIVE CLOTHING: NONE REQUIRED.
EYE PROTECTION: SAFETY GLASSES WITHOUT SIDE SHIELDS.

SECTION 8 SPECIAL PRECAUTIONS AND ADDITIONAL INFORMATION

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORAGE: HANDLE WITH REASONABLE CARE. AVOID BREATHING VAPORS. STORE IN COOL PLACE. VAPORS OF THIS PRODUCT ARE HEAVIER THAN AIR AND WILL COLLECT IN LOW AREAS SUCH AS PITS, DEGREASERS, STORAGE TANKS, AND OTHER CONFINED AREAS. DO NOT ENTER THESE AREAS WHERE VAPORS OF THIS PRODUCT ARE SUSPECTED UNLESS SPECIAL BREATHING APPARATUS IS USED AND AN OBSERVER IS PRESENT FOR ASSISTANCE.
ADDITIONAL INFORMATION: ----

LAST PAGE

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M A T E R I A L S A F E T Y D A T A S H E E T

DOW CHEMICAL U.S.A. MIDLAND MICHIGAN 48640 EMERGENCY PHONE: 517-636-4400

EFFECTIVE DATE: 08 FEB 80 PRODUCT CODE: 85869

PRODUCT NAME: TETRAETHYLENE GLYCOL MSD: 0512

INGREDIENTS (TYPICAL VALUES-NOT SPECIFICATIONS)	%
TETRAETHYLENE GLYCOL	99

SECTION 1 PHYSICAL DATA

BOILING POINT: 597F
VAP PRESS: 0.01 MMHG @ 20C
VAP DENSITY (AIR=1): 1
SOL. IN WATER: COMPLETELY MISCIBLE
SP. GRAVITY: DENSITY 1.12 @ 25C
% VOLATILE BY VOL: NOT APPL.
APPEARANCE AND ODOR: COLORLESS LIQUID, MILD ODOR.

SECTION 2 FIRE AND EXPLOSION HAZARD DATA

FLASH POINT: 400F
METHOD USED: PMCC
FLAMMABLE LIMITS (STP IN AIR)
LFL: NOT DETER. UFL: NOT DETER.
EXTINGUISHING MEDIA: WATER FOG, ALCOHOL FOAM.
SPECIAL FIRE FIGHTING EQUIPMENT AND HAZARDS: ----

SECTION 3 REACTIVITY DATA

STABILITY: ----
INCOMPATIBILITY: OXIDIZING MATERIAL.
HAZARDOUS DECOMPOSITION PRODUCTS: ----
HAZARDOUS POLYMERIZATION: WILL NOT OCCUR.

SECTION 4 SPILL, LEAK, AND DISPOSAL PROCEDURES

ACTION TO TAKE FOR SPILLS (USE APPROPRIATE SAFETY EQUIPMENT): DAM TO PREVENT WATER POLLUTION. RECOVER WITH VACUUM TRUCK AND REFER TO PLANT FOR REPROCESSING.
DISPOSAL METHOD: BURN IN ACCORDANCE WITH LOCAL LAWS.

SECTION 5 HEALTH HAZARD DATA

INGESTION: VERY LOW SINGLE DOSE ORAL TOXICITY; LD50 RATS 32.8 G/KG.
EYE CONTACT: ESSENTIALLY NO IRRITATION AND NO CORNEAL INJURY.
SKIN CONTACT: ESSENTIALLY NO IRRITATION.
SKIN ABSORPTION: NOT CONSIDERED TO BE A PROBLEM BECAUSE OF ITS LOW

(CONTINUED ON PAGE 2)
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EFFECTIVE DATE: 08 FEB 80 PRODUCT CODE: 85869
PRODUCT (CONT'D): TETRAETHYLENE GLYCOL MSD: 0512

SECTION 5 HEALTH HAZARD DATA (CONTINUED)

SKIN ABSORPTION: (CONTINUED)
TOXICITY BY THIS ROUTE.
INHALATION: NO GUIDE FOR CONTROL KNOWN. MATERIAL HAS VERY LOW VOLATILITY. HEATED VAPORS MAY BE VERY IRRITATING TO RESPIRATORY TRACT.
EFFECTS OF OVEREXPOSURE: ----

SECTION 6 FIRST AID--NOTE TO PHYSICIAN

FIRST AID PROCEDURES:

EYES: IRRIGATION OF THE EYE IMMEDIATELY WITH WATER FOR FIVE MINUTES IS GOOD SAFETY PRACTICE.
SKIN: CONTACT WILL PROBABLY CAUSE NO MORE THAN IRRITATION. WASH OFF IN FLOWING WATER OR SHOWER.
INHALATION: REMOVE TO FRESH AIR IF EFFECTS OCCUR. CONSULT MEDICAL PERSONNEL.
INGESTION: LOW IN TOXICITY. INDUCE VOMITING IF LARGE AMOUNTS ARE INGESTED.
NOTE TO PHYSICIAN:
EYES: INJURY IS UNLIKELY. STAIN FOR EVIDENCE OF CORNEAL INJURY.
SKIN: NO EFFECT EXPECTED.
RESPIRATORY: HEATED VAPORS MAY CAUSE MILD IRRITATION. BRONCHODILATORS, EXPECTORANTS AND ANTITUSSIVES MAY BE OF HELP.
ORAL: LOW IN TOXICITY
SYSTEMIC: HUMAN EFFECTS NOT ESTABLISHED. BASED ON MINIMAL DATA. NO SPECIFIC ANTIDOTE. TREATMENT BASED ON SOUND JUDGMENT OF PHYSICIAN AND INDIVIDUAL REACTION OF THE PATIENT.

SECTION 7 SPECIAL HANDLING INFORMATION

VENTILATION: GOOD ROOM VENTILATION USUALLY ADEQUATE FOR MOST OPERATIONS.
RESPIRATORY PROTECTION: NONE NORMALLY NEEDED.
PROTECTIVE CLOTHING: CLEAN, BODY-COVERING CLOTHING.
EYE PROTECTION: SAFETY GLASSES WITHOUT SIDE SHIELDS.

SECTION 8 SPECIAL PRECAUTIONS AND ADDITIONAL INFORMATION

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORAGE: PRACTICE REASONABLE

(CONTINUED ON PAGE 3)
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EFFECTIVE DATE: 08 FEB 80 PRODUCT CODE: 85869
PRODUCT (CONT'D): TETRAETHYLENE GLYCOL MSD: 0512

SECTION 8 SPECIAL PRECAUTIONS AND ADDITIONAL INFORMATION (CONTINUED)

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORAGE: (CONTINUED)
CARE TO AVOID EXPOSURE.

ADDITIONAL INFORMATION: REVISION 2/8/80 -- NOTE TO PHYSICIAN.

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M A T E R I A L S A F E T Y D A T A S H E E T

DOW CHEMICAL U.S.A. MIDLAND MICHIGAN 48640 EMERGENCY PHONE: 517-636-4400

EFFECTIVE DATE: 18 DEC 79

PRODUCT CODE: 87429

PRODUCT NAME: 1,1,2-TRICHLOROETHANE (STABILIZED)

MSD: 0198

INGREDIENTS (TYPICAL VALUES-NOT SPECIFICATIONS)	%
1,1,2-TRICHLOROETHANE	100

SECTION 1 PHYSICAL DATA

BOILING POINT: 236.6F (114C)
VAP PRESS: 18.8 MMHG @ 20C
VAP DENSITY (AIR=1): 4.55
SOL. IN WATER: 0.45 GM/100GM @ 25C
SP. GRAVITY: 1.432 25/25C
% VOLATILE BY VOL: 100 (ESSENTIALLY)
APPEARANCE AND ODOR: COLORLESS LIQUID, CHLOROFORM-LIKE ODOR.

SECTION 2 FIRE AND EXPLOSION HAZARD DATA

FLASH POINT: NONE
METHOD USED: TCC
FLAMMABLE LIMITS (STP IN AIR)
LFL: 6.4 VOL % UFL: 13.3 VOL %
EXTINGUISHING MEDIA: WATER FOG, FOAM, CO2, DRY CHEMICAL.
SPECIAL FIRE FIGHTING EQUIPMENT AND HAZARDS: SELF-CONTAINED RESPIRATORY EQUIPMENT AND FULL PROTECTIVE CLOTHING. STRONG UNPLEASANT ODOR. NOT CONSIDERED A FLAMMABLE LIQUID UNDER NORMAL INDUSTRIAL USE CONDITIONS BUT FORMS FLAMMABLE VAPOR-AIR MIXTURE AT 109F AND HIGHER.

SECTION 3 REACTIVITY DATA

STABILITY: AVOID OPEN FLAMES, WELDING ARCS, OR OTHER HIGH TEMPERATURE SOURCES WHICH INDUCE THERMAL DECOMPOSITION.
INCOMPATIBILITY: OXIDIZING MATERIAL, ALUMINUM.
HAZARDOUS DECOMPOSITION PRODUCTS: HYDROGEN CHLORIDE AND VERY SMALL AMOUNTS OF PHOSGENE AND CHLORINE.
HAZARDOUS POLYMERIZATION: WILL NOT OCCUR.

SECTION 4 SPILL, LEAK, AND DISPOSAL PROCEDURES

ACTION TO TAKE FOR SPILLS (USE APPROPRIATE SAFETY EQUIPMENT): SMALL SPIL MOP UP, WIPE UP OR SOAK UP IMMEDIATELY. REMOVE TO OUT OF DOORS. LARGE SPILLS: EVACUATE AREA. CONTAIN LIQUID; TRANSFER TO CLOSED METAL CONTAINERS. KEEP OUT OF WATER SUPPLY.
DISPOSAL METHOD: SEND SOLVENT TO A RECLAIMER. IN SOME CASES, SMALL AMOUNTS MAY BE TRANSPORTED TO AN AREA WHERE IT CAN BE PLACED ON THE GROUND AND ALLOWED TO EVAPORATE SAFETY IF LOCAL, STATE AND FEDERAL REGULATIONS PERMIT.

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(R) INDICATES A REGISTERED OR TRADEMARK NAME OF THE DOW CHEMICAL COMPANY

DOW CHEMICAL U.S.A. MIDLAND MICHIGAN 48640 EMERGENCY PHONE: 517-636-4400

EFFECTIVE DATE: 16 DEC 79 PRODUCT CODE: 87429
PRODUCT (CONT'D): 1,1,2-TRICHLOROETHANE (STABILIZED) MSD: 0198

SECTION 5 HEALTH HAZARD DATA

INGESTION: MODERATE TO HIGH ACUTE ORAL TOXICITY. LD50 (RATS) IN THE RANGE OF 100 MG/KG.
EYE CONTACT: UP TO MODERATE IRRITATION; POSSIBLE MINOR TRANSIENT CORNEAL INJURY.
SKIN CONTACT: SINGLE SHORT EXPOSURE - NO SIGNIFICANT IRRITATION. PROLONGED OR REPEATED EXPOSURE - MINOR IRRITATION. POSSIBLY A SUPERFICIAL BURN.
SKIN ABSORPTION: LOW TOXICITY. LD50 (RABBITS) >1000 MG/KG.
INHALATION: OSHA GUIDE IS 10 PPM (1975).
EFFECTS OF OVEREXPOSURE: CENTRAL NERVOUS SYSTEM DEPRESSION; ORGANIC INJURY. CAN CAUSE DEATH IF TOO MUCH IS BREATHED.

SECTION 6 FIRST AID--NOTE TO PHYSICIAN

FIRST AID PROCEDURES:

EYES: IRRIGATE WITH FLOWING WATER IMMEDIATELY AND CONTINUOUSLY FOR 15 MINUTES. REFER TO MEDICAL PERSONNEL.
SKIN: IN CASE OF CONTACT, IMMEDIATELY FLUSH SKIN WITH PLENTY OF WATER FOR AT LEAST 15 MINUTES WHILE REMOVING CONTAMINATED CLOTHING. CALL A PHYSICIAN. WASH CLOTHING BEFORE REUSE.
INHALATION: REMOVE TO FRESH AIR IF EFFECTS OCCUR. CALL PHYSICIAN AND/OR TRANSPORT TO MEDICAL FACILITY. IF RESPIRATION STOPS, GIVE MOUTH-TO-MOUTH RESUSCITATION.
INGESTION: TOXIC BY INGESTION. INDUCE VOMITING IMMEDIATELY AND CONSULT MEDICAL.

NOTE TO PHYSICIAN:
EYES: MAY CAUSE MODERATE IRRITATION. STAIN FOR EVIDENCE OF CORNEAL INJURY. IF CORNEA IS BURNED, INSTILL ANTIBIOTIC STEROID PREPARATION FREQUENTLY. CONSULT OPHTHALMOLOGIST.
SKIN: MAY CAUSE MILD IRRITATION. CHRONIC EXPOSURE MAY CAUSE DEFATTING TYPE OF DERMATITIS. TREAT AS ANY CONTACT DERMATITIS.
RESPIRATORY: HIGHLY TOXIC. ANESTHETIC OR NARCOTIC EFFECT MAY OCCUR. ADMINISTER OXYGEN IF AVAILABLE. MECHANICAL SUPPORT OF RESPIRATION MAY BE NEEDED. BRONCHODILATORS, EXPECTORANTS, AND ANTITUSSIVES MAY BE OF HELP.
ORAL: HIGHLY TOXIC. MAY CAUSE KIDNEY DAMAGE. MAY CAUSE LIVER DAMAGE. MAY CAUSE REACTION SMILAR TO PETROLEUM OR PETROLEUM LIKE SOLVENT. MAY CAUSE CHEMICAL PNEUMONIA IF ASPIRATED INTO LUNGS. IF LAVAGE IS PERFORMED, SUGGEST ENDOTRACHEAL AND/OR ESOPHAGOSCOPIC CONTROL.
SYSTEMIC: CAUTION: DO NOT CONFUSE THIS MATERIAL WITH THE MUCH LESS TOXIC 1,1,1-TRICHLOROETHANE. MAY CAUSE KIDNEY AND/OR LIVER DAMAGE. MAY INCREASE MYOCARDIAL IRRITABILITY. AVOID EPINEPHRI OR SIMILAR ACTING DRUGS IF AT ALL POSSIBLE. ALCOHOL CONSUMED BEFORE OR AFTER EXPOSURE MAY INCREASE INJURY. CONSULT STANDARD LITERATURE. NO SPECIFIC ANTIDOTE.

(CONTINUED ON PAGE 3)
(R) INDICATES A REGISTERED OR TRADEMARK NAME OF THE DOW CHEMICAL COMPANY

DOW CHEMICAL U.S.A. MIDLAND MICHIGAN 48640 EMERGENCY PHONE: 517-636-4400

EFFECTIVE DATE: 18 DEC 79 PRODUCT CODE: 87429
PRODUCT (CONT'D): 1,1,2-TRICHLOROETHANE (STABILIZED) MSD: 0198

SECTION 7 SPECIAL HANDLING INFORMATION

VENTILATION: RECOMMEND CONTROL OF VAPORS TO SUGGESTED GUIDE.
RESPIRATORY PROTECTION: NIOSH APPROVED RESPIRATORY PROTECTION REQUIRED IN ABSENCE OF PROPER ENVIRONMENTAL CONTROL. FOR EMERGENCIES, A SELF-CONTAINED BREATHING APPARATUS OR A FULL-FACE RESPIRATOR AS APPROVED BY NIOSH IS RECOMMENDED.
PROTECTIVE CLOTHING: NO SPECIAL PROTECTIVE CLOTHING NEEDED.
EYE PROTECTION: SAFETY GLASSES WITHOUT SIDE SHIELDS. EYE WASH STATIONS AND SAFETY SHOWERS SHOULD BE READILY AVAILABLE.

SECTION 8 SPECIAL PRECAUTIONS AND ADDITIONAL INFORMATION

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORAGE: AVOID EYE AND SKIN CONTACTS AND BREATHING OF VAPORS. STORE IN A COOL, DRY PLACE.
ADDITIONAL INFORMATION: REVISIONS 12/18/79 --- EFFECTS OF OVEREXPOSURE, DISPOSAL METHOD.

LAST PAGE

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M A T E R I A L S A F E T Y D A T A S H E E T PAGE: 1

DOW CHEMICAL U.S.A. MIDLAND MICHIGAN 48640 EMERGENCY PHONE: 517-636-4400

EFFECTIVE DATE: 27 JUN 80 PRODUCT CODE: 87719

PRODUCT NAME: TRIETHANOLAMINE 85 MSD: 0269

INGREDIENTS (TYPICAL VALUES-NOT SPECIFICATIONS)	%
TRIETHANOLAMINE	85
DIETHANOLAMINE	15

SECTION 1 PHYSICAL DATA

BOILING POINT: 335-650F, 168-343C: SOL. IN WATER: COMPLETELY MISCIBLE
VAP PRESS: 0.1 MMHG @ 20C : SP. GRAVITY: 1.1 25/25C
VAP DENSITY (AIR=1): ---- : % VOLATILE BY VOL: 100
APPEARANCE AND ODOR: COLORLESS LIQUID - SLIGHTLY AMMONIACAL ODOR.

SECTION 2 FIRE AND EXPLOSION HAZARD DATA

FLASH POINT: 365F, 185C : FLAMMABLE LIMITS (STP IN AIR)
METHOD USED: TAG OPEN CUP. : LFL: NOT DETER. UFL: NOT DETER.
EXTINGUISHING MEDIA: WATER FOG, ALCOHOL FOAM, CO2, DRY CHEMICAL.
SPECIAL FIRE FIGHTING EQUIPMENT AND HAZARDS: ----

SECTION 3 REACTIVITY DATA

STABILITY: ----
INCOMPATIBILITY: OXIDIZERS.
HAZARDOUS DECOMPOSITION PRODUCTS: NOX AT DECOMPOSITION TEMPERATURE.
HAZARDOUS POLYMERIZATION: WILL NOT OCCUR.

SECTION 4 SPILL, LEAK, AND DISPOSAL PROCEDURES

ACTION TO TAKE FOR SPILLS (USE APPROPRIATE SAFETY EQUIPMENT): USE ABSORBENT MATERIAL OR SAND. SCOOP UP AND PUT IN A CLEAN DRUM.
DISPOSAL METHOD: BURN IN INCINERATOR OR BURY AWAY FROM WATER SUPPLIES.

SECTION 5 HEALTH HAZARD DATA

INGESTION: LOW SINGLE DOSE ORAL TOXICITY; LD50 (RAT) APPROX. 5000 MG/KG (TEA).
EYE CONTACT: SEVERE PAIN, MODERATE TO SEVERE IRRITATION. NO CORNEAL INJURY LIKELY.
SKIN CONTACT: SINGLE SHORT EXPOSURE - MILD TO MODERATE IRRITATION. PROLONGED

(CONTINUED ON PAGE 2)
(R) INDICATES A REGISTERED OR TRADEMARK NAME OF THE DOW CHEMICAL COMPANY

EFFECTIVE DATE: 27 JUN 80 PRODUCT CODE: 87719
PRODUCT (CONT'D): TRIETHANOLAMINE 85 MSD: 0269

SECTION 5 HEALTH HAZARD DATA (CONTINUED)

SKIN CONTACT: (CONTINUED)
OR REPEATED EXPOSURE - MODERATE IRRITATION, EVEN A MILD BURN.
SKIN ABSORPTION: NOT LIKELY TO BE ABSORBED IN TOXIC AMOUNTS.
INHALATION: NO GUIDE FOR MIXTURE KNOW. DOW INDUSTRIAL HYGIENE GUIDE AND ACGIH TLV DIETHANOLAMINE IS 3 PPM. LOW VOLATILITY. IF HEATED: BAD ODOR AND MAY BE IRRITATING.
EFFECTS OF OVEREXPOSURE: IRRITATION, BAD ODOR.

SECTION 6 FIRST AID--NOTE TO PHYSICIAN

FIRST AID PROCEDURES:

EYES: IRRIGATE WITH FLOWING WATER IMMEDIATELY AND CONTINUOUSLY FOR 15 MINUTES. REFER TO MEDICAL PERSONNEL.
SKIN: IN CASE OF CONTACT, IMMEDIATELY FLUSH SKIN WITH PLENTY OF WATER FOR AT LEAST 15 MINUTES WHILE REMOVING CONTAMINATED CLOTHING AND SHOES. CALL A PHYSICIAN. WASH CLOTHING BEFORE REUSE. DESTROY CONTAMINATED SHOES.
INHALATION: REMOVE TO FRESH AIR IF EFFECTS OCCUR. CALL PHYSICIAN AND/OR TRANSPORT TO MEDICAL FACILITY.
INGESTION: IF SWALLOWED, INDUCE VOMITING IMMEDIATELY BY GIVING TWO GLASSES OF WATER AND STICKING FINGER DOWN THROAT. CALL A PHYSICIAN.
NOTE TO PHYSICIAN:
EYES: MAY CAUSE CORNEAL INJURY OR BURN. STAIN FOR EVIDENCE OF CORNEAL INJURY. IF CORNEA IS BURNED, INSTILL ANTIBIOTIC STEROID PREPARATION FREQUENTLY. CONSULT OPHTHALMOLOGIST.
SKIN: MAY CAUSE MODERATE IRRITATION. MAY CAUSE BURN. TREAT AS ANY CONTACT DERMATITIS. IF BURN IS PRESENT, TREAT AS ANY THERMAL BURN. NOT LIKELY TO BE ABSORBED IN ACUTELY TOXIC AMOUNTS.
RESPIRATORY: MAY CAUSE MODERATE IRRITATION. ADMINISTER OXYGEN IF AVAILABLE. BRONCHODILATORS, EXPECTORANTS, AND ANTITUSSIVES MAY BE OF HELP.
ORAL: LOW TO MODERATELY TOXIC.
GENERAL: HUMAN EFFECTS NOT ESTABLISHED. CONSULT STANDARD LITERATURE. NO SPECIFIC ANTIDOTE. TREATMENT BASED ON THE SOUND JUDGMENT OF THE PHYSICIAN AND THE INDIVIDUAL REACTIONS OF THE PATIENT.

SECTION 7 SPECIAL HANDLING INFORMATION

VENTILATION: RECOMMEND CONTROL OF VAPORS OF DIETHANOLAMINE TO SUGGESTED

(CONTINUED ON PAGE 3)
(R) INDICATES A REGISTERED OR TRADEMARK NAME OF THE DOW CHEMICAL COMPANY

EFFECTIVE DATE: 27 JUN 80 PRODUCT CODE: 87719
PRODUCT (CONT'D): TRIETHANOLAMINE 85 MSD: 0269

SECTION 7 SPECIAL HANDLING INFORMATION (CONTINUED)

VENTILATION: (CONTINUED)
GUIDE.
RESPIRATORY PROTECTION: NIOSH APPROVED RESPIRATORY PROTECTION REQUIRED IN ABSENCE OF PROPER ENVIRONMENTAL CONTROL. FOR EMERGENCIES, A SELF-CONTAINED BREATHING APPARATUS OR A FULL-FACE RESPIRATOR AS APPROVED BY NIOSH IS RECOMMENDED.
PROTECTIVE CLOTHING: CLEAN, BODY-COVERING CLOTHING.
EYE PROTECTION: CHEMICAL WORKERS GOGGLES. EYE FOUNTAIN AND WASHING FACILITIES NEAR WORK AREA.

SECTION 8 SPECIAL PRECAUTIONS AND ADDITIONAL INFORMATION

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORAGE: AVOID SKIN AND EYE CONTACT. AVOID BREATHING VAPORS IF GENERATED.

ADDITIONAL INFORMATION: 27 JUN 80 REVISIONS 24 APR 79 -- SECTION 5.

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M A T E R I A L S A F E T Y D A T A S H E E T

DOW CHEMICAL U.S.A. MIDLAND MICHIGAN 48640 EMERGENCY PHONE: 517-636-4400

EFFECTIVE DATE: 07 MAY 75 PRODUCT CODE: 87730

PRODUCT NAME: TRIETHANOLAMINE, 99 MSD: 0270

INGREDIENTS (TYPICAL VALUES-NOT SPECIFICATIONS)	%
TRIETHANOLAMINE, MIN.	99.0

SECTION 1 PHYSICAL DATA

BOILING POINT: 650F, 343C : SOL. IN WATER: COMPLETELY MISCIBLE
VAP PRESS: (MMHG @ 20C) LOW : SP. GRAVITY: 1.124 @ 25/25C
VAP DENSITY (AIR=1): 5.14 : % VOLATILE BY VOL: 100
APPEARANCE AND ODOR: COLORLESS LIQUID - SLIGHTLY AMMONIACAL ODOR.

SECTION 2 FIRE AND EXPLOSION HAZARD DATA

FLASH POINT: 385F, 196C : FLAMMABLE LIMITS (STP IN AIR)
METHOD USED: TCC : LFL: NOT DETER. UFL: NOT DETER.
EXTINGUISHING MEDIA: WATER FOG, ALCOHOL FOAM, CO2, DRY CHEMICAL.
SPECIAL FIRE FIGHTING EQUIPMENT AND HAZARDS: SELF-CONTAINED BREATHING APPARATUS OR FULL-FACE RESPIRATOR AS APPROVED BY NIOSH IS RECOMMENDED.

SECTION 3 REACTIVITY DATA

STABILITY: ----
INCOMPATIBILITY: OXIDIZING AGENTS.
HAZARDOUS DECOMPOSITION PRODUCTS: TOXIC FUMES OF NOX WHEN HEATED TO DECOMPOSITION.
HAZARDOUS POLYMERIZATION: WILL NOT OCCUR.

SECTION 4 SPILL, LEAK, AND DISPOSAL PROCEDURES

ACTION TO TAKE FOR SPILLS (USE APPROPRIATE SAFETY EQUIPMENT): USE ABSORBEN MATERIAL OR SAND. SCOOP UP AND PUT IN A CLEAN DRUM.
DISPOSAL METHOD: BURN IN INCINERATOR OR BURY AWAY FROM WATER SUPPLIES.

SECTION 5 HEALTH HAZARD DATA

INGESTION: LOW SINGLE DOSE ORAL TOXICITY; LD80 (RAT) 8000 MG/KG.
EYE CONTACT: SEVERE PAIN, MODERATE IRRITATION; NO CORNEAL INJURY LIKELY.
SKIN CONTACT: MILD IRRITATION, BURN POSSIBLE ON INJURED SKIN.
SKIN ABSORPTION: NOT LIKELY TO BE ABSORBED IN TOXIC AMOUNTS.

(CONTINUED ON PAGE 2)
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SECTION 5 HEALTH HAZARD DATA (CONTINUED)

INHALATION: NO GUIDE FOR CONTROL KNOWN. LOW VOLATILITY. BAD ODOR AND MAY BE IRRITATING.
EFFECTS OF OVEREXPOSURE: IRRITATION. BAD ODOR.

SECTION 6 FIRST AID--NOTE TO PHYSICIAN

FIRST AID PROCEDURES:

EYES: IRRIGATION OF THE EYE IMMEDIATELY WITH WATER FOR FIVE MINUTES IS GOOD SAFETY PRACTICE.
SKIN: IN CASE OF CONTACT. IMMEDIATELY FLUSH SKIN WITH PLENTY OF WATER FOR AT LEAST 15 MINUTES WHILE REMOVING CONTAMINATED CLOTHING. CALL A PHYSICIAN. WASH CLOTHING BEFORE REUSE. DESTROY CONTAMINATED SHOES.
INHALATION: REMOVE TO FRESH AIR IF EFFECTS OCCUR. CALL PHYSICIAN AND/OR TRANSPORT TO MEDICAL FACILITY.
INGESTION: LOW IN TOXICITY. INDUCE VOMITING IF LARGE AMOUNTS ARE INGESTED.
NOTE TO PHYSICIAN:
EYES: STAIN FOR EVIDENCE OF CORNEAL INJURY. IF CORNEA IS BURNED. INSTILL ANTIBIOTIC STEROID PREPARATION FREQUENTLY. CONSULT OPHTHALMOLOGIST.
SKIN: MAY CAUSE MILD IRRITATION. TREAT AS ANY CONTACT DERMATITIS. WITH PROLONGED EXPOSURE ABRADED SKIN MAY BURN. IF BURN IS PRESENT. TREAT AS ANY THERMAL BURN.
RESPIRATORY: FOUL ODOR. HEATED FUMES MAY CAUSE MODERATE IRRITATION.
ORAL: LOW IN TOXICITY.
SYSTEMIC: RAT STUDIES SUGGEST LIVER AND KIDNEY ARE TARGET ORGANS WITH OVEREXPOSURE. HUMAN EFFECTS NOT ESTABLISHED. CONSULT STANDARD LITERATURE. NO SPECIFIC ANTIDOTE. TREATMENT BASED ON THE SOUND JUDGMENT OF THE PHYSICIAN AND THE INDIVIDUAL REACTIONS OF THE PATIENT

SECTION 7 SPECIAL HANDLING INFORMATION

VENTILATION: RECOMMEND CONTROL OF VAPORS TO COMFORT LEVEL.
RESPIRATORY PROTECTION: NIOSH APPROVED RESPIRATORY PROTECTION REQUIRED IN ABSENCE OF PROPER ENVIRONMENTAL CONTROL. FOR EMERGENCIES. A SELF-CONTAINED BREATHING APPARATUS OR A FULL-FACE RESPIRATOR AS APPROVED BY NIOSH IS RECOMMENDED.
PROTECTIVE CLOTHING: CLEAN. BODY-COVERING CLOTHING.
EYE PROTECTION: SAFETY GLASSES WITHOUT SIDE SHIELDS.

SECTION 8 SPECIAL PRECAUTIONS AND ADDITIONAL INFORMATION

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORAGE: AVOID SKIN AND EYE CONTACT. AVOID BREATHING VAPORS IF GENERATED.

(CONTINUED ON PAGE 3)
(R) INDICATES A REGISTERED OR TRADEMARK NAME OF THE DOW CHEMICAL COMPANY

DOW CHEMICAL U.S.A. MIDLAND MICHIGAN 48640 EMERGENCY PHONE: 517-636-4400

EFFECTIVE DATE: 07 MAY 79 PRODUCT CODE: 87730
PRODUCT (CONT'D): TRIETHANOLAMINE, 99 MSD: 0270

SECTION 8 SPECIAL PRECAUTIONS AND ADDITIONAL INFORMATION (CONTINUED)

ADDITIONAL INFORMATION: ----

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M A T E R I A L S A F E T Y D A T A S H E E T PAGE: 1

DOW CHEMICAL U.S.A. MIDLAND MICHIGAN 48640 EMERGENCY PHONE: 517-636-4400

EFFECTIVE DATE: 21 FEB 80 PRODUCT CODE: 87869

PRODUCT NAME: TRIISOPROPANOLAMINE 99 MSD: 0281

INGREDIENTS (TYPICAL VALUES-NOT SPECIFICATIONS)	%
TRIISOPROPANOLAMINE	99

SECTION 1 PHYSICAL DATA

BOILING POINT: 572F, 300C : SOL. IN WATER: COMPLETELY MISCIBLE
VAP PRESS: < 0.01 MMHG @ 20C : SP. GRAVITY: 1.01 @ 40C
VAP DENSITY (AIR=1): ---- : % VOLATILE BY VOL: ----
APPEARANCE AND ODOR: WHITE SOLID - SLIGHTLY AMMONIACAL.

SECTION 2 FIRE AND EXPLOSION HAZARD DATA

FLASH POINT: 320F,160C : FLAMMABLE LIMITS (STP IN AIR)
METHOD USED: CLEVELAND OPEN CUP. : LFL: NONE UFL: NONE
EXTINGUISHING MEDIA: WATER FOG, FOAM, ALCOHOL FOAM, CO2, DRY CHEMICAL.
SPECIAL FIRE FIGHTING EQUIPMENT AND HAZARDS: NONE. WATER OR FOAM MAY CAUSE FROTHING.

SECTION 3 REACTIVITY DATA

STABILITY: ----
INCOMPATIBILITY: OXIDIZING MATERIAL.
HAZARDOUS DECOMPOSITION PRODUCTS: EMITS TOXIC FUMES AT DECOMPOSITION TEMPERATURE.
HAZARDOUS POLYMERIZATION: WILL NOT OCCUR.

SECTION 4 SPILL, LEAK, AND DISPOSAL PROCEDURES

ACTION TO TAKE FOR SPILLS (USE APPROPRIATE SAFETY EQUIPMENT): SCRAPE UP.
DISPOSAL METHOD: BURN IN APPROVED INCINERATOR OR BURY AWAY FROM WATER SUPPLIES.

SECTION 5 HEALTH HAZARD DATA

INGESTION: LOW SINGLE DOSE ORAL TOXICITY; LD50 (GUINEA PIG) IN THE RANGE OF 1600 TO 3600 MG/KG.
EYE CONTACT: UP TO SLIGHT IRRITATION, AND SLIGHT TRANSIENT CORNEAL INJURY.

(CONTINUED ON PAGE 2)
(R) INDICATES A REGISTERED OR TRADEMARK NAME OF THE DOW CHEMICAL COMPANY

DOW CHEMICAL U.S.A. MIDLAND MICHIGAN 48640 EMERGENCY PHONE: 517-636-4400

EFFECTIVE DATE: 21 FEB 80 PRODUCT CODE: 87869
PRODUCT (CONT'D): TRIISOPROPANOLAMINE 99 MSD: 0281

SECTION 5 HEALTH HAZARD DATA (CONTINUED)

SKIN CONTACT: PROLONGED CONTACT: MILD TO MODERATE IRRITATION;
REPEATED CONTACT: A SUPERFICIAL BURN.
SKIN ABSORPTION: NOT LIKELY TO BE ABSORBED THROUGH SKIN IN TOXIC AMOUNTS.
INHALATION: DOW INDUSTRIAL HYGIENE GUIDE 7 MG/M3.. NOT LIKELY A PROBLEM BECAUSE OF LOW VOLATILITY & GOOD WARNING.
EFFECTS OF OVEREXPOSURE: BAD ODOR.

SECTION 6 FIRST AID--NOTE TO PHYSICIAN

FIRST AID PROCEDURES:

EYES: IRRIGATE WITH FLOWING WATER IMMEDIATELY AND CONTINUOUSLY FOR 15 MINUTES. REFER TO MEDICAL PERSONNEL.
SKIN: IN CASE OF CONTACT. IMMEDIATELY FLUSH SKIN WITH PLENTY OF WATER FOR AT LEAST 15 MINUTES WHILE REMOVING CONTAMINATED CLOTHING AND SHOES. CALL A PHYSICIAN. WASH CLOTHING BEFORE REUSE. DESTROY CONTAMINATED SHOES.
INHALATION: REMOVE TO FRESH AIR IF EFFECTS OCCUR. CALL PHYSICIAN AND/OR TRANSPORT TO MEDICAL FACILITY.
INGESTION: IF SWALLOWED. INDUCE VOMITING IMMEDIATELY BY GIVING TWO GLASSES OF WATER AND STICKING FINGER DOWN THROAT. CALL A PHYSICIAN.

NOTE TO PHYSICIAN:
EYES: MAY CAUSE CORNEAL INJURY OR BURN. STAIN FOR EVIDENCE OF CORNEA INJURY. IF CORNEA IS BURNED, INSTILL ANTIBIOTIC STEROID PREPARATION FREQUENTLY. CONSULT OPHTHALMOLOGIST.
SKIN: MAY CAUSE MODERATE IRRITATION. MAY CAUSE BURN WITH REPEATED CONTACT. IF RASH IS PRESENT, TREAT AS ANY CONTACT DERMATITIS. IF BURN IS PRESENT, TREAT AS ANY THERMAL BURN.
RESPIRATORY: HEATED VAPORS MAY CAUSE MODERATE IRRITATION. BRONCHODILATORS, EXPECTORANTS, AND ANTITUSSIVES MAY BE OF HELP.
ORAL: LOW TO MODERATELY TOXIC.
GENERAL: NOT LIKELY TO BE ABSORBED IN ACUTELY TOXIC AMOUNTS. NO SPECIFIC ANTIDOTE. TREATMENT BASED ON THE SOUND JUDGMENT OF THE PHYSICIAN AND THE INDIVIDUAL REACTIONS OF THE PATIENT.

SECTION 7 SPECIAL HANDLING INFORMATION

VENTILATION: SUFFICIENT TO CONTROL VAPORS, IF GENERATED, TO SUGGESTED GUIDE.
RESPIRATORY PROTECTION: APPROVED FULL-FACE MASK OR AMINE VAPOR MASK ONLY IF REQUIRED.
PROTECTIVE CLOTHING: CLEAN, BODY-COVERING CLOTHING, RUBBER GLOVES, APRON, BOOTS AND FACE SHIELD AS DICTATED BY CIRCUMSTANCES.
EYE PROTECTION: SAFETY GLASSES WITHOUT SIDE SHIELDS. EYE FOUNTAIN AND SAFETY SHOWER NEAR WORK AREA.

(CONTINUED ON PAGE 3)
(R) INDICATES A REGISTERED OR TRADEMARK NAME OF THE DOW CHEMICAL COMPANY

SECTION 8 SPECIAL PRECAUTIONS AND ADDITIONAL INFORMATION

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORAGE: AVOID SKIN AND EYE CONTACT. AVOID BREATHING VAPORS IF GENERATED.
ADDITIONAL INFORMATION: REVISIONS 12/27/79 -- SECTIONS 3,5,6,7.
REVISIONS 2/21/80 -- SECTIONS 5, AND 7.

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M A T E R I A L S A F E T Y D A T A S H E E T PAGE: 1

DOW CHEMICAL U.S.A. MIDLAND MICHIGAN 48640 EMERGENCY PHONE: 517-636-4400

EFFECTIVE DATE: 24 OCT 78 PRODUCT CODE: 88116

PRODUCT NAME: TRIPROPYLENE GLYCOL MSD: 0283

INGREDIENTS (TYPICAL VALUES-NOT SPECIFICATIONS)	%
TRIPROPYLENE GLYCOL	99

SECTION 1 PHYSICAL DATA

BOILING POINT: 514F : SOL. IN WATER: COMPLETELY MISCIBLE
VAP PRESS: <0.01 MMHG@20C VERY LOW: SP. GRAVITY: 1.0150-1.0250 25/25C
VAP DENSITY (AIR=1): > 1 : % VOLATILE BY VOL: NOT APPLICABLE
APPEARANCE AND ODOR: COLORLESS LIQUID.

SECTION 2 FIRE AND EXPLOSION HAZARD DATA

FLASH POINT: 285F : FLAMMABLE LIMITS (STP IN AIR)
METHOD USED: PENSKY-MARTENS C.C. : LFL: NOT DETER. UFL: NOT DETER.
EXTINGUISHING MEDIA: WATER FOG, ALCOHOL FOAM, CO2, DRY CHEMICAL.
SPECIAL FIRE FIGHTING EQUIPMENT AND HAZARDS: NONE

SECTION 3 REACTIVITY DATA

STABILITY: ----
INCOMPATIBILITY: OXIDIZING MATERIAL.
HAZARDOUS DECOMPOSITION PRODUCTS: ALDEHYDES AND ACIDS.
HAZARDOUS POLYMERIZATION: WILL NOT OCCUR.

SECTION 4 SPILL, LEAK, AND DISPOSAL PROCEDURES

ACTION TO TAKE FOR SPILLS (USE APPROPRIATE SAFETY EQUIPMENT): USE CONTAINMI DIKE IF POSSIBLE. USE VACUUM TRUCK TO RECOVER AND STORE. FOR SMALL AMOUNTS, SOAK UP AND SCOOP INTO DRUMS. WASH DOWN REMAINING SMALL AMOUNT WITH WATER.
DISPOSAL METHOD: DISCHARGE VACUUM TRUCK INTO STORAGE TANK FOR REPROCESSING, OR BURN ACCORDING TO LOCAL, STATE AND FEDERAL REGULATIONS.

SECTION 5 HEALTH HAZARD DATA

INGESTION: LOW SINGLE DOSE ORAL TOXICITY. LD50 RATS IN THE RANGE OF 3000 TO 10,000 MG/KG.

(CONTINUED ON PAGE 2)
(R) INDICATES A REGISTERED OR TRADEMARK NAME OF THE DOW CHEMICAL COMPANY

DOW CHEMICAL U.S.A. MIDLAND MICHIGAN 48640 EMERGENCY PHONE: 517-636-4400

EFFECTIVE DATE: 24 OCT 78 PRODUCT CODE: 68116
PRODUCT (CONT'D): TRIPROPYLENE GLYCOL MSD: 0283

SECTION 5 HEALTH HAZARD DATA (CONTINUED)

EYE CONTACT: NON-IRRITATING.
SKIN CONTACT: NON-IRRITATING.
SKIN ABSORPTION: NOT ABSORBED IN TOXIC AMOUNTS.
INHALATION: NO GUIDE FOR CONTROL KNOWN. HAS VERY LOW VOLATILITY.
EFFECTS OF OVEREXPOSURE: ----

SECTION 6 FIRST AID--NOTE TO PHYSICIAN

FIRST AID PROCEDURES:

EYES: IRRIGATION OF THE EYE IMMEDIATELY WITH WATER FOR FIVE MINUTES IS GOOD SAFETY PRACTICE.
SKIN: WASH OFF IN FLOWING WATER.
INHALATION: REMOVE TO FRESH AIR IF EFFECTS OCCUR. CONSULT MEDICAL PERSONNEL.
INGESTION: LOW IN TOXICITY. INDUCE VOMITING IF LARGE AMOUNTS ARE INGESTED.

NOTE TO PHYSICIAN:
EYES: NO EFFECT EXPECTED.
SKIN: NO EFFECT EXPECTED.
RESPIRATORY: INJURY IS UNLIKELY.
ORAL: LOW IN TOXICITY.
GENERAL: CONSULT STANDARD LITERATURE. NO SPECIFIC ANTIDOTE. TREATMENT BASED ON THE SOUND JUDGMENT OF THE PHYSICIAN AND THE INDIVIDUAL REACTIONS OF THE PATIENT.

SECTION 7 SPECIAL HANDLING INFORMATION

VENTILATION: GOOD ROOM VENTILATION USUALLY ADEQUATE FOR MOST OPERATIONS.
RESPIRATORY PROTECTION: NONE NORMALLY REQUIRED.
PROTECTIVE CLOTHING: CLEAN CLOTHING.
EYE PROTECTION: NOT NORMALLY NECESSARY.

SECTION 8 SPECIAL PRECAUTIONS AND ADDITIONAL INFORMATION

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORAGE: EXERCISE REASONABLE CARE TO AVOID EXCESSIVE SKIN CONTACT AND EYE EXPOSURE.
ADDITIONAL INFORMATION: ----

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ADAPTED FROM: USDL
FORM NO L50-005-4-MAY 1959

SHELL OIL COMPANY
SHELL CHEMICAL COMPANY
SHELL DEVELOPMENT COMPANY
SHELL PIPE LINE CORPORATION

MSDS 7,780-1

HAZARD RATING

3
2 0

MATERIAL SAFETY DATA SHEET

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SECTION I

MANUFACTURER'S NAME: Shell Chemical Company	EMERGENCY TELEPHONE NO: 713-473-9461
ADDRESS (Number, Street, City, State, and ZIP Code): One Shell Plaza, P. O. Box 2463, Houston, TX 77001	
CHEMICAL NAME AND SYNONYMS: None	TRADE NAME: Shell SOL® B
CHEMICAL FAMILY: Hydrocarbon	FORMULA:

SECTION II HAZARDOUS INGREDIENTS*

COMPOSITION	%	SPECIES	LD_{50} ORAL	LD_{50} DERMAL	LC_{50} CONCENTRATION	LC_{50} HOURS
	100					
		Rat	25 ml/kg		73,000 ppm (approx.)	4 hr
		Rabbit		5.0 ml/kg		

SECTION III PHYSICAL DATA

BOILING POINT (°F)	137-178	SPECIFIC GRAVITY (H_2O=1)	0.674
VAPOR PRESSURE (mmHg) @ 68°F (20°C)	180	PERCENT VOLATILE BY VOLUME (%)	
VAPOR DENSITY (AIR=1)	2.9	EVAPORATION RATE (nBuAc=1)	9.1
SOLUBILITY IN WATER	Negligible		
APPEARANCE AND ODOR	Colorless liquid with hydrocarbon odor.		

SECTION IV FIRE AND EXPLOSION HAZARD DATA

FLASH POINT (Method used): Tag closed cup 0°F	FLAMMABLE LIMITS	Lel: 1.0	Uel: 7.0
EXTINGUISHING MEDIA: Exclude air - use foam, CO_2 steam, water-fog, dry chemicals.			
SPECIAL FIRE FIGHTING PROCEDURES: Do not use water, exclude air, consult local fire marshall.			
UNUSUAL FIRE AND EXPLOSION HAZARDS: Vapor forms explosive mixture with air between upper and lower explosion limits.			

MSDS 7,780-1

*Modified by Shell Oil Company

SECTION V HEALTH HAZARD DATA

DS 7,780-1

TLV/TWA LIMIT VALUE 400 PPM

EFFECTS OF OVEREXPOSURE
Anesthesia - headache, nausea, dizziness, etc. Liquid slightly irritating to skin and eyes.

EMERGENCY AND FIRST AID PROCEDURES
Remove victim and restore breathing if required. Remove liquid from skin with soap and water. Flush eyes with water.

SECTION VI REACTIVITY DATA

STABILITY			CONDITIONS TO AVOID
	UNSTABLE		
	STABLE	X	

INCOMPATIBILITY (Materials to avoid)
Not applicable.

HAZARDOUS DECOMPOSITION PRODUCTS CO, CO_2 when combusted.

HAZARDOUS POLYMERIZATION			CONDITIONS TO AVOID
	MAY OCCUR		
	WILL NOT OCCUR	X	

SECTION VII SPILL OR LEAK PROCEDURES

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED
Avoid open flame or spark sources. Provide adequate ventilation.

WASTE DISPOSAL METHOD Evaporate or flush with water to open, well-ventilated area. Use oil sewer if available. Remove to container.

SECTION VIII SPECIAL PROTECTION INFORMATION

RESPIRATORY PROTECTION (Specify type) Organic canister mask or air pack.

VENTILATION		
	LOCAL EXHAUST	SPECIAL
	MECHANICAL (General) With approved Class D explosion proof motors and switches.	OTHER

PROTECTIVE GLOVES Normally not required.

EYE PROTECTION Conventional eye cover to guard against unexpected splashing.

SECTION IX SPECIAL PRECAUTIONS

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORING
Avoid open flames and spark sources. Avoid splash filling. Provide adequate ventilation. Avoid excessive heat.

ll Oil Company
ct Safety & Compliance
Chemical Products

DATE August, 1973

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SHELL OIL COMPANY
SHELL CHEMICAL COMPANY
SHELL DEVELOPMENT COMPANY
SHELL PIPE LINE CORPORATION

NA 363

2
2 0

MATERIAL SAFETY DATA SHEET

Information on this form is furnished solely for the purpose of compliance with the Occupational Safety and Health Act of 1970 and shall not be used for any other purpose. Use or dissemination of all or any part of this information for any other purpose may result in a violation of law or constitute grounds for legal action.

SECTION I

MANUFACTURER'S NAME: Shell Chemical Company	EMERGENCY TELEPHONE NO.: 713-473-9461
ADDRESS (Number, Street, City, State, and ZIP Code): One Shell Plaza, P. O. Box 2463, Houston, Texas 77001	
CHEMICAL NAME AND SYNONYMS:	TRADE NAME: Shell Bol 71 Code 83195
CHEMICAL FAMILY: Hydrocarbon	FORMULA:

SECTION II HAZARDOUS INGREDIENTS*

COMPOSITION	%	SPECIES	LD_{50} ORAL	LD_{50} DERMAL	LC_{50} CONCENTRATION	LC_{50} HOURS
PIGMENTS						
CATALYST						
VEHICLE						
SOLVENTS	100	Rat	>10 ml/kg		> 500 ppm	4
ADDITIVES						
OTHER						
		Rabbit		>5.0 ml/kg		

SECTION III PHYSICAL DATA

BOILING POINT (°F)	346-403	SPECIFIC GRAVITY (H_2O=1) @ 60°F	0.759
VAPOR PRESSURE (mmHg) @ 100°F	4	PERCENT VOLATILE BY VOLUME (%)	
VAPOR DENSITY (AIR=1)	5.3	EVAPORATION RATE (n-BuAc = 1)	0.05
SOLUBILITY IN WATER	Negligible		
APPEARANCE AND ODOR	Light colored liquid with trace of hydrocarbon odor		

SECTION IV FIRE AND EXPLOSION HAZARD DATA

FLASH POINT (Method used)	FLAMMABLE LIMITS	Lel	Uel
Tag closed cup = 123°F		1.0	6.0

EXTINGUISHING MEDIA
Exclude air - use foam, CO_2, steam, water-fog, dry chemicals.

SPECIAL FIRE FIGHTING PROCEDURES
Do not use water, exclude air, consult local fire marshal.

UNUSUAL FIRE AND EXPLOSION HAZARDS
Vapor forms explosive mixture with air between upper and lower explosion limits.

*Modified by Shell Oil Company

SECTION V HEALTH HAZARD DATA

RECOMMENDED LIMIT VALUE: 400 ppm

EFFECTS OF OVEREXPOSURE: Anesthesia - headache, nausea, ~~dizziness, etc.~~ Liquid slightly to moderately irritating to skin and eyes.

EMERGENCY AND FIRST AID PROCEDURES: Remove victim and restore breathing if required. Remove from skin with soap and water. Flush eyes with water.

SECTION VI REACTIVITY DATA

STABILITY			CONDITIONS TO AVOID
	UNSTABLE		
	STABLE	X	

INCOMPATABILITY (Materials to avoid): Not applicable

HAZARDOUS DECOMPOSITION PRODUCTS: CO, CO_2 when combusted

HAZARDOUS POLYMERIZATION			CONDITIONS TO AVOID
	MAY OCCUR		
	WILL NOT OCCUR	X	

SECTION VII SPILL OR LEAK PROCEDURES

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED: Avoid open flame or spark sources. Provide adequate ventilation.

WASTE DISPOSAL METHOD: Evaporate or flush with water to an open, well-ventilated area. Use oil sewer if available. Remove to container.

SECTION VIII SPECIAL PROTECTION INFORMATION

RESPIRATORY PROTECTION (Specify type): Organic canister mask or air pack.

SPECIAL:

VENTILATION — LOCAL EXHAUST: Desirable

MECHANICAL (General): With approved Class D explosion-proof motors and switches.

OTHER:

PROTECTIVE GLOVES: Normally not required

EYE PROTECTION: conventional eye cover to guard against unexpected splashing.

OTHER PROTECTIVE EQUIPMENT:

SECTION IX SPECIAL PRECAUTIONS

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORING: Avoid open flames and spark sources. Avoid splash-filling. Provide adequate ventilation. Avoid excessive heat.

OTHER PRECAUTIONS:

NAME: D. M. Sheets

TITLE: Supervisor-Product Development-Resins

COMPANY: Shell Chemical

SIGNATURE: D M Sheets

DATE: August 1973

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M A T E R I A L S A F E T Y D A T A S H E E T

DOW CHEMICAL U.S.A. MIDLAND MICHIGAN 48640 EMERGENCY PHONE: 517-636-4400

EFFECTIVE DATE: 19 OCT 78 PRODUCT CODE: 91606

PRODUCT NAME: VINYL TOLUENE (12T AND 50T INHIBITOR GRADES) MSC: 0201

INGREDIENTS (TYPICAL VALUES-NOT SPECIFICATIONS)	%
VINYLTOLUENE, MINIMUM	99.2

SECTION 1 PHYSICAL DATA

BOILING POINT: 333.9F : SOL. IN WATER: 0.0089%
VAP PRESS: 1.10 MMHG @ 20C : SP. GRAVITY: 0.9164 @ 60/60F
VAP DENSITY (AIR=1): 4.06 : % VOLATILE BY VOL: 100
APPEARANCE AND ODOR: CLEAR LIQUID, HYDROCARBON ODOR.

SECTION 2 FIRE AND EXPLOSION HAZARD DATA

FLASH POINT: 127F : FLAMMABLE LIMITS (STP IN AIR)
METHOD USED: TAG CLOSED CUP : LFL: 0.8 VOL.% UFL: 11 VOL.%
EXTINGUISHING MEDIA: AFFF (AQUEOUS FILM FORMING FOAM), ALCOHOL FOAM, CO2, DRY CHEMICAL, PROTEIN FOAM, WATER FOG.
SPECIAL FIRE FIGHTING EQUIPMENT AND HAZARDS: AT ELEVATED TEMPERATURES SUCH AS IN FIRE CONDITIONS, POLYMERIZATION MAY TAKE PLACE. IF IT TAKES PLACE IN A CLOSED CONTAINER, THERE IS A POSSIBILITY OF A VIOLENT RUPTURE. AUTO IGNITION 1067F.

SECTION 3 REACTIVITY DATA

STABILITY: POLYMERIZES SLOWLY AT ROOM TEMPERATURE; AVOID HEAT.
INCOMPATIBILITY: ACID, BASE, OXIDIZING MATERIAL.
HAZARDOUS DECOMPOSITION PRODUCTS: ----
HAZARDOUS POLYMERIZATION: MAY OCCUR. AVOID HEAT, METAL SALTS, SUCH AS FERRIC AND ALUMINUM CHLORIDES.

SECTION 4 SPILL, LEAK, AND DISPOSAL PROCEDURES

ACTION TO TAKE FOR SPILLS (USE APPROPRIATE SAFETY EQUIPMENT): SMALL SPILL OR LEAK: REMOVE FOR DISPOSAL BY COVERING WITH SUITABLE ABSORBING AGENT, SUCH AS SAND. (DO NOT USE ZORBAL). IF SPILL OCCURS IN A CONFINED AREA, SUCH AS A DIKE, PUMP WATER INTO AREA; VINYLTOLUENE THEN CAN BE PUMPED OFF THE WATER FOR RECOVERY.
DISPOSAL METHOD: INCINERATE IN PROPERLY DESIGNED FURNACE. COMPLY WITH FEDERAL, STATE AND LOCAL REGULATIONS.

(CONTINUED ON PAGE 2)
(R) INDICATES A REGISTERED OR TRADEMARK NAME OF THE DOW CHEMICAL COMPANY

SECTION 5 HEALTH HAZARD DATA

INGESTION: LOW SINGLE DOSE ORAL: TOXICITY LD50 (RATS) 4000 MG/KG.
EYE CONTACT: PAIN & SLIGHT IRRITATION, BUT NO CORNEAL INJURY LIKELY.
SKIN CONTACT: SINGLE SHORT EXPOSURE -- NO IRRITATION LIKELY. PROLONGED OR REPEATED -- SLIGHT TO MODERATE IRRITATION EVEN A MINOR BURN POSSIBLE.
SKIN ABSORPTION: LOW TOXICITY.
INHALATION: OSHA GUIDE IS 100 PPM (1975).
EFFECTS OF OVEREXPOSURE: EYE AND NASAL IRRITATION. HIGH LEVELS - ANESTHESIA. LOWER LEVELS - DIZZINESS AND DRUNKENNESS.

SECTION 6 FIRST AID--NOTE TO PHYSICIAN

FIRST AID PROCEDURES:

EYES: IRRIGATION OF THE EYE IMMEDIATELY WITH WATER FOR FIVE MINUTES IS GOOD SAFETY PRACTICE. CONSULT MEDICAL.
SKIN: WASH OFF IN FLOWING WATER. DECONTAMINATE CLOTHING AND ACCESSORIES BEFORE REUSE. GOOD PERSONAL HYGIENE.
INHALATION: REMOVE TO FRESH AIR IF EFFECTS OCCUR. IF RESPIRATION STOPS, GIVE MOUTH-TO-MOUTH RESUSCITATION. CALL PHYSICIAN AND/OR TRANSPORT TO MEDICAL FACILITY.
INGESTION: DO NOT INDUCE VOMITING. CALL A PHYSICIAN OR TRANSPORT TO EMERGENCY FACILITY.

NOTE TO PHYSICIAN:
EYES: MAY CAUSE MILD IRRITATION. STAIN FOR EVIDENCE OF CORNEAL INJURY.
SKIN: PROLONGED OR REPEATED EXPOSURE: MAY CAUSE MODERATE IRRITATION. MAY CAUSE BURN. TREAT AS ANY CONTACT DERMATITIS. IF BURN IS PRESENT, TREAT AS ANY THERMAL BURN. NOT LIKELY TO BE ABSORBED IN ACUTELY TOXIC AMOUNTS.
RESPIRATORY: MAY CAUSE DRUNKENNESS. ANESTHETIC OR NARCOTIC EFFECT MAY OCCUR. ADMINISTER OXYGEN IF AVAILABLE. BRONCHODILATORS, EXPECTORANTS, AND ANTITUSSIVES MAY BE OF HELP. MECHANICAL SUPPORT OF RESPIRATION MAY BE NEEDED. GOOD WARNING PROPERTIES.
ORAL: LOW IN TOXICITY. MAY CAUSE REACTION SIMILAR TO PETROLEUM OR PETROLEUM-LIKE SOLVENT. MAY CAUSE CHEMICAL PNEUMONIA IF ASPIRATED INTO LUNGS. IF LAVAGE IS PERFORMED SUGGEST ENDOTRACHEAL AND/OR ESOPHAGOSCOPIC CONTROL.
GENERAL: CONSULT STANDARD LITERATURE. NO SPECIFIC ANTIDOTE. TREATMENT BASED ON THE SOUND JUDGMENT OF THE PHYSICIAN AND THE INDIVIDUAL REACTIONS OF THE PATIENT.

SECTION 7 SPECIAL HANDLING INFORMATION

VENTILATION: GOOD ROOM VENTILATION USUALLY ADEQUATE FOR MOST OPERATIONS.

(CONTINUED ON PAGE 3)
(R) INDICATES A REGISTERED OR TRADEMARK NAME OF THE DOW CHEMICAL COMPANY

EFFECTIVE DATE: 19 OCT 78 PRODUCT CODE: 91606
PRODUCT (CONT'D): VINYL TOLUENE (12T AND 50T INHIBITOR GRADES)MSD: 0201
RESPIRATORY PROTECTION: NONE NORMALLY NEEDED. NIOSH APPROVED RESPIRATORY PROTECTION REQUIRED IN ABSENCE OF PROPER ENVIRONMENTAL CONTROL. FOR EMERGENCIES, A SELF-CONTAINED BREATHING APPARATUS OR A FULL-FACE RESPIRATOR AS APPROVED BY NIOSH IS RECOMMENDED.
PROTECTIVE CLOTHING: CLEAN, BODY COVERING CLOTHING. PROVIDE WITH GLOVES MADE OF NEOPRENE OR NON-SOLUBLE PLASTIC.
EYE PROTECTION: SAFETY GLASSES WITHOUT SIDE SHIELDS.

SECTION 8 SPECIAL PRECAUTIONS AND ADDITIONAL INFORMATION

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORAGE: AVOID BREATHING VAPORS IF GENERATED. AVOID SKIN AND EYE CONTACT. PRACTICE CARE AND CAUTION TO AVOID EXPLOSABILITY. MONITOR AND CONTROL INHIBITOR LEVEL IN PRODUCT AT GREATER THAN 15 PPM. IF T-BUTYLCATECHOL IS THE INHIBITOR, THE MONOMER SHOULD BE AERATED ONCE A WEEK FOR ABOUT 30 MIN. CONTROL TEMPERATURE IN STORAGE BELOW 90F. VAPOR IS 1.1 TIMES HEAVIER THAN AIR AT 100F AND HAS AN IGNITION TEMPERATURE OF 914F.
ADDITIONAL INFORMATION: ----

LAST PAGE

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M A T E R I A L S A F E T Y D A T A S H E E T

DOW CHEMICAL U.S.A. MIDLAND MICHIGAN 48640 EMERGENCY PHONE: 517-636-4400

EFFECTIVE DATE: 25 JUL 78 PRODUCT CODE: 30478

PRODUCT NAME: ETHYLENE GLYCOL (REGULAR) MSD: 0597

INGREDIENTS (TYPICAL VALUES-NOT SPECIFICATIONS)	%
ETHYLENE GLYCOL (ESSENTIALLY)	100

SECTION 1 PHYSICAL DATA

BOILING POINT: 387.1F : SOL. IN WATER: COMPLETELY MISCIBLE
VAP PRESS: 0.12 MMHG @ 25C : SP. GRAVITY: 1.1155 @ 20/20C
VAP DENSITY (AIR=1): VERY LOW : % VOLATILE BY VOL: ESSENTIALLY ZERO
APPEARANCE AND ODOR: COLORLESS LIQUID - PRACTICALLY ODORLESS

SECTION 2 FIRE AND EXPLOSION HAZARD DATA

FLASH POINT: 232F : FLAMMABLE LIMITS (STP IN AIR)
METHOD USED: PENSKY MARTENS C.C. : LFL: 3.2% UFL: NOT DETER.
EXTINGUISHING MEDIA: WATER FOG, ALCOHOL FOAM, CO2, AND DRY CHEMICAL.
SPECIAL FIRE FIGHTING EQUIPMENT AND HAZARDS: NONE

SECTION 3 REACTIVITY DATA

STABILITY: WILL IGNITE IN AIR AT 775F. (413C).
INCOMPATIBILITY: OXIDIZING MATERIAL.
HAZARDOUS DECOMPOSITION PRODUCTS: ----
HAZARDOUS POLYMERIZATION: WILL NOT OCCUR.

SECTION 4 SPILL, LEAK, AND DISPOSAL PROCEDURES

ACTION TO TAKE FOR SPILLS (USE APPROPRIATE SAFETY EQUIPMENT): FLUSH WITH WATER. SOAK UP WITH ABSORBENT MATERIAL. DIKE TO CONTAIN TO PREVENT WATER POLLUTION.
DISPOSAL METHOD: SALVAGE, OR BURN AFTER CONSULTING WITH LOCAL AUTHORITIES. RECOVER WITH VACUUM TRUCK AND RETURN TO PLANT FOR REPROCESSING.

SECTION 5 HEALTH HAZARD DATA

INGESTION: LOW SINGLE DOSE ORAL FOR ANIMALS; MODERATE FOR HUMANS.
EYE CONTACT: ESSENTIALLY NO IRRITATION.
SKIN CONTACT: ESSENTIALLY NO IRRITATION.

(CONTINUED ON PAGE 2)
(R) INDICATES A REGISTERED OR TRADEMARK NAME OF THE DOW CHEMICAL COMPANY

M A T E R I A L S A F E T Y D A T A S H E E T

DOW CHEMICAL U.S.A. MIDLAND MICHIGAN 48640 EMERGENCY PHONE: 517-636-4400

PRODUCT CODE: 30478
MSD: 0597

FFECTIVE DATE: 25 JUL 78
RODUCT (CONT'D): ETHYLENE GLYCOL (REGULAR)

SECTION 5 HEALTH HAZARD DATA (CONTINUED)

SKIN ABSORPTION: ABSORBED THROUGH SKIN, BUT LOW IN TOXICITY BY THIS ROUTE.
INHALATION: ACGIH TLV: 100 PPM AS A VAPOR; 10 MG/CU METER AS A PARTICULATE (1977).
EFFECTS OF OVEREXPOSURE: DRUNKENNESS, CENTRAL NERVOUS SYSTEM DEPRESSION, NARCOSIS.

SECTION 6 FIRST AID--NOTE TO PHYSICIAN

FIRST AID PROCEDURES:

EYES: IRRIGATION OF THE EYE IMMEDIATELY FOR FIVE MINUTES IS GOOD SAFETY PRACTICE. CONSULT MEDICAL.
SKIN: WASH OFF IN FLOWING WATER. DECONTAMINATE CLOTHING AND ACCESSORIES BEFORE REUSE. GOOD PERSONAL HYGIENE.
INHALATION: REMOVE TO FRESH AIR IF EFFECTS OCCUR. CONSULT MEDICAL.
INGESTION: TOXIC BY INGESTION. INDUCE VOMITING IMMEDIATELY. CALL A PHYSICIAN AND/OR TRANSPORT TO EMERGENCY FACILITY.
NOTE TO PHYSICIAN: STAIN FOR EVIDENCE OF CORNEAL ABRASION OR INJURY. MAY CAUSE NEUROLOGIC SIGNS AND SYMPTOMS. MAY CAUSE KIDNEY DAMAGE. MAY CAUSE ELECTROLYTE IMBALANCE. SUGGEST BASELINE CBC, UA, AND 12 TEST. SUGGEST BASELINE ELECTPOLYTES. CONSULT STANDARD LITERATURE. USE OF ALCOHOL MAY BE HELPFUL.

SECTION 7 SPECIAL HANDLING INFORMATION

VENTILATION: RECOMMEND CONTROL OF VAPORS TO SUGGESTED GUIDE.
RESPIRATORY PROTECTION: NONE LIKELY TO BE NEEDED UNLESS MATERIAL IS HANDLED HOT. FOR SPRAY MISTS - USE AN APPROVED DUST RESPIRATOR.
PROTECTIVE CLOTHING: CLEAN, BODY-COVERING CLOTHING.
EYE PROTECTION: NOT NORMALLY NECESSARY.

SECTION 8 SPECIAL PRECAUTIONS AND ADDITIONAL INFORMATION

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORAGE: AVOID INGESTION. PRACTICE REASONABLE CAUTION AND PERSONAL CLEANLINESS. AVOID SKIN AND EYE CONTACT.
ADDITIONAL INFORMATION: ----

LAST PAGE

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EASTMAN KODAK COMPANY
APPROVED BY U.S. DEPARTMENT OF LABOR
"ESSENTIALLY SIMILAR" TO FORM OSHA-20

MATERIAL SAFETY DATA SHEET

ECP 2079-1F (5-77)

SECTION I

PRODUCT NAME:	EKTASOLVE® EE Acetate Solvent	SIZE:	Not applicable.
CHEMICAL NAME:	Ethylene Glycol Monoethyl Ether Acetate		
FORMULA:	$C_2H_5OC_2H_4OCOCH_3$		
MANUFACTURER:	Marketed by Eastman Chemical Products, Inc.		
ADDRESS:	Kingsport, Tennessee 37662		
FOR INFORMATION ON HEALTH HAZARDS CALL:	615-247-0411, Extension 2613		
FOR OTHER INFORMATION CALL:	Same number as above Extension 4675	INFORMATION EFFECTIVE AS OF:	August, 1977

SECTION II HAZARDOUS INGREDIENTS OF MIXTURES

PRINCIPAL HAZARDOUS COMPONENT (S)	%	TLV (Units)
Not applicable.		

SECTION III PHYSICAL DATA

BOILING POINT (°F.)	313°F (156°C)	SPECIFIC GRAVITY (H_2O = 1)	0.973 @ 20°/20°C
VAPOR PRESSURE (mm Hg.)	1.2 @ 20°C	PERCENT VOLATILE BY VOLUME (%)	>99
VAPOR DENSITY (AIR = 1)	4.72	EVAPORATION RATE (n-butyl acetate = 1)	0.2
SOLUBILITY IN WATER	Appreciable.		
APPEARANCE AND ODOR	Colorless liquid; mild ester-like odor.		

SECTION IV FIRE AND EXPLOSION HAZARD DATA

			Lel	Uel
FLASH POINT (Method used)	130°F (54°C) TCC	FLAMMABLE LIMITS	1.24% @200°F (93°C)	12.7% @275°F (135°C)
EXTINGUISHING MEDIA	Alcohol foam, CO_2, Water spray, Dry chemical			
SPECIAL FIRE FIGHTING PROCEDURES	Wear self-contained breathing apparatus and protective clothing to prevent contact with skin or eyes.			
UNUSUAL FIRE AND EXPLOSION HAZARDS	None known to Eastman.			

SECTION V HEALTH HAZARD DATA

THRESHOLD LIMIT VALUE	100 ppm
EFFECTS OF OVEREXPOSURE	Excessive skin contact or inhalation of high concentrations of vapor may cause toxic effects, including central nervous system depression and lung and kidney injury.
EMERGENCY AND FIRST AID PROCEDURES	Eye contact: irrigate immediately and thoroughly with water at least 15 minutes and get medical attention if any symptoms are present after washing. Skin contact: flush immediately and thoroughly with water. Inhalation: remove from exposure, treat symptomatically, and get medical attention.

SECTION VI REACTIVITY DATA

STABILITY	UNSTABLE		CONDITIONS TO AVOID
	STABLE	X	Not applicable.

INCOMPATIBILITY (Materials to avoid)	Oxidizing materials can cause a reaction.
HAZARDOUS DECOMPOSITION PRODUCTS	As with any other organic material, combustion will produce carbon dioxide and probably carbon monoxide.

HAZARDOUS POLYMERIZATION		CONDITIONS TO AVOID
May Occur	Will Not Occur	
	X	Not applicable.

SECTION VII SPILL OR LEAK PROCEDURES

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED	Eliminate all ignition sources. Flush spill away with water spray. Small spills may be collected with absorbent material.
WASTE DISPOSAL METHOD	Incineration. Observe Federal, State and local laws regarding health and pollution.

SECTION VIII SPECIAL PROTECTION INFORMATION

RESPIRATORY PROTECTION (Specify type)	A NIOSH-approved respirator for organic vapor should be worn if needed.

VENTILATION				
	LOCAL EXHAUST	X If needed to control vapor at elevated temperatures.	SPECIAL	None known to Eastman.
	MECHANICAL (general)	Recommended.	OTHER	None known to Eastman.

PROTECTIVE GLOVES	Should be worn.	EYE PROTECTION	Safety glasses should be worn in any type of industrial operation.
OTHER PROTECTIVE EQUIPMENT	None should be needed.		

SECTION IX SPECIAL PRECAUTIONS

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORING	Combustible. Keep away from heat and open flame. Avoid prolonged or repeated skin contact. Avoid breathing vapor. Use with ventilation adequate to maintain vapor concentrations below the TLV of 100 ppm.
OTHER PRECAUTIONS	None known to Eastman.

The information contained herein is furnished without warranty of any kind. Employers should use this information only as a supplement to other information gathered by them and must make independent determinations of suitability and completeness of information from all sources to assure proper use of these materials and the safety and health of employees.

APPROVED BY U.S. DEPARTMENT OF LABOR
"ESSENTIALLY SIMILAR" TO FORM OSHA-20

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MATERIAL SAFETY DATA SHEET

SECTION I

		SIZE:	
PRODUCT NAME:	Ethyl Acetate 99%		
CHEMICAL NAME:	Ethyl acetate		
FORMULA:	$CH_3COOC_2H_5$		
MANUFACTURER:	Tennessee Eastman Company		
ADDRESS:	Kingsport, Tennessee 37662		
FOR INFORMATION ON HEALTH HAZARDS CALL:			
FOR OTHER INFORMATION CALL:	615-247-0411	SIGNATURE AND DATE:	

SECTION II HAZARDOUS INGREDIENTS OF MIXTURES

PRINCIPAL HAZARDOUS COMPONENT (S)	%	TLV (Units)
Not Applicable		

SECTION III PHYSICAL DATA

BOILING POINT (°F.)	167°F (75.5°C)	SPECIFIC GRAVITY (H_2O = 1)	0.900-0.903
VAPOR PRESSURE (mm Hg.)	86 @ 20°C	PERCENT VOLATILE BY VOLUME (%)	100%
VAPOR DENSITY (AIR = 1)		EVAPORATION RATE (n-butyl acetate=1)	4.1
SOLUBILITY IN WATER	7.4%	Molecular Weight	88.10
APPEARANCE AND ODOR	Clear volatile liquid, characteristic, non-residual		

SECTION IV FIRE AND EXPLOSION HAZARD DATA

			Lel	Uel
FLASH POINT (Method used)	TOC 28°F (-2°C)	FLAMMABLE LIMITS	2.02	10.1

EXTINGUISHING MEDIA	Water spray, carbon dioxide, dry chemical
SPECIAL FIRE FIGHTING PROCEDURES	None
UNUSUAL FIRE AND EXPLOSION HAZARDS	None

THRESHOLD LIMIT VALUE	400 parts per million
EFFECTS OF OVEREXPOSURE	Eye contact causes irritation. Repeated or prolonged skin contact results in drying and cracking of the skin. Vapor irritating to mucous membranes. High vapor concentrations may produce narcotic effects.
EMERGENCY AND FIRST AID PROCEDURES	Eye contact - irrigate for 15 minutes. Get medical attention. For narcotic effects - remove to fresh air.

SECTION VI REACTIVITY DATA

STABILITY	UNSTABLE		CONDITIONS TO AVOID
	STABLE	XX	

INCOMPATIBILITY (Materials to avoid)

HAZARDOUS DECOMPOSITION PRODUCTS

HAZARDOUS POLYMERIZATION		CONDITIONS TO AVOID
May Occur	Will Not Occur XX	

SECTION VII SPILL OR LEAK PROCEDURES

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED	Contain spill; if small, flush with large volume of water. Remove any source of sparks or flames. Provide adequate exhaust. Soak up on absorbent paper or rags for burning.
WASTE DISPOSAL METHOD	Incineration is best.

SECTION VIII SPECIAL PROTECTION INFORMATION

RESPIRATORY PROTECTION (Specify type) Should be used in confined areas or spraying operations.

VENTILATION	LOCAL EXHAUST XX	SPECIAL
	MECHANICAL (general) XX	OTHER

PROTECTIVE GLOVES Suggested

EYE PROTECTION Face shield/safety glasses

OTHER PROTECTIVE EQUIPMENT

SECTION IX SPECIAL PRECAUTIONS

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORING	Avoid eye contact. Avoid repeated or prolonged skin contact. Use with ventilation adequate to maintain atmospheric concentrations at or below TLV of 400 parts per million. Keep container closed.
OTHER PRECAUTIONS	

M A T E R I A L S A F E T Y D A T A S H E E T

DOW CHEMICAL U.S.A. MIDLAND MICHIGAN 48640 EMERGENCY PHONE: 517-636-4400

EFFECTIVE DATE: 02 JAN 79 PRODUCT CODE: 22581

PRODUCT NAME: DOWANOL (R) TPM MSD: 0053

INGREDIENTS (TYPICAL VALUES-NOT SPECIFICATIONS)	%
TRIPROPYLENE GLYCOL METHYL ETHER	

SECTION 1 PHYSICAL DATA

BOILING POINT: 468F
VAP PRESS: 0.02 MMHG @ 25C
VAP DENSITY (AIR=1): 7.15
SOL. IN WATER: COMPLETELY MISCIBLE.
SP. GRAVITY: .965 25/25C
% VOLATILE BY VOL: 100
APPEARANCE AND ODOR: COLORLESS, MILD LIQUID.

SECTION 2 FIRE AND EXPLOSION HAZARD DATA

FLASH POINT: 240F
METHOD USED: PMCC
FLAMMABLE LIMITS (STP IN AIR)
LFL: NOT DETER. UFL: NOT DETER.
EXTINGUISHING MEDIA: WATER FOG, ALCOHOL FOAM, CO2, DRY CHEMICAL.
SPECIAL FIRE FIGHTING EQUIPMENT AND HAZARDS: ----

SECTION 3 REACTIVITY DATA

STABILITY: ----
INCOMPATIBILITY: OXIDIZING MATERIAL.
HAZARDOUS DECOMPOSITION PRODUCTS: ----
HAZARDOUS POLYMERIZATION: WILL NOT OCCUR.

SECTION 4 SPILL, LEAK, AND DISPOSAL PROCEDURES

ACTION TO TAKE FOR SPILLS (USE APPROPRIATE SAFETY EQUIPMENT): ADD ABSORBE
REMOVE WITH SHOVEL.
DISPOSAL METHOD: BURN IN ACCORDANCE WITH LOCAL LAWS.

SECTION 5 HEALTH HAZARD DATA

INGESTION: LOW SINGLE DOSE ORAL TOXICITY; LD50 RAT 3300 MG/KG.
EYE CONTACT: UP TO SLIGHT IRRITATION; CORNEAL INJURY NOT LIKELY.
SKIN CONTACT: SINGLE SHORT EXPOSURE - NO IRRITATION. REPEATED PROLONGED EXPOSURE - UP TO POSSIBLE MILD IRRITATION, DEPENDING UPON SEVERITY OF EXPOSURE.
SKIN ABSORPTION: MAY BE ABSORBED IN TOXIC AMOUNTS IF EXPOSURE IS REPEATED PROLONGED. LOW TOXICITY BY SINGLE DOSE, MODERATE BY REPEATED DOSES FOR RABBITS.

(CONTINUED ON PAGE 2)

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SECTION 5 HEALTH HAZARD DATA (CONTINUED)

INHALATION: NO GUIDE FOR CONTROL KNOWN.
EFFECTS OF OVEREXPOSURE: CENTRAL NERVOUS SYSTEM DEPRESSION AT HIGH LEVELS.

SECTION 6 FIRST AID--NOTE TO PHYSICIAN

FIRST AID PROCEDURES:

EYES: IRRIGATION OF THE EYE IMMEDIATELY WITH WATER FOR FIVE MINUTES IS GOOD SAFETY PRACTICE.
SKIN: CONTACT WILL PROBABLY CAUSE NO MORE THAN IRRITATION. WASH OFF IN FLOWING WATER OR SHOWER. WASH CLOTHING BEFORE REUSE.
INHALATION: REMOVE TO FRESH AIR IF EFFECTS OCCUR. CALL PHYSICIAN AND/OR TRANSPORT TO MEDICAL FACILITY. IF RESPIRATION STOPS GIVE MOUTH-TO-MOUTH RESUSCITATION.
INGESTION: LOW IN TOXICITY. INDUCE VOMITING IF LARGE AMOUNTS ARE INGESTED.

NOTE TO PHYSICIAN:
EYES: MAY CAUSE MILD IRRITATION. STAIN FOR EVIDENCE OF CORNEAL INJURY.
SKIN: MAY CAUSE MILD IRRITATION. TREAT AS ANY CONTACT DERMATITIS. SEE ABOVE.
RESPIRATORY: WITH GROSS OVEREXPOSURE ANESTHETIC OR NARCOTIC EFFECT MAY OCCUR. ADMINISTER OXYGEN IF AVAILABLE. BRONCHODILATORS, EXPECTORANTS, AND ANTITUSSIVES MAY BE OF HELP.
ORAL: LOW IN TOXICITY.
SYSTEMIC: RAT STUDIES SUGGEST THE KIDNEY MAY BE THE TARGET ORGAN WITH OVEREXPOSURE. HUMAN EFFECTS NOT ESTABLISHED. NO SPECIFIC ANTIDOTE. TREATMENT BASED ON THE SOUND JUDGMENT OF THE PHYSICIAN AND THE INDIVIDUAL REACTIONS OF THE PATIENT.

SECTION 7 SPECIAL HANDLING INFORMATION

VENTILATION: GOOD ROOM VENTILATION USUALLY ADEQUATE FOR MOST OPERATIONS.
RESPIRATORY PROTECTION: NONE NORMALLY NEEDED. NIOSH APPROVED RESPIRATORY PROTECTION REQUIRED IN ABSENCE OF PROPER ENVIRONMENTAL CONTROL. FOR EMERGENCIES, A SELF-CONTAINED BREATHING APPARATUS OR A FULL-FACE RESPIRATOR AS APPROVED BY NIOSH IS RECOMMENDED.
PROTECTIVE CLOTHING: CLEAN, BODY-COVERING CLOTHING.
EYE PROTECTION: SAFETY GLASSES WITHOUT SIDE SHIELDS.

SECTION 8 SPECIAL PRECAUTIONS AND ADDITIONAL INFORMATION

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORAGE: PRACTICE REASONABLE CARE AND CLEANLINESS. AVOID BREATHING VAPOR IF GENERATED.

(CONTINUED ON PAGE 3)
(R) INDICATES A REGISTERED OR TRADEMARK NAME OF THE DOW CHEMICAL COMPANY

SECTION 8 SPECIAL PRECAUTIONS AND ADDITIONAL INFORMATION (CONTINUE

ADDITIONAL INFORMATION: ----

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M A T E R I A L S A F E T Y D A T A S H E E T

DOW CHEMICAL U.S.A. MIDLAND MICHIGAN 48640 EMERGENCY PHONE: 517-636-4400

EFFECTIVE DATE: 28 SEP 78

PRODUCT CODE: 22399

PRODUCT NAME: DOWANOL (R) EPH GLYCOL ETHER

MSD: 0049

INGREDIENTS (TYPICAL VALUES-NOT SPECIFICATIONS)	%
ETHYLENE GLYCOL PHENYL ETHER, APPROXIMATELY	92
DIETHYLENE GLYCOL PHENYL ETHER, APPROXIMATELY	8

SECTION 1 PHYSICAL DATA

BOILING POINT: 245.6C (473F)
VAP PRESS: 0.03 MMHG @ 25C
VAP DENSITY (AIR=1): 4.8
SOL. IN WATER: 2.3 G/100G
SP. GRAVITY: 1.1 @ 20/4C
% VOLATILE BY VOL: 100
APPEARANCE AND ODOR: COLORLESS - PLEASANT SMELLING LIQUID. (FREEZES @ 14C 57F).

SECTION 2 FIRE AND EXPLOSION HAZARD DATA

FLASH POINT: 78C (172F)
METHOD USED: PMCC
FLAMMABLE LIMITS (STP IN AIR)
LFL: NOT DETER. UFL: NOT DETER.
EXTINGUISHING MEDIA: WATER FOG, FOAM, ALCOHOL FOAM, CO2, DRY CHEMICAL.
SPECIAL FIRE FIGHTING EQUIPMENT AND HAZARDS: SELF-CONTAINED BREATHING APPARATUS.

SECTION 3 REACTIVITY DATA

STABILITY: ----
INCOMPATIBILITY: OXIDIZING MATERIAL.
HAZARDOUS DECOMPOSITION PRODUCTS: ----
HAZARDOUS POLYMERIZATION: WILL NOT OCCUR.

SECTION 4 SPILL, LEAK, AND DISPOSAL PROCEDURES

ACTION TO TAKE FOR SPILLS (USE APPROPRIATE SAFETY EQUIPMENT): USE ABSORBEN MATERIAL. REMOVE WITH SHOVEL.
DISPOSAL METHOD: BURN IN AN APPROVED INCINERATOR OR BURY AWAY FROM WATER SUPPLIES.

SECTION 5 HEALTH HAZARD DATA

INGESTION: LOW SINGLE DOSE ORAL; LD50 (RATS) GREATER THAN 2000 MG/KG (HIGHEST LEVEL TESTED).

(CONTINUED ON PAGE 2)

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DOW CHEMICAL U.S.A. MIDLAND MICHIGAN 48640 EMERGENCY PHONE: 517-636-3400

EFFECTIVE DATE: 28 SEP 78 PRODUCT CODE: 22399
PRODUCT (CONT'D): DOWANOL (R) EPH GLYCOL ETHER MSD: 0049

SECTION 5 HEALTH HAZARD DATA (CONTINUED)

EYE CONTACT: MODERATE IRRITATION AND MODERATE CORNEAL INJURY WHICH MAY BE SLOW TO HEAL.
SKIN CONTACT: ESSENTIALLY NON-IRRITATING.
SKIN ABSORPTION: NOT LIKELY TO BE ABSORBED IN ACUTELY TOXIC AMOUNTS; LD50 (RABBITS) GREATER THAN 2000 MG/KG.
INHALATION: NO GUIDE FOR CONTROL KNOWN. SINGLE EXPOSURE TO VAPORS AT 100C - NO ADVERSE EFFECTS. SINGLE EXPOSURE VAPORS AT ROOM TEMPERATURE - NO ADVERSE EFFECTS.
EFFECTS OF OVEREXPOSURE: IRRITATION OF EYES & NOSE. MAY CAUSE SLIGHT ANESTHESIA & TISSUE INJURY.

SECTION 6 FIRST AID--NOTE TO PHYSICIAN

FIRST AID PROCEDURES:

EYES: IRRIGATE WITH FLOWING WATER IMMEDIATELY AND CONTINUOUSLY FOR 15 MINUTES. REFER TO MEDICAL PERSONNEL.
SKIN: CONTACT WILL PROBABLY CAUSE NO MORE THAN IRRITATION. WASH OFF IN FLOWING WATER OR SHOWER.
INHALATION: REMOVE TO FRESH AIR IF EFFECTS OCCUR. CONSLT MEDICAL PERSONNEL.
INGESTION: LOW IN TOXICITY. INDUCE VOMITING IF LARGE AMOUNTS ARE INGESTED.

NOTE TO PHYSICIAN:
EYES: MAY CAUSE MODERATE IRRITATION. STAIN FOR EVIDENCE OF CORNEAL INJURY. IF CORNEA IS BURNED, INSTILL ANTIBIOTIC STEROID PREPARATION FREQUENTLY. CONSULT OPHTHALMOLOGIST.
SKIN: NO EFFECT EXPECTED. NOT LIKELY TO BE ABSORBED IN ACUTELY TOXIC AMOUNTS.
RESPIRATORY: INJURY IS UNLIKELY.
ORAL: LOW IN TOXICITY.
SYSTEMIC: ANIMAL STUDIES SUGGEST LIVER AND KIDNEY ARE TARGET ORGANS FOR OVEREXPOSURES. HUMAN EFFECTS NOT ESTABLISHED. BASED ON MINIMAL DATA. NO SPECIFIC ANTIDOTE. TREATMENT BASED ON THE SOUND JUDGMENT OF THE PHYSICIAN AND THE INDIVIDUAL REACTIONS OF THE PATIENT.

SECTION 7 SPECIAL HANDLING INFORMATION

VENTILATION: SUFFICIENT TO MINIMIZE EXPOSURE TO VAPORS IF GENERATED.
RESPIRATORY PROTECTION: NONE LIKELY TO BE NEEDED.
PROTECTIVE CLOTHING: CLEAN, BODY - COVERING CLOTHING.
EYE PROTECTION: CHEMICAL WORKERS GOGGLES. EYE FOUNTAIN AT WORK AREA.

(CONTINUED ON PAGE 3)
(R) INDICATES A REGISTERED OR TRADEMARK NAME OF THE DOW CHEMICAL COMPANY

SECTION 8 SPECIAL PRECAUTIONS AND ADDITIONAL INFORMATION

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORAGE: DO NOT GET IN EYES.
AVOID BREATHING VAPORS IF GENERATED.
ADDITIONAL INFORMATION: ----

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M A T E R I A L S A F E T Y D A T A S H E E T

DOW CHEMICAL U.S.A. MIDLAND MICHIGAN 48640 EMERGENCY PHONE: 517-636-4400

EFFECTIVE DATE: 08 JAN 79 PRODUCT CODE: 22388

PRODUCT NAME: DOWANOL (R) EM MSD: 0048

INGREDIENTS (TYPICAL VALUES-NOT SPECIFICATIONS)	%
ETHYLENE GLYCOL METHYL ETHER	95

SECTION 1 PHYSICAL DATA

BOILING POINT: 255F
VAP PRESS: 9.5 MMHG @ 25C
VAP DENSITY (AIR=1): 2.6
APPEARANCE AND ODOR: CLEAR LIQUID.

SOL. IN WATER: COMPLETELY MISCIBLE.
SP. GRAVITY: 0.963 25/25C
% VOLATILE BY VOL: 100

SECTION 2 FIRE AND EXPLOSION HAZARD DATA

FLASH POINT: 105F
METHOD USED: TAG CLOSED CUP.

FLAMMABLE LIMITS (STP IN AIR)
LFL: 1.8% UFL: 14.0%

EXTINGUISHING MEDIA: WATER FOG, ALCOHOL FOAM, CO2, DRY CHEMICAL.
SPECIAL FIRE FIGHTING EQUIPMENT AND HAZARDS: ----

SECTION 3 REACTIVITY DATA

STABILITY: IGNITES IN AIR AT 545F.
INCOMPATIBILITY: OXIDIZING MATERIAL.
HAZARDOUS DECOMPOSITION PRODUCTS: ----
HAZARDOUS POLYMERIZATION: WILL NOT OCCUR.

SECTION 4 SPILL, LEAK, AND DISPOSAL PROCEDURES

ACTION TO TAKE FOR SPILLS (USE APPROPRIATE SAFETY EQUIPMENT): ADD ABSORBENT
REMOVE WITH RUBBER SHOVEL.
DISPOSAL METHOD: BURN IN ACCORDANCE WITH LOCAL LAWS.

SECTION 5 HEALTH HAZARD DATA

INGESTION: LOW SINGLE DOSE ORAL TOXICITY; LD50 FOR LAB ANIMALS RANGES FROM
890 TO 3400 MG/KG (RATS APPROX. 2000 MG/KG).
EYE CONTACT: MODERATE PAIN, SLIGHT IRRITATION ACCOMPANIED BY SLIGHT TRANSI
CORNEAL INJURY.
SKIN CONTACT: MAY BE SLIGHTLY IRRITATING.
SKIN ABSORPTION: MODERATELY TOXIC BY ABSORPTION; LD50 2000 MG/KG; REPEATED
CONTACT MAY RESULT IN SYSTEMIC INJURY.

(CONTINUED ON PAGE 2)

(R) INDICATES A REGISTERED OR TRADEMARK NAME OF THE DOW CHEMICAL COMPANY

EFFECTIVE DATE: 08 JAN 79
PRODUCT (CONT'D): DOWANOL (R) EM

PRODUCT CODE: 2238A
MSD: 004

SECTION 5 HEALTH HAZARD DATA (CONTINUED)

INHALATION: OSHA GUIDE AND ACGIH TLV IS 25 PPM (1978).
EFFECTS OF OVEREXPOSURE: DROWSINESS, FATIGUE, MACROCYTIC ANEMIA, ABNORMAL LEUKOCYTE DEVELOPMENT AND BONE MARROW DEPRESSION. CHRONIC HI VAPOR EXPOSURE MAY CAUSE NEUROLOGICAL INJURY.

SECTION 6 FIRST AID--NOTE TO PHYSICIAN

FIRST AID PROCEDURES:

EYES: IRRIGATE WITH FLOWING WATER IMMEDIATELY AND CONTINUOUSLY FOR 15 MINUTES. REFER TO MEDICAL PERSONNEL.
SKIN: IN CASE OF CONTACT, IMMEDIATELY FLUSH SKIN WITH PLENTY OF WATER FOR AT LEAST 15 MINUTES WHILE REMOVING CONTAMINATED CLOTHING. CALL PHYSICIAN. WASH CLOTHING BEFORE REUSE. DESTROY CONTAMINATED SHOES.
INHALATION: REMOVE TO FRESH AIR IF EFFECTS OCCUR. CALL PHYSICIAN AND/ TRANSPORT TO MEDICAL FACILITY. IF RESPIRATION STOPS GIVE MOUTH-TO-M RESUSCITATION.
INGESTION: IF SWALLOWED, INDUCE VOMITING IMMEDIATELY BY GIVING TWO GLASSES OF WATER AND STICKING FINGER DOWN THROAT. CALL A PHYSIC

NOTE TO PHYSICIAN:
EYES: MAY CAUSE CORNEAL INJURY OR BURN. STAIN FOR EVIDENCE OF CORN INJURY. IF CORNEA IS BURNED, INSTILL ANTIBIOTIC STEROID PR RATION FREQUENTLY. CONSULT OPHTHALMOLOGIST.
SKIN: MAY CAUSE MILD IRRITATION. TREAT AS ANY CONTACT DERMATITIS. MAY BE ABSORBED IN ACUTELY TOXIC AMOUNTS. OCTOBER ISSUE OF J.O.M. 1978 DESCRIBES TWO CASES OF HUMAN POISONING FROM CUTANEOUS ABSORPTION OF ETHYLENE GLYCOL METHYL ETHER. BOTH INDIVIDUALS HAD SEVERE C.N.S. SYMPTOMS AND BONE MARROW DEPRES
RESPIRATORY: TOXIC BY INHALATION. MAY CAUSE NEUROLOGIC SIGNS AND SYMPTOMS. ANIMAL STUDIES INDICATE THAT LIVER AND KIDNEY MAY BE TARGET ORGANS WITH OVEREXPOSURE. KIDNEY INJURY IS MORE PRONOUNCED THAN LIVER INJURY.
ORAL: ----
SYSTEMIC: CONSULT STANDARD LITERATURE. NO SPECIFIC ANTIDOTE. TREA MENT BASED ON THE SOUND JUDGMENT OF THE PHYSICIAN AND THE INDIVIDUAL REACTIONS OF THE PATIENT.

SECTION 7 SPECIAL HANDLING INFORMATION

VENTILATION: RECOMMEND CONTROL OF VAPORS OR MIST TO SUGGESTED GUIDE.
RESPIRATORY PROTECTION: NIOSH APPROVED RESPIRATORY PROTECTION REQUIRED IN ABSENCE OF PROPER ENVIRONMENTAL CONTROL. FOR EMERGENCIES, A SELF-CONTAINED BREATHING APPARATUS OR A FULL-FACE RESPIRATOR AS APPROVED BY NIOSH IS RECOMMENDED.
PROTECTIVE CLOTHING: CLEAN, BODY-COVERING CLOTHING.

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(R) INDICATES A REGISTERED OR TRADEMARK NAME OF THE DOW CHEMICAL COMPA

DOW CHEMICAL U.S.A. MIDLAND MICHIGAN 48640 EMERGENCY PHONE: 517-636-4400

EFFECTIVE DATE: 08 JAN 79 PRODUCT CODE: 22388
MSD: 0048
PRODUCT (CONT'D): DOWANOL (R) EM
EYE PROTECTION: SAFETY GLASSES WITHOUT SIDE SHIELDS. WASHING FACILITIES NEAR WORK AREA.

SECTION 8 SPECIAL PRECAUTIONS AND ADDITIONAL INFORMATION

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORAGE: AVOID VAPOR INHALATION. PRACTICE REASONABLE CARE TO AVOID EYE AND EXCESSIVE SKIN CONTACT.
ADDITIONAL INFORMATION: ----

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M A T E R I A L S A F E T Y D A T A S H E E T

DOW CHEMICAL U.S.A. MIDLAND MICHIGAN 48640 EMERGENCY PHONE: 517-636-4400

EFFECTIVE DATE: 02 JAN 79

PRODUCT CODE: 22377

PRODUCT NAME: DOWANOL (R) EE

MSD: 0047

INGREDIENTS (TYPICAL VALUES-NOT SPECIFICATIONS)	%
ETHYLENE GLYCOL ETHYL ETHER, MINIMUM	95

SECTION 1 PHYSICAL DATA

BOILING POINT: 275.8F
VAP PRESS: 5.5 MMHG @ 25C
VAP DENSITY (AIR=1): 3.12
SOL. IN WATER: INFINITE
SP. GRAVITY: 0.928 @ 25/25C
% VOLATILE BY VOL: 100
APPEARANCE AND ODOR: WATER - WHITE LIQUID - ETHER ODOR.

SECTION 2 FIRE AND EXPLOSION HAZARD DATA

FLASH POINT: 109F
METHOD USED: TAG CLOSED CUP
FLAMMABLE LIMITS (STP IN AIR)
LFL: 1.8 UFL: 14.0
EXTINGUISHING MEDIA: WATER FOG, ALCOHOL FOAM, CO2, DRY CHEMICAL.
SPECIAL FIRE FIGHTING EQUIPMENT AND HAZARDS: ----

SECTION 3 REACTIVITY DATA

STABILITY: AVOID OPEN FLAMES.
INCOMPATIBILITY: OXIDIZING MATERIAL.
HAZARDOUS DECOMPOSITION PRODUCTS: ----
HAZARDOUS POLYMERIZATION: WILL NOT OCCUR.

SECTION 4 SPILL, LEAK, AND DISPOSAL PROCEDURES

ACTION TO TAKE FOR SPILLS (USE APPROPRIATE SAFETY EQUIPMENT): ADD ABSORBEN
REMOVE WITH RUBBER SHOVEL. AVOID SOURCES OF IGNITION. DO NOT
ALLOW PRODUCT TO CONTAMINATE GROUND WATER SYSTEMS.
DISPOSAL METHOD: BURN IN ACCORDANCE WITH LOCAL LAWS.

SECTION 5 HEALTH HAZARD DATA

INGESTION: LOW SINGLE DOSE TOXICITY. LD50 (LAB ANIMALS) RANGES FROM
1.4 TO 5.5 G/KG.
EYE CONTACT: PAIN, MILD IRRITATION AND TRANSIENT CORNEAL INJURY
(HEALS IN A DAY OR SO).
SKIN CONTACT: MILD IRRITATION ONLY UPON PROLONGED OR REPEATED EXPOSURE.

(CONTINUED ON PAGE 2)

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SECTION 5 HEALTH HAZARD DATA (CONTINUED)

SKIN ABSORPTION: LOW TOXICITY. LD50 (RABBITS) - 3.6 ML/KG: PROBABLY READILY ABSORBED.
INHALATION: ACGIH TLV IS 100 PPM (1978).
EFFECTS OF OVEREXPOSURE: IRRITATING & DISAGREEBLE VAPORS. IF EXPOSURE IS NOT ADEQUATELY CONTROLLED, MAY CAUSE ILLNESS DETECTABLE IN ITS EARLY STAGES ONLY BY ADEQUATE EXAMINATION.

SECTION 6 FIRST AID--NOTE TO PHYSICIAN

FIRST AID PROCEDURES:

EYES: IRRIGATE WITH FLOWING WATER IMMEDIATELY AND CONTINUOUSLY FOR 15 MINUTES. REFER TO MEDICAL PERSONNEL.
SKIN: CONTACT WILL PROBABLY CAUSE NO MORE THAN IRRITATION. WASH OFF IN FLOWING WATER OR SHOWER. WASH CLOTHING BEFORE REUSE.
INHALATION: REMOVE TO FRESH AIR IF EFFECTS OCCUR. CONSULT MEDICAL PERSONNEL.
INGESTION: LOW IN TOXICITY. INDUCE VOMITING IF LARGE AMOUNTS ARE INGESTED.

NOTE TO PHYSICIAN:
EYES: MAY CAUSE MILD IRRITATION. STAIN FOR EVIDENCE OF CORNEAL INJURY.
SKIN: MAY CAUSE MILD IRRITATION. IF RASH IS PRESENT TREAT AS ANY CONTACT DERMATITIS. NOT LIKELY TO BE ABSORBED IN ACUTELY TOXIC AMOUNTS.
RESPIRATORY: MAY CAUSE MODERATE IRRITATION. ADMINISTER OXYGEN IF AVAILABLE. BRONCHODILATORS, EXPECTORANTS, AND ANTITUSSIVES MAY BE OF HELP.
ORAL: LOW IN TOXICITY.
SYSTEMIC: CONSULT STANDARD LITERATURE. ANIMAL STUDIES INDICATE KIDNEY, LIVER AND LUNGS ARE TARGET ORGANS WITH OVEREXPOSURE. WITH OVEREXPOSURE MAY HAVE INCREASED R.B.C. FRAGILITY. NO SPECIFIC ANTIDOTE. TREATMENT BASED ON THE SOUND JUDGMENT OF THE PHYSICIAN AND THE INDIVIDUAL REACTIONS OF THE PATIENT.

SECTION 7 SPECIAL HANDLING INFORMATION

VENTILATION: RECOMMEND CONTROL OF VAPORS OR MIST TO SUGGESTED GUIDE.
RESPIRATORY PROTECTION: NIOSH APPROVED RESPIRATORY PROTECTION REQUIRED IN ABSENCE OF PROPER ENVIRONMENTAL CONTROL. FOR EMERGENCIES, A SELF-CONTAINED BREATHING APPARATUS OR A FULL-FACE RESPIRATOR AS APPROVED BY NIOSH IS RECOMMENDED.
PROTECTIVE CLOTHING: CLEAN, BODY-COVERING CLOTHING.
EYE PROTECTION: SAFETY GLASSES WITHOUT SIDE SHIELDS. WASHING FACILITIES NEAR WORK AREA.

(CONTINUED ON PAGE 3)
(R) INDICATES A REGISTERED OR TRADEMARK NAME OF THE DOW CHEMICAL COMPANY

EFFECTIVE DATE: 02 JAN 79
PRODUCT (CONT'D): DOWANOL (R) EE

PRODUCT CODE: 22377
MSD: 0047

SECTION 8 SPECIAL PRECAUTIONS AND ADDITIONAL INFORMATION

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORAGE: GROUND ALL EQUIPMENT. PRACTICE GOOD CARE TO AVOID SKIN CONTACT AND TO AVOID INHALATION OF VAPORS.
ADDITIONAL INFORMATION: ----

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M A T E R I A L S A F E T Y D A T A S H E E T

DOW CHEMICAL U.S.A. MIDLAND MICHIGAN 48640 EMERGENCY PHONE: 517-636-4400

EFFECTIVE DATE: 02 JAN 79 PRODUCT CODE: 22366

PRODUCT NAME: DOWANOL (R) EB (ETHYLENE GLYCOL BUTYL ETHER) MSD: 0046

INGREDIENTS (TYPICAL VALUES-NOT SPECIFICATIONS)	%
ETHYLENE GLYCOL N-BUTYL ETHER (MIN)	95

SECTION 1 PHYSICAL DATA

BOILING POINT: 340F
VAP PRESS: 0.88 MMHG @ 25C
VAP DENSITY (AIR=1): 4.10
SOL. IN WATER: INFINITELY
SP. GRAVITY: .897 @ 25/25C
% VOLATILE BY VOL: 100
APPEARANCE AND ODOR: WATER WHITE LIQUID - ETHER-LIKE ODOR.

SECTION 2 FIRE AND EXPLOSION HAZARD DATA

FLASH POINT: 150F
METHOD USED: TAG CLOSED CUP
FLAMMABLE LIMITS (STP IN AIR)
LFL: 1.1% VOL. UFL: 10.6% VOL.
EXTINGUISHING MEDIA: ALCOHOL FOAM, CO2, DRY CHEMICAL.
SPECIAL FIRE FIGHTING EQUIPMENT AND HAZARDS: ----

SECTION 3 REACTIVITY DATA

STABILITY: ----
INCOMPATIBILITY: OXIDIZING MATERIAL.
HAZARDOUS DECOMPOSITION PRODUCTS: NONE
HAZARDOUS POLYMERIZATION: WILL NOT OCCUR.

SECTION 4 SPILL, LEAK, AND DISPOSAL PROCEDURES

ACTION TO TAKE FOR SPILLS (USE APPROPRIATE SAFETY EQUIPMENT): ADD ABSORBEN
REMOVE WITH RUBBER SHOVEL.
DISPOSAL METHOD: BURN IN ACCORDANCE WITH LOCAL LAWS.

SECTION 5 HEALTH HAZARD DATA

INGESTION: MODERATE SINGLE DOSE TOXICITY, LD50 (RATS): 470 MG/KG; (RABBITS
320 MG/KG.
EYE CONTACT: SLIGHT PAIN, MODERATE IRRITATION AND CORNEAL INJURY,
SHOULD HEAL IN 1-2 WEEKS.
SKIN CONTACT: ESSENTIALLY NON-IRRITATING.
SKIN ABSORPTION: MODERATELY TO HIGHLY TOXIC BY ABSORPTION. LD50 (RABBITS
220 MG/KG - READILY ABSORBED.

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(R) INDICATES A REGISTERED OR TRADEMARK NAME OF THE DOW CHEMICAL COMPANY

DOW CHEMICAL U.S.A. MIDLAND MICHIGAN 48640 EMERGENCY PHONE: 517-636-4400

EFFECTIVE DATE: 02 JAN 79 PRODUCT CODE: 22366
PRODUCT (CONT'D): DOWANOL (R) EB (ETHYLENE GLYCOL BUTYL ETHER) MSD: 0046

SECTION 5 HEALTH HAZARD DATA (CONTINUED)

INHALATION: OSHA GUIDE AND ACGIH TLV IS 50 PPM (1978).
EFFECTS OF OVEREXPOSURE: ACUTE EFFECT: NARCOSIS. DELAYED EFFECTS: BLOOD EFFECTS AND ORGANIC INJURY IN LIVER AND KIDNEY.

SECTION 6 FIRST AID--NOTE TO PHYSICIAN

FIRST AID PROCEDURES:

EYES: IRRIGATE WITH FLOWING WATER IMMEDIATELY AND CONTINUOUSLY FOR 15 MINUTES. REFER TO MEDICAL PERSONNEL.
SKIN: IN CASE OF CONACT, IMMEDIATELY FLUSH SKIN WITH PLENTY OF WATER FOR AT LEAST 15 MINUTES WHILE REMOVING CONTAMINATED CLOTHING AND SHOES CALL A PHYSICIAN. WASH CLOTHING BEFORE REUSE. DESTROY CONTAMINATED SHOES.
INHALATION: REMOVE TO FRESH AIR IF EFFECTS OCCUR. CALL PHYSICIAN AND/OR TRANSPORT TO MEDICAL FACILITY.
INGESTION: IF SWALLOWED, INDUCE VOMITING IMMEDIATELY BY GIVING TWO GLASSES OF WATER AND STICKING FINGER DOWN THROAT. CALL A PHYSICIAN.

NOTE TO PHYSICIAN:
EYES: MAY CAUSE CORNEAL INJURY OR BURN. STAIN FOR EVIDENCE OF CORNEAL INJURY. IF CORNEA IS BURNED, INSTILL ANTIBIOTIC STEROID PREPARATION FREQUENTLY. CONSULT OPHTHALMOLOGIST.
SKIN: MAY CAUSE MILD IRRITATION. TREAT AS ANY CONTACT DERMATITIS. MAY BE ABSORBED IN ACUTELY TOXIC AMOUNTS.
RESPIRATORY: MAY CAUSE MODERATE IRRITATION TO LUNGS. ANESTHETIC OR NARCOTIC EFFECT MAY OCCUR. ADMINISTER OXYGEN IF AVAILABLE. BRONCHODILATORS, EXPECTORANTS, AND ANTITUSSIVES MAY BE OF HELP.
ORAL: MODERATELY TOXIC.
SYSTEMIC: RAT STUDY SUGGESTS KIDNEY IS PRIMARY TARGET ORGAN WITH OVEREXPOSURE BUT SOME LIVER CHANGES MAY ALSO BE EVIDENT. INCREASED R.B.C. FRAGILITY SEEN WITH OVEREXPOSURE. CONSULT STANDARD LITERATURE. NO SPECIFIC ANTIDOTE. TREATMENT BASED ON THE SOUND JUDGMENT OF THE PHYSICIAN AND THE INDIVIDUAL REACTIONS OF THE PATIENT.

SECTION 7 SPECIAL HANDLING INFORMATION

VENTILATION: RECOMMEND CONTROL OF VAPOR OR MIST TO SUGGESTED GUIDE.
RESPIRATORY PROTECTION: NIOSH APPROVED RESPIRATORY PROTECTION REQUIRED IN ABSENCE OF PROPER ENVIRONMENTAL CONTROL. FOR EMERGENCIES, A SELF-CONTAINED BREATHING APPARATUS OR A FULL-FACE RESPIRATOR AS APPROVED BY NIOSH IS RECOMMENDED.
PROTECTIVE CLOTHING: CLEAN, BODY-COVERING CLOTHING. IN ADDITION, IMPERVIC GLOVES, BOOTS, APRON, GAUNTLETS, AND A FACE SHIELD IN ADDITION TO RECOMMENDED EYE PROTECTION DEPENDING UPON THE EXTENT AND SEVERITY OF EXPOSURE LIKELY.

(CONTINUED ON PAGE 3)
(R) INDICATES A REGISTERED OR TRADEMARK NAME OF THE DOW CHEMICAL COMPANY

DOW CHEMICAL U.S.A. MIDLAND MICHIGAN 48640 EMERGENCY PHONE: 517-636-4000

EFFECTIVE DATE: 02 JAN 79 PRODUCT CODE: 22366
PRODUCT (CONT'D): DOWANOL (R) EB (ETHYLENE GLYCOL BUTYL ETHER) MSD: 0046
EYE PROTECTION: CHEMICAL WORKERS GOGGLES. EYE FOUNTAIN & WASHING FACILITIES NEAR WORK AREA.

SECTION 8 SPECIAL PRECAUTIONS AND ADDITIONAL INFORMATION

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORAGE: GROUND ALL EQUIPMENT. HANDLE WITH CARE. AVOID ALL SKIN AND EYE CONTACT. AVOID BREATHING VAPOR.
ADDITIONAL INFORMATION: ----

LAST PAGE

(R) INDICATES A REGISTERED OR TRADEMARK NAME OF THE DOW CHEMICAL COMPANY

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MATERIAL SAFETY DATA SHEET

DOW CHEMICAL U.S.A. MIDLAND MICHIGAN 48640 EMERGENCY PHONE: 517-636-4400

EFFECTIVE DATE: 02 JAN 79 PRODUCT CODE: 22316

PRODUCT NAME: DOWANOL (R) DE MSD: 0042

INGREDIENTS (TYPICAL VALUES-NOT SPECIFICATIONS)	%
DIETHYLENE GLYCOL ETHYL ETHER	95

SECTION 1 PHYSICAL DATA

BOILING POINT: 395F
VAP PRESS: 0.26 MMHG @ 25C
VAP. DENSITY (AIR=1): 4.65
SOL. IN WATER: COMPLETELY MISCIBLE.
SP. GRAVITY: 0.988 @ 25/25C
% VOLATILE BY VOL: 100
APPEARANCE AND ODOR: COLORLESS LIQUID.

SECTION 2 FIRE AND EXPLOSION HAZARD DATA

FLASH POINT: 196F
METHOD USED: TAG CLOSED CUP
FLAMMABLE LIMITS (STP IN AIR)
LFL: 1.2 VOL.% UFL: 9.0 VOL.%
EXTINGUISHING MEDIA: WATER FOG, ALCOHOL FOAM, CO2, DRY CHEMICAL.
SPECIAL FIRE FIGHTING EQUIPMENT AND HAZARDS: NONE

SECTION 3 REACTIVITY DATA

STABILITY: ----
INCOMPATIBILITY: ----
HAZARDOUS DECOMPOSITION PRODUCTS: ----
HAZARDOUS POLYMERIZATION: WILL NOT OCCUR.

SECTION 4 SPILL, LEAK, AND DISPOSAL PROCEDURES

ACTION TO TAKE FOR SPILLS (USE APPROPRIATE SAFETY EQUIPMENT): ADD ABSORBENT REMOVE WITH RUBBER SHOVEL.
DISPOSAL METHOD: BURN IN ACCORDANCE WITH LOCAL LAWS.

SECTION 5 HEALTH HAZARD DATA

INGESTION: LOW SINGLE DOSE ORAL TOXICITY; LD50 FOR RATS, RABBITS, ETC. 4900 TO 9700 MG/KG.
EYE CONTACT: MILD PAIN, MINOR TRANSIENT IRRITATION, NO CORNEAL INJURY EXPECTED.
SKIN CONTACT: ESSENTIALLY NO IRRITATION; HUMAN TESTS INDICATE THAT IT IS NOT A SENSITIZER.

(CONTINUED ON PAGE 2)

(R) INDICATES A REGISTERED OR TRADEMARK NAME OF THE DOW CHEMICAL COMPANY

DOW CHEMICAL U.S.A. MIDLAND MICHIGAN 48640 EMERGENCY PHONE: 517-636-4400

EFFECTIVE DATE: 02 JAN 79 PRODUCT CODE: 22316
PRODUCT (CONT'D): DOWANOL (R) DE MSD: 0042

SECTION 5 HEALTH HAZARD DATA (CONTINUED)

SKIN ABSORPTION: LOW IN TOXICITY FOR SINGLE DOSE. MODERATE FOR REPEATED DOSES IN RABBITS. HUMAN EXPERIENCE AND TESTS INDICATE THAT IT IS NOT ABSORBED THROUGH SKIN BY HUMANS.
INHALATION: NO GUIDE FOR CONTROL KNOWN.
EFFECTS OF OVEREXPOSURE: BY INGESTION IN RATS - DISTURBANCE OF BALANCE, GASTRO-INTESTINAL INFLAMMATION AND KIDNEY INJURY.

SECTION 6 FIRST AID--NOTE TO PHYSICIAN

FIRST AID PROCEDURES:

EYES: IRRIGATION OF THE EYE IMMEDIATELY WITH WATER FOR FIVE MINUTES IS GOOD SAFETY PRACTICE.
SKIN: CONTACT WILL PROBABLY CAUSE NO MORE THAN IRRITATION. WASH OFF IN FLOWING WATER OR SHOWER. WASH CLOTHING BEFORE REUSE.
INHALATION: REMOVE TO FRESH AIR IF EFFECTS OCCUR. CONSULT MEDICAL PERSONNEL.
INGESTION: LOW IN TOXICITY. INDUCE VOMITING IF LARGE AMOUNTS ARE INGESTED.
NOTE TO PHYSICIAN:
EYES: MAY CAUSE MILD IRRITATION. STAIN FOR EVIDENCE OF CORNEAL INJURY.
SKIN: MAY CAUSE MILD IRRITATION. TREAT AS ANY CONTACT DERMATITIS. NOT LIKELY TO BE ABSORBED IN ACUTELY TOXIC AMOUNTS.
RESPIRATORY: INJURY IS UNLIKELY.
ORAL: LOW IN TOXICITY.
SYSTEMIC: CONSULT STANDARD LITERATURE. HUMAN EFFECTS NOT ESTABLISHED. NO SPECIFIC ANTIDOTE. TREATMENT BASED ON THE SOUND JUDGMENT OF THE PHYSICIAN AND THE INDIVIDUAL REACTIONS OF THE PATIENT.

SECTION 7 SPECIAL HANDLING INFORMATION

VENTILATION: GOOD ROOM VENTILATION USUALLY ADEQUATE FOR MOST OPERATIONS.
RESPIRATORY PROTECTION: NONE NORMALLY NEEDED. NIOSH APPROVED RESPIRATORY PROTECTION REQUIRED IN ABSENCE OF PROPER ENVIRONMENTAL CONTROL. FOR EMERGENCIES, A SELF-CONTAINED BREATHING APPARATUS OR A FULL-FACE RESPIRATOR AS APPROVED BY NIOSH IS RECOMMENDED.
PROTECTIVE CLOTHING: CLEAN, BODY-COVERING CLOTHING.
EYE PROTECTION: SAFETY GLASSES WITHOUT SIDE SHIELDS.

SECTION 8 SPECIAL PRECAUTIONS AND ADDITIONAL INFORMATION

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORAGE: PRACTICE REASONABLE CARE AND CAUTION TO AVOID SKIN AND EYE CONTACT. AVOID BREATHING VAPORS OR MISTS IF GENERATED.

(CONTINUED ON PAGE 3)
(R) INDICATES A REGISTERED OR TRADEMARK NAME OF THE DOW CHEMICAL COMPANY

DOW CHEMICAL U.S.A. MIDLAND MICHIGAN 48640 EMERGENCY PHONE: 517-636-4400

EFFECTIVE DATE: 02 JAN 79 PRODUCT CODE: 22316
PRODUCT (CONT'D): DOWANOL (R) DE MSD: 0042

SECTION 8 SPECIAL PRECAUTIONS AND ADDITIONAL INFORMATION (CONTINUED)

ADDITIONAL INFORMATION: ----

LAST PAGE

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M A T E R I A L S A F E T Y D A T A S H E E T

DOW CHEMICAL U.S.A. MIDLAND MICHIGAN 48640 EMERGENCY PHONE: 517-636-4400

EFFECTIVE DATE: 02 JAN 79

PRODUCT CODE: 22305

MSD: 0041

PRODUCT NAME: DOWANOL (R) DB

INGREDIENTS (TYPICAL VALUES-NOT SPECIFICATIONS)	%
DIETHYLENE GLYCOL N-BUTYL ETHER	95

SECTION 1 PHYSICAL DATA

BOILING POINT: 446F
VAP PRESS: .06 MMHG @ 25C
VAP DENSITY (AIR=1): 5.62
SOL. IN WATER: COMPLETELY MISCIBLE.
SP. GRAVITY: 0.952 @ 25/25C
% VOLATILE BY VOL: 100%
APPEARANCE AND ODOR: COLORLESS, MILD - LIQUID.

SECTION 2 FIRE AND EXPLOSION HAZARD DATA

FLASH POINT: 222F
METHOD USED: TCC
FLAMMABLE LIMITS (STP IN AIR)
LFL: NOT DETER. UFL: NOT DETER.
EXTINGUISHING MEDIA: WATER FOG, ALCOHOL FOAM, CO2, DRY CHEMICAL.
SPECIAL FIRE FIGHTING EQUIPMENT AND HAZARDS: ----

SECTION 3 REACTIVITY DATA

STABILITY: ----
INCOMPATIBILITY: OXIDIZING MATERIALS.
HAZARDOUS DECOMPOSITION PRODUCTS: ----
HAZARDOUS POLYMERIZATION: WILL NOT OCCUR.

SECTION 4 SPILL, LEAK, AND DISPOSAL PROCEDURES

ACTION TO TAKE FOR SPILLS (USE APPROPRIATE SAFETY EQUIPMENT): ADD ABSORBENT REMOVE WITH SHOVEL.
DISPOSAL METHOD: BURN IN ACCORDANCE WITH LOCAL LAWS.

SECTION 5 HEALTH HAZARD DATA

INGESTION: LOW SINGLE DOSE TOXICITY: LD50 (RATS) 5660, (GUINEA PIGS) 2000 MG/KG.
EYE CONTACT: MODERATE IRRITATION AND MODERATE TRANSIENT CORNEAL INJURY.
SKIN CONTACT: VERY SLIGHT IRRITATION.
SKIN ABSORPTION: LOW SINGLE DOSE TOXICITY. LD50 RABBITS 4000 MG/KG.
INHALATION: NO GUIDE FOR CONTROL KNOWN.

(CONTINUED ON PAGE 2)

(R) INDICATES A REGISTERED OR TRADEMARK NAME OF THE DOW CHEMICAL COMPANY

SECTION 5 HEALTH HAZARD DATA (CONTINUED)

EFFECTS OF OVEREXPOSURE: ----

SECTION 6 FIRST AID--NOTE TO PHYSICIAN

FIRST AID PROCEDURES:

EYES: IRRIGATE WITH FLOWING WATER IMMEDIATELY AND CONTINUOUSLY FOR 15 MINUTES. REFER TO MEDICAL PERSONNEL.
SKIN: CONTACT WILL PROBABLY CAUSE NO MORE THAN IRRITATION. WASH OFF IN FLOWING WATER OR SHOWER. WASH CLOTHING BEFORE REUSE.
INHALATION: REMOVE TO FRESH AIR IF EFFECTS OCCUR. CONSULT MEDICAL PERSONNEL.
INGESTION: LOW IN TOXICITY. INDUCE VOMITING IF LARGE AMOUNTS ARE INGESTED.

NOTE TO PHYSICIAN:
EYES: MAY CAUSE CORNEAL INJURY OR BURN. STAIN FOR EVIDENCE OF CORNEAL INJURY. IF CORNEA IS BURNED, INSTILL ANTIBIOTIC STEROID PREPARATION FREQUENTLY. CONSULT OPHTHALMOLOGIST.
SKIN: MAY CAUSE MILD IRRITATION. CHRONIC EXPOSURE MAY CAUSE DEFATTING TYPE OF DERMATITIS. TREAT AS ANY CONTACT DERMATITIS. NOT LIKELY TO BE ABSORBED IN ACUTELY TOXIC AMOUNTS.
RESPIRATORY: INJURY IS UNLIKELY.
ORAL: LOW IN TOXICITY.
SYSTEMIC: HUMAN EFFECTS NOT ESTABLISHED. CONSULT STANDARD LITERATURE. NO SPECIFIC ANTIDOTE. TREATMENT BASED ON THE SOUND JUDGMENT OF THE PHYSICIAN AND THE INDIVIDUAL REACTION OF THE PATIENT.

SECTION 7 SPECIAL HANDLING INFORMATION

VENTILATION: GOOD ROOM VENTILATION USUALLY ADEQUATE FOR MOST OPERATIONS.
RESPIRATORY PROTECTION: NONE NORMALLY NEEDED. NIOSH APPROVED RESPIRATORY PROTECTION REQUIRED IN ABSENCE OF PROPER ENVIRONMENTAL CONTROL. FOR EMERGENCIES, A SELF-CONTAINED BREATHING APPARATUS OR A FULL-FACE RESPIRATOR AS APPROVED BY NIOSH IS RECOMMENDED.
PROTECTIVE CLOTHING: CLEAN, BODY-COVERING CLOTHING.
EYE PROTECTION: SAFETY GLASSES WITHOUT SIDE SHIELDS. EYE FOUNTAIN & WASHING FACILITIES NEAR WORK AREA.

SECTION 8 SPECIAL PRECAUTIONS AND ADDITIONAL INFORMATION

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORAGE: AVOID EYE CONTACT. PRACTICE REASONABLE CARE TO AVOID SKIN CONTACT. AVOID BREATHING VAPORS OR MISTS IF GENERATED.

(CONTINUED ON PAGE 3)
(R) INDICATES A REGISTERED OR TRADEMARK NAME OF THE DOW CHEMICAL COMPANY

M A T E R I A L S A F E T Y D A T A S H E E T

DOW CHEMICAL U.S.A. MIDLAND MICHIGAN 48640 EMERGENCY PHONE: 517-636-4400

PRODUCT CODE: 22305
MSD: 0041

EFFECTIVE DATE: 02 JAN 79
PRODUCT (CONT'D): DOWANOL (R) DB

SECTION 8 SPECIAL PRECAUTIONS AND ADDITIONAL INFORMATION (CONTINUED)

ADDITIONAL INFORMATION: ----

LAST PAGE

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EASTMAN KODAK COMPANY
APPROVED BY U.S. DEPARTMENT OF LABOR
"ESSENTIALLY SIMILAR" TO FORM OSHA-20

MATERIAL SAFETY DATA SHEET

SECTION I

PRODUCT NAME: KODAFLEX® DOP Plasticizer	SIZE: Not applicable
CHEMICAL NAME: Dioctyl Phthalate [Bis(2-ethylhexyl) Phthalate]	
FORMULA: $C_6H_4(COOCH_2CH[C_2H_5]C_4H_9)_2$	
MANUFACTURER: Marketed by Eastman Chemical Products, Inc.	
ADDRESS: Kingsport, Tennessee 37662	
FOR INFORMATION ON HEALTH HAZARDS CALL: 615-247-0411, Extension 3613	
FOR OTHER INFORMATION CALL: Same number as above Extension 5100	INFORMATION EFFECTIVE AS OF: October, 1976

SECTION II HAZARDOUS INGREDIENTS OF MIXTURES

PRINCIPAL HAZARDOUS COMPONENT (S)	%	TLV (Units)
Not applicable		

SECTION III PHYSICAL DATA

BOILING POINT (°F.)	724°F (384°C)	SPECIFIC GRAVITY (H_2O = 1)	0.985 @ 20°/20°C
VAPOR PRESSURE (mm Hg.)	1.2 @ 200°C	PERCENT VOLATILE BY VOLUME (%)	Not applicable
VAPOR DENSITY (AIR = 1)	13.5	EVAPORATION RATE (_____ = 1)	Not applicable
SOLUBILITY IN WATER	Negligible		
APPEARANCE AND ODOR	Clear liquid, little or no odor.		

SECTION IV FIRE AND EXPLOSION HAZARD DATA

FLASH POINT (Method used) 420°F (216°C) COC	FLAMMABLE LIMITS @ 492°F (255°C)	Lel 0.31%	Uel Not known to Eastman
EXTINGUISHING MEDIA	Dry Chemical, Water Spray, Carbon Dioxide		
SPECIAL FIRE FIGHTING PROCEDURES	Approved respirators should be worn.		
UNUSUAL FIRE AND EXPLOSION HAZARDS	None known to Eastman.		

SECTION V. HEALTH HAZARD DATA

THRESHOLD LIMIT VALUE	5 mg/m^3
EFFECTS OF OVEREXPOSURE	None expected
EMERGENCY AND FIRST AID PROCEDURES	Eye contact: Irrigate eyes immediately and thoroughly with water.

SECTION VI. REACTIVITY DATA

STABILITY	UNSTABLE		CONDITIONS TO AVOID
	STABLE	X	Not applicable

INCOMPATIBILITY (Materials to avoid)	Oxidizing materials can cause a reaction.
HAZARDOUS DECOMPOSITION PRODUCTS	As with any other organic material, combustion will produce carbon dioxide and probably carbon monoxide.

HAZARDOUS POLYMERIZATION		CONDITIONS TO AVOID
May Occur	Will Not Occur X	Not applicable

SECTION VII. SPILL OR LEAK PROCEDURES

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED	Soak up on absorbent material for incineration.
WASTE DISPOSAL METHOD	Incineration

SECTION VIII. SPECIAL PROTECTION INFORMATION

RESPIRATORY PROTECTION (Specify type)	Approved respirators should be worn if needed.

VENTILATION				
	LOCAL EXHAUST X	If needed to control vapor at elevated temperatures	SPECIAL	None known to Eastman
	MECHANICAL (general) X		OTHER	None knwon to Eastman

PROTECTIVE GLOVES	None should be needed	EYE PROTECTION	Safety glasses should be worn in any type of industrial operation.
OTHER PROTECTIVE EQUIPMENT	None should be needed		

SECTION IX. SPECIAL PRECAUTIONS

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORING	Use with ventilation adequate to maintain vapor concentrations below the TLV of 5 mg/m^3.
OTHER PRECAUTIONS	None known to Eastman

The information contained herein is furnished without warranty of any kind. Employers should use this information only as a supplement to other information gathered by them and must make independent determinations of suitability and completeness of information from all sources to assure proper use of these materials and the safety and health of employees.

M A T E R I A L S A F E T Y D A T A S H E E T

DOW CHEMICAL U.S.A. MIDLAND MICHIGAN 48640 EMERGENCY PHONE: 517-636-4400

PRODUCT CODE: 21603

EFFECTIVE DATE: 20 JUL 78

MSD: 0075

PRODUCT NAME: DIPROPYLENE GLYCOL

INGREDIENTS (TYPICAL VALUES-NOT SPECIFICATIONS)	%
DIPROPYLENE GLYCOL	99

SECTION 1 PHYSICAL DATA

BOILING POINT: 449.2F
VAP PRESS: 0.03 MMHG @ 20C
VAP DENSITY (AIR=1): 4.63
SOL. IN WATER: COMPLETELY MISCIBLE
SP. GRAVITY: 1.0355 @ 40C
% VOLATILE BY VOL: NOT APPLICABLE
APPEARANCE AND ODOR: COLORLESS LIQUID WITH PRACTICALLY NO ODOR.

SECTION 2 FIRE AND EXPLOSION HAZARD DATA

FLASH POINT: 250F
METHOD USED: PMCC
FLAMMABLE LIMITS (STP IN AIR)
LFL: NOT DETER. UFL: NOT DETER.
EXTINGUISHING MEDIA: WATER FOG, ALCOHOL FOAM, CO2, DRY CHEMICAL.
SPECIAL FIRE FIGHTING EQUIPMENT AND HAZARDS: NONE REQUIRED.

SECTION 3 REACTIVITY DATA

STABILITY: ----
INCOMPATIBILITY: OXIDIZING MATERIAL.
HAZARDOUS DECOMPOSITION PRODUCTS: ALDEHYDES AND ACIDS.
HAZARDOUS POLYMERIZATION: WILL NOT OCCUR.

SECTION 4 SPILL, LEAK, AND DISPOSAL PROCEDURES

ACTION TO TAKE FOR SPILLS (USE APPROPRIATE SAFETY EQUIPMENT): FOR LARGE SPILLS, USE CONTAINMENT DIKE IF POSSIBLE. RECOVER WITH VACUUM TRUCK. SMALL AMOUNT CAN BE SOAKED UP WITH ABSORBENT MATERIAL AND SHOVELED INTO DRUMS. WASH DOWN REMAINING SMALL AMOUNT WITH WATER.
DISPOSAL METHOD: RECOVER LARGE QUANTITIES BY REPROCESSING OR BURN ACCORDING TO FEDERAL, STATE, AND LOCAL LAWS.

SECTION 5 HEALTH HAZARD DATA

INGESTION: VERY LOW SINGLE DOSE TOXICITY; LD50 FOR RATS 14800 MG/KG.
EYE CONTACT: UP TO MINOR IRRITATION.
SKIN CONTACT: ESSENTIALLY NO IRRITATION.

(CONTINUED ON PAGE 2)
(R) INDICATES A REGISTERED OR TRADEMARK NAME OF THE DOW CHEMICAL COMPANY

MATERIAL SAFETY DATA SHEET

DOW CHEMICAL U.S.A. MIDLAND MICHIGAN 48640 EMERGENCY PHONE: 517-636-4400

PRODUCT CODE: 21603
MSD: 0075

EFFECTIVE DATE: 20 JUL 78
PRODUCT (CONT'D): DIPROPYLENE GLYCOL

SECTION 5 HEALTH HAZARD DATA (CONTINUED)

SKIN ABSORPTION: NOT LIKELY TO BE ABSORBED IN ACUTELY TOXIC AMOUNTS.
INHALATION: NO GUIDE FOR CONTROL KNOWN.
EFFECTS OF OVEREXPOSURE: ----

SECTION 6 FIRST AID--NOTE TO PHYSICIAN

FIRST AID PROCEDURES:

EYES: IRRIGATION OF THE EYE IMMEDIATELY WITH WATER FOR FIVE MINUTES IS GOOD SAFETY PRACTICE.
SKIN: WASH OFF IN FLOWING WATER. WASH CLOTHING BEFORE REUSE.
INHALATION: REMOVE TO FRESH AIR IF EFFECTS OCCUR. CONSULT MEDICAL PERSONNEL.
INGESTION: LOW IN TOXICITY. INDUCE VOMITING IF LARGE AMOUNTS ARE INGESTED.

NOTE TO PHYSICIAN:
EYES: INJURY IS UNLIKELY.
SKIN AND RESPIRATORY: NO EFFECT EXPECTED.
ORAL: LOW IN TOXICITY.
SYSTEMIC: HUMAN EFFECTS NOT ESTABLISHED. NO SPECIFIC ANTIDOTE. TREATMENT BASED ON THE SOUND JUDGMENT OF THE PHYSICIAN AND THE INDIVIDUAL REACTIONS OF THE PATIENT.

SECTION 7 SPECIAL HANDLING INFORMATION

VENTILATION: GOOD ROOM VENTILATION USUALLY ADEQUATE FOR MOST OPERATIONS.
RESPIRATORY PROTECTION: NONE LIKELY TO BE NEEDED.
PROTECTIVE CLOTHING: CLEAN CLOTHING.
EYE PROTECTION: NOT NORMALLY NECESSARY.

SECTION 8 SPECIAL PRECAUTIONS AND ADDITIONAL INFORMATION

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORAGE: PRACTICE COMMON SENSE TO AVOID EXCESSIVE SKIN CONTACT AND EYE EXPOSURE.
ADDITIONAL INFORMATION: ----

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M A T E R I A L S A F E T Y D A T A S H E E T

DOW CHEMICAL U.S.A. MIDLAND MICHIGAN 48640 EMERGENCY PHONE: 517-636-4400

EFFECTIVE DATE: 25 SEP 78 PRODUCT CODE: 21326

PRODUCT NAME: DIISOPROPANOLAMINE MSD: 0072

INGREDIENTS (TYPICAL VALUES-NOT SPECIFICATIONS)	: % :
DIISOPROPANOLAMINE, MINIMUM	: 99 :

SECTION 1 PHYSICAL DATA

BOILING POINT: 486F 5MM HG : SOL. IN WATER: COMPLETELY MISCIBLE.
VAP PRESS: < 0.1 MMHG @ 20C : SP. GRAVITY: 1.0 30\4C
VAP DENSITY (AIR=1): ---- : % VOLATILE BY VOL: ----
APPEARANCE AND ODOR: WHITE SOLID - SLIGHTLY AMMONIACAL ODOR.

SECTION 2 FIRE AND EXPLOSION HAZARD DATA

FLASH POINT: 280F : FLAMMABLE LIMITS (STP IN AIR)
METHOD USED: PMCC : LFL: ---- UFL: ----
EXTINGUISHING MEDIA: WATER FOG, ALCOHOL FOAM.
SPECIAL FIRE FIGHTING EQUIPMENT AND HAZARDS: ----

SECTION 3 REACTIVITY DATA

STABILITY: ----
INCOMPATIBILITY: OXIDIZING MATERIAL.
HAZARDOUS DECOMPOSITION PRODUCTS: ----
HAZARDOUS POLYMERIZATION: WILL NOT OCCUR.

SECTION 4 SPILL, LEAK, AND DISPOSAL PROCEDURES

ACTION TO TAKE FOR SPILLS (USE APPROPRIATE SAFETY EQUIPMENT): SOAK UP WITH ABSORBENT MATERIAL OR SAND, IF LIQUID; OTHERWISE, SCRAPE UP.
DISPOSAL METHOD: BURN IN INCINERATOR.

SECTION 5 HEALTH HAZARD DATA

INGESTION: LOW SINGLE DOSE ORAL TOXICITY; LD50 (RAT) IN RANGE OF 2000 TO 4000 MG/KG.
EYE CONTACT: MODERATE TO SEVERE IRRITATION, MODERATE CORNEAL INJURY, POSSIBLE PERMANENT IMPAIRMENT OF VISION.
SKIN CONTACT: SHORT CONTACT - SLIGHT IRRITATION; PROLONGED AND REPEATED CONTACT - UP TO SEVERE IRRITATION, SLIGHT TO MODERATE BURN.

(CONTINUED ON PAGE 2)
(R) INDICATES A REGISTERED OR TRADEMARK NAME OF THE DOW CHEMICAL COMPANY

APPENDIX H

CONTINGENCY PLAN TRANSMITTAL LETTER

June 8, 1982

Suffolk County Police Department
Administrative Bureau
Yaphank Avenue
Yaphank, New York 11908

Re: Pride Solvents & Chemical Company, Incorporated Contingency Plan

Attention: Officer Dominick Parella

Gentlemen:

Enclosed please find an updated Contingency Plan for your Department's use in the event of an emergency condition at the above-referenced facility. This will supersede Pride Solvents' Contingency Plan of May, 1981.

We have provided within the context of the Report, a more comprehensive outline of the facility's operations, details on bulk and drum storage, reclamation processes, location map, site plan, emergency coordinators, emergency response procedures, emergency equipment, evacuation plan and coordination agreements. The plan also includes safety material data sheets provided by the various manufacturers for the chemicals handled at the facility.

Please note that additional copies of this plan have been forwarded to: Suffolk County Department of Health Services, Suffolk County Fire Safety Department, East Farmingdale Fire Department, Town of Babylon Director of Fire Safety, New York State Department of Environmental Conservation Region I and Albany and Brunswick Hospital Center.

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	YES / NO

If you should have any questions or comments, please call or write this office.

Very truly yours,

HOLZMACHER, McLENDON & MURRELL, P.C.

Gary J. Miller

GJM/lml

cc: James Pim, Suffolk County Department of Health Services
Ronald Buckingham, Suffolk County Fire Safety Department
Gilbert Hanse, Jr., Town of Babylon
Morris Bruckman, P.E., NYSDEC, Region I
James Moran, NYSDEC, Albany
Dr. Donald Stien, Brunswick Hospital Center
East Farmingdale Fire Department

ERYOU
ENGINEERING

DOCUMENT TRANSMITTAL

RECEIVED
NYSDEC - Region 1
OCT 6 1997
Solid & Hazardous Materials

To: Katy Murphy
Firm: NYSDEC - Region II
City: Stonybrook
Phone: (516) 444-0235
From: Dennis Eryou
Cc: Art Dhom - Pride
Re: Pride Closure Plan Update for West Babylon Facility
Date: October 10, 1997

The following documents are enclosed:

COPIES	DATE	DESCRIPTION
1	10/97	Updated Closure Plan for Pride facility in West Babylon

Nine Lady Jane's Way, Northport, NY 11768
tel: (516) 757-8303
fax: (516) 757-8307
eryou2@aol.com

CLOSURE PLAN

PRIDE SOLVENTS & CHEMICAL CO. OF NY, INC.

WASTE SOLVENT RECLAMATION FACILITY
AT
WEST BABYLON, NY
(EPA ID# NYD 057722258)

Prepared for:

Pride Solvents & Chemical Co. of NY, Inc.
6 Long Island Ave.
Holtsville, NY 11742

July 1992

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1.0 GENERAL INFORMATION

1.1 Scope

This Closure Plan outlines the procedures to be taken by Pride Solvents & Chemical Co., Inc. during the closure of its waste solvent reclamation facility located at 78 Lamar Street, West Babylon, New York. The intent of the Closure Plan is to eliminate further maintenance and post-closure escape of hazardous waste to the environment.

The Closure Plan has been prepared in conformance with the requirements of 6 NYCRR Subpart 373-2, New York State Department of Environmental Conservation, Final Status Standards for Owners and Operators of Hazardous Waste Treatment, Storage and Disposal Facilities, Section 373-2.8, Closure and Post-Closure.

1.2 Process Operations

Pride Solvents reclamation facility at 78 Lamar Street is designed to receive, store and reclaim waste chlorinated and fluorocarbon solvents. All waste solvents are received in 55-gallon drums (no bulk deliveries are accepted) and stored temporarily within a drum storage containment area to await reclamation.

The reclamation process involves filtering, settling, distillation and drying. Several process tanks are used in the operation, namely, a settling tank (650 gallons), the still (475 gallons) and three (3) reclaimed product (distillate) storage tanks (2,000, 500 and 275 gallons). As with the drum storage area, secondary containment is provided for in the solvent reclamation area.

s/b 360

At any given time during the facility's operation, the maximum waste inventory will include 480 drums (26,400 gallons) and 3,900 gallons in the tanks. s/b 2775

2.0 CLOSURE

In general, the closure of Pride Solvents reclamation facility will involve the processing of all waste solvents in storage at the time of closure, the removal and disposition of any sludge and residue, and the cleaning and disposition of process equipment, tanks and drums.

The first step towards closure will be Pride Solvents notifying all clients that they will no longer accept waste solvents for reclamation. This shall be done at the earliest opportunity to allow active generators to arrange for an alternate reclamation site. Once Pride Solvents no longer receives incoming material, all waste solvents stored on-site will be reclaimed.

After reclaiming the waste solvents in storage, all screenings, sludges and residues will be removed from the process equipment and disposed of in the normal manner, via a licensed TSD facility. All process equipment (i.e., tanks, pumps, piping, distillation unit and dryer) will be decontaminated of any waste residues. Any waste products generated as a result of the cleaning will also be disposed of at a licensed TSD facility.

Once clean, the process equipment will be sold as either scrap or used equipment depending on condition. All empty 55-gallon drums will be sold for reconditioning and resale by a drum reconditioner.

2.1 Closure Performance Standard

This Closure Plan is designed to ensure that Pride Solvents' waste storage and reclamation facility will require no further maintenance and controls following closure of its hazardous waste activities. The plan is intended to eliminate threats to human health and the environment. To ensure adequate closure, all wastes, process equipment and structures will be decontaminated and/or disposed of off-site. Following decontamination, oil and water samples will be collected and analyzed for halogenated organics to ensure that no contamination exists. If soil or water contamination is found to exist, appropriate remedial actions will be taken.

2.2 Notification

Pride Solvents shall notify the NYSDEC of its intent to close its hazardous waste storage and reclamation activities 180 days prior to actual closure. Pride Solvents will also notify its clients at this time to allow generators to arrange alternative waste management procedures. In notifying

this time to allow generators to arrange alternative waste management procedures. In notifying the regulatory agencies of its intent to close its hazardous waste management facility, Pride Solvents will provide the NYSDEC with a copy of this Closure Plan. The Closure Plan should include an updated closure cost estimate.

2.3 Maximum Waste Inventory

Pride Solvents' drum storage facility is designed to hold a maximum of 480 drums (26,400 gallons). For the purpose of this Closure Plan, it is assumed that the settling tank (650 gallons), still (475 gallons) and distillate storage tanks (2,000, 500 and 275 gallons) will be full to capacity. The maximum waste inventory is 26,400 gallons in drums and 3,900 gallons in tanks.

2.4 Inventory Reclamation

After Pride Solvents has stopped accepting waste solvent deliveries, the waste inventory will be reclaimed via Pride Solvents' distillation system. As previously mentioned, the maximum waste inventory will be 460 drums (26,400 gallons), plus 3,900 gallons in the reclamation system. Pride Solvents will process the inventoried waste was follows:

1. Reclaim all waste 1,1,1-trichloroethane (also n-propyl bromide, if present).
2. Remove 1,1,1-trichloroethane sludges from distillation unit.
3. Reclaim all waste trichloroethylene.
4. Remove trichloroethylene sludges from distillation unit.
5. Reclaim all waste tetrachloroethylene.
6. Remove tetrachloroethylene sludges from distillation unit.
7. Reclaim all waste methylene chloride.
8. Remove methylene chloride sludges from the distillation unit.
9. Reclaim all waste Freon solvents.
10. Remove Freon solvent sludges from the distillation unit.

All sludges from the distillation unit shall be placed in secure 55-gallon drum containers. The drums shall be placed on wooden pallets within the drum storage area to await off-site disposal at a licensed TSD facility. A maximum of 20 drums of sludge will be generated during the reclamation of the inventoried waste solvents.

Empty 55-gallon drum containers would be sold for reconditioning and resale by a drum reconditioner. Although Pride Solvents currently receives $5.00 per drum from drum reconditioners, for the purpose of this plan, the empty drums were assumed to have no resale value. All reclaimed solvents will be removed from the three distillate storage tanks and placed in 55-gallon drum containers for resale through Pride Solvents' distribution facility.

2.5 Reclamation System Decontamination

After reclaiming all inventoried waste solvents, the reclamation system will be decontaminated. It is assumed that all reclamation process equipment will contain residual amounts of waste solvent. Process equipment requiring decontamination include:

- settling tank;
- distillation unit;
- drying column system;
- distillate storage tanks 1, 2 and 3;
- pumps and piping.

Decontamination of the process equipment during the planned closure will be performed by qualified Pride Solvents personnel. However, during the unplanned closure, the cost estimate for decontamination will be based upon the use of third party labor. Personnel will be equipped with solvent resistant coveralls, head protection, gloves, boots and face respirators.

The reclamation process equipment will be decontaminated as follows:

1. All screenings and residue from the settling tank will be removed and placed in a secure 55-gallon drum container.

2. Resins from the ion exchange drying column system will be removed and placed in secure 55-gallon drum containers.

3. All pumps, piping and valves will be disconnected and dismantled. Residues will be removed from the pumps, piping and valves by steam cleaning.

4. The settling tank, distillation unit, drying columns and distillation holding tanks will be decontaminated by steam cleaning. To assess whether the decontamination has been

successful, a portable gas chromatograph and/or photoionization detector (PID) shall be used to measure solvent concentrations in the air inside each tank. The presence of more than 25 parts per million (ppm) of any solvent will result in rewashing the tank. If detectable quantities of VOCs are present after washing, final rinse water samples will be collected to be analyzed for TCLP volatile organic compounds.

5. Contaminated wash waters generated during the decontamination of the reclamation process equipment will be collected in secure 55 gallon drum containers. An estimated 8 drums of contaminated wash water will be generated. This estimate is based upon wash water requirements of approximately 10 percent of the tank volumes.

6. All 55-gallon drums containing sludges from the distillation unit, screenings and residue from the settling tank, resins from the drying columns and contaminated wash waters from process equipment decontamination shall be shipped off-site to a licensed TSD facility.

7. After removing all drummed materials from the drum storage area, the floors, berms and rampways which makeup the spill containment system in the drum storage and reclamation areas shall be decontaminated by steam cleaning. All resulting wash waters will be collected in secure 55-gallon drum containers. An estimated 13 drums of contaminated wash water will be generated. This estimate is based upon a steam cleaner that operates for 4 hours and uses water at a rate of 3 gallons per minute. To assess whether the decontamination of the drum storage and reclamation areas is complete, rinsate samples shall be collected and analyzed as per NYSDEC Appendix B8 Rinsate Test. The area will be rewashed if the results above referenced above the Action Levels specified in the Rinsate Test.

8. After all process equipment and containment systems have been decontaminated, 55-gallon drums containing contaminated wash waters will be shipped off-site for disposal at a licensed TSD facility.

9. Decontaminated process equipment shall be sold as scrap or as used equipment, depending upon its condition.

Due to the secondary spill containment system at Pride Solvents, soils beneath the facility are not expected to be contaminated by the waste storage and reclamation activities. However, a soil sample will be collected and analyzed at the time of closure to ensure that the soil is

uncontaminated. The sample will be taken 2' below grade in the middle of the containment area containing the distillation unit. A core drill will be used to drill through the concrete floor and a sample will be obtained from 2' below grade. The sample will be analyzed for all hazardous waste constituents processed on site, and Groundwater Action levels will apply.

2.6 Partial Closure

Partial closure of Pride Solvents waste solvent storage and reclamation systems is not anticipated. If a partial closure of one or more of the reclamation system's process tanks becomes necessary, the tanks would be decontaminated in accordance with the procedures set forth in Section 2.5 of this plan.

2.7 Certification of Closure

Upon completion of the facility closure, Pride Solvents and an independent registered Professional Engineer will submit to the NYSDEC, certification documenting that the facility was closed in conformance with this Closure Plan.

3.0 CLOSURE COST ESTIMATE

Two closure cost estimates have been prepared for Pride Solvents' waste storage and reclamation facility. The first cost estimate assumes that the maximum waste inventory would be reclaimed at the time of closure. The second cost estimate assumes that the reclamation process is inoperable and the maximum waste inventory must be disposed of off-site.

Each closure cost estimate has been divided into several categories dealing with waste inventory reclamation/disposal, equipment and containment system decontamination, waste disposal, sampling and analyses and closure certification. Both cost estimates include an administration cost of 15% and a contingency of 20%.

3.1 Planned Closure

Table 1, Closure Cost Estimate - Planned Closure, presents the itemized costs to perform the facility closure in accordance with the provisions of Sections 2.4 and 2.5 of this plan. It is assumed that the maximum waste inventory will be reclaimed by Pride Solvents at the time of closure. As shown in Table 1, Pride Solvents' labor and utility costs to reclaim the waste solvents is $10,648.

Costs to decontaminate the reclamation equipment and containment systems are estimate at $3,660 and $2,588 respectively. This includes plant personnel labor and supervision and rental costs for steam cleaning equipment.

Waste disposal costs include disposal of solvent sludges, wash waters, screenings, resins and residues. Waste solvent sludges would be disposed by DETREX, NJ at $100/drum and screenings and residues at $300 per drum.

TABLE 1
CLOSURE COST ESTIMATE - PLANNED CLOSURE
PRIDE SOLVENTS AND CHEMICAL CO. OF NY, INC.

ITEM	DESCRIPTION	COST
I	WASTE INVENTORY RECLAMATION	
	1. Labor (280 mhrs @ $27)	$7,560
	2. Supervision (40 hrs @ $37)	1,488
	3. Utilities	1,600
	SUBTOTAL	$10,648
II	EQUIPMENT DECONTAMINATION	
	1. Labor (72 mhrs @ $27)	$1,944
	2. Supervision (18 mhrs @ $37)	666
	3. Steam Cleaner Rental (3 days @ $350)	1,050
	SUBTOTAL	$3,660
III	CONTAINMENT DECONTAMINATION	
	1. Labor (48 mhrs @ $27)	$1,296
	2. Supervision (16 mhrs @ $37)	592
	3. Steam Cleaner Rental (2 days @ $350)	700
	SUBTOTAL	$2,588
IV	WASTE DISPOSAL	
	1. Solvent sludges (20 drums @ $105)	$2,100
	2. Screenings, residues & resins (10 drums @$90)	900
	3. Wash water (21 drums @ $75)	1,575
	4. Labor (3 mhrs @ $27)	81
	SUBTOTAL	$4,656
V	SAMPLING AND ANALYSIS	
	1. Soil and rinsate sample collection	$450
	2. Soil analysis	900
	3. Air sampling (portable GC)	200
	4. Rinsate analysis	450
	SUBTOTAL	2,000
VI	CLOSURE CERTIFICATION	
	1. Engineer (40 mhrs @ $85)	$4,000
	SUBTOTAL	$4,000
VII	SUBTOTAL	$27,552
	1. Administration (15%)	4,133
	2. Contingency (20%)	5,510
	TOTAL ESTIMATED COST	$37,195

An allowance of $2,000 was included to cover the cost of sampling and to collect and analyze wash water and soil samples for contamination. Closure certification by a Professional Engineer was estimated at $4,000.

As indicated in Table 1, the total estimate closure cost, including administration and contingencies, is $37,195. This cost would be more than offset by the income realized from the resale of the reclaimed waste solvent inventory. Income from this sale of reclaimed solvent is estimated between $70,000 and $80,000.

3.2 Unplanned Closure - Cost Estimate

Table 2, Closure Cost Estimate - Unplanned Closure, presents the itemized costs to perform an unplanned facility closure. The principal assumption for an unplanned closure is that the reclamation system would be inoperative or otherwise unable to reclaim the waste solvent. The waste inventory would, therefore, require disposal at an off-site TSDF.

Waste inventory disposal costs are estimated at $26,949. This includes a disposal cost of $100 per drum of still bottoms and $40 per drum of waste solvent by DETREX, NJ, including transportation. Disposal of bulk wastes from the process tanks is estimated at $90 per drum, including transportation.

Equipment and containment area decontamination costs are estimated at $3,660 and $3,310 respectively. Waste disposal costs for wastes generated during closure are slightly less than under a planned closure due to the absence of additional sludges generate during solvent reclamation. As shown in Table 2, waste disposal; costs were estimated at $3,156.

TABLE 2
CLOSURE COST ESTIMATE - UNPLANNED CLOSURE
PRIDE SOLVENTS AND CHEMICAL CO. OF NY, INC.

ITEM	DESCRIPTION	COST	
I	WASTE INVENTORY RECLAMATION		
	1. Bottom solvent (70 drums @ $105/drum)	$7,350	
	2. Waste solvent (410 drums @ $40/drum)	16,400	
	2. Waste solvent (3,900 gals @ $1.25/gal)	$4,875	
	3. Labor (12 mhrs @ $27)	$324	
	SUBTOTAL	$26,949	28,949 -
II	EQUIPMENT DECONTAMINATION		
	1. Labor (72 mhrs @ $27)	$1,944	
	2. Supervision (18 mhrs @ $37)	$666	
	3. Stream Cleaner Rental (3 days @ $350)	1,050	
	SUBTOTAL	$3,660	
III	CONTAINMENT DECONTAMINATION		
	1. Labor (72 mhrs @ $27)	$1,944	
	2. Supervision (18 mhrs @ $37)	$666	
	3. Steam Cleaner Rental (2 days @ $350)	$700	
	SUBTOTAL	$3,310	
IV	WASTE DISPOSAL		
	1. Screenings, residues & resins (5 drums @$300)	$1500	
	3. Wash water (21 drums @ $75)	&1,575	
	4. Labor (3 mhrs @ $27)	$81	
	SUBTOTAL	$3,156	
V	SAMPLING AND ANALYSIS		
	1. Soil and rinsate sample collection	$450	
	2. Soil analysis	$900	
	3. Air sampling (portable GC)	$200	
	4. Rinsate analysis	$450	
	SUBTOTAL	$2,000	
VI	CLOSURE CERTIFICATION		
	1. Engineer (40 mhrs @ $100)	$4,000	
	SUBTOTAL	$4,000	
VII	SUBTOTAL	$43,075	45075
	1. Administration (15%)	$6,460	6761
	2. Contingency (20%)	$8,165	9015
	TOTAL ESTIMATED COST	$58,150	60,851

Costs for sampling and analyses and closure certification remain the same as under a planned closure. The total cost for an unplanned closure, including administration and contingencies, was estimated at $58,150.

4.0 CLOSURE SCHEDULE

Two schedules for closing Pride Solvents' facility are presented in Tables 3 and 4: Closure Schedule - Planned and Unplanned Closures. The Planned Closure Schedule provides for notifying the generators and NYSDEC 180 days prior to closure. Both plans call for the completion of closure activities within 180 days of accepting the last shipment of spent solvents.

TABLE 3
CLOSURE SCHEDULE - PLANNED CLOSURE
PRIDE SOLVENTS & CHEMICAL CO., INC.

1.	Notify NYSDEC and Customers/Generators of pending facility closure	180 days prior to facility closure
2.	Submit Closure Plan to NYSDEC	180 days prior to facility closure
3.	Receive final volume of waste	180 days following notification
4.	Reclaim waste solvent inventory	Concurrent with Item 3
5.	Inspection/Certification	Upon completion of waste solvent inventory reclamation
6.	Decontaminate reclamation equipment	Upon completion of Item 5
7.	Inspection/Certification	Upon completion reclamation equipment decontamination
8.	Dispose of sludges, screenings, residues, resins, wash waters and empty drums	Upon completion of Item 7 and within 90 days of Item 3
9.	Decontaminate containment structures	Upon completion of Item 8
10.	Collect and analyze soil samples	Concurrent with Item 9
11.	Dispose of final wash wastes	Upon completion of Item 9
12.	Final Inspection/Certification	Upon completion of Items 10 and 11 and within 180 items of Item 3

H2M HOLZMACHER, McLENDON & MURRELL, P.C.

CLOSURE PLAN

PRIDE SOLVENTS & CHEMICAL CO., INC.

JANUARY 1988

CLOSURE PLAN

PRIDE SOLVENTS & CHEMICAL CO., INC.

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CLOSURE PLAN

PRIDE SOLVENTS & CHEMICAL CO., INC.

JANUARY 1988

1.0 GENERAL INFORMATION

1.1 SCOPE

This closure plan outlines the procedures to be taken by Pride Solvents & Chemical Co., Inc. during the closure of its waste solvent reclamation facility located at 78 Lamar Street, West Babylon, New York. The intent of the closure plan is to eliminate further maintenance and post-closure escape of hazardous waste to the environment.

The closure plan has been prepared in conformance with 6 NYCRR Part 373-2, Final Status Standards for Owners and Operators of Hazardous Waste Treatment, Storage and Disposal Facilities, Section 373-2.8, Closure and Post-Closure.

1.2 PROCESS OPERATIONS

Pride Solvents reclamation facility at 78 Lamar Street is designed to receive, store and reclaim waste chlorinated and fluorocarbon solvents. All waste solvents are received in 55-gallon drums (no bulk deliveries are accepted) and stored temporarily within a drum storage containment area to await reclamation.

The reclamation process involves filtering, settling, distillation and drying. Several process tanks are used in the operation, namely, a settling tank (650 gallons), the still (475 gallons) and three (3) reclaimed product (distillate) storage tanks (2,000, 500 and 275 gallons). As with the drum storage area, secondary containment is provided for in the solvent reclamation area.

At any given time during the facility's operation, the maxium waste inventory will include 360 drums (19,800 gallons) and 3,900 gallons in the tanks.

2.0 CLOSURE

In general, the closure of Pride Solvents reclamation facility will involve the processing of all waste solvents in storage at the time of closure, the removal and disposition of any sludges and residues, and the cleaning and disposition of process equipment, tanks and drums.

The first step towards closure will be Pride Solvents notifying all clients that they will no longer accept waste solvents for reclamation. This shall be done at the earliest opportunity to allow active generators to arrange for an alternate reclamation site. Once Pride Solvents no longer receives incoming material, all waste solvents stored on-site will be reclaimed.

After reclaiming the waste solvents in storage, all screenings, sludges and residues will be removed from the process equipment and disposed of in the normal manner, via a licensed TSD facility. All process equipment (i.e., tanks, pumps, piping,

distillation unit and dryer) will be decontaminated of any waste residues. Any waste products generated as a result of the cleaning will also be disposed of at a licensed TSD facility.

Once clean, the process equipment will be sold as either scrap or used equipment depending on condition. All empty 55-gallon drums will be sold for reconditioning and resale by a drum reconditioner.

2.1 CLOSURE PERFORMANCE STANDARD

This closure plan is designed to ensure that Pride Solvents' waste storage and reclamation facility will require no further maintenance and controls following closure of its hazardous waste activities. The plan is intended to eliminate threats to human health and the environment. To ensure adequate closure, all wastes, process equipment and structures will be decontaminated and/or disposed of off-site. Following decontamination, soil and water samples will be collected and analyzed for halogenated organics to ensure that no contamination exists. If soil or water contamination is found to exist, appropriate remedial actions will be taken.

2.2 NOTIFICATION

Pride Solvents shall notify the NYSDEC of its intent to close its hazardous waste storage and reclamation activities 180 days prior to actual closure. Pride Solvents will also notify its clients at this time to allow generators to arrange alternative waste management procedures.

In notifying the regulatory agencies of its intent to close its hazardous waste management facility, Pride Solvents will provide the NYSDEC with a copy of this closure plan. The closure plan should include an updated closure cost estimate.

2.3 MAXIMUM WASTE INVENTORY

Pride Solvents' drum storage facility is designed to hold a maximum of 360 drums (19,800 gallons). For the purpose of this closure plan, it is assumed that the settling tank (650 gallons), still (475 gallons) and distillate storage tanks (2,000, 500 and 275 gallons) will be full to capacity. The maximum waste inventory is 19,800 gallons in drums and 3,900 gallons in tanks.

2.4 INVENTORY RECLAMATION

After Pride Solvents has stopped accepting waste solvent deliveries, the waste inventory will be reclaimed via Pride Solvents' distillation system. As previously mentioned, the maximum waste inventory will be 360 drums (19,800 gallons), plus 3,900 gallons in the reclamation system. Pride Solvents will process the inventoried waste as follows:

1. Reclaim all waste 1,1,1-trichloroethane.
2. Remove 1,1,1-trichloroethane sludges from distillation unit.
3. Reclaim all waste trichloroethylene.
4. Remove trichloroethylene sludges from distillation unit.

5. Reclaim all waste tetrachloroethylene.
6. Remove tetrachloroethylene sludges from distillation unit.
7. Reclaim all waste methylene chloride.
8. Remove methylene chloride sludges from the distillation unit.
9. Reclaim all waste freon solvents.
10. Remove freon solvent sludges from the distillation unit.

All sludges from the distillation unit shall be placed in secure 55-gallon drum containers. The drums shall be placed on wooden pallets within the drum storage area to await off-site disposal at a licensed TSD facility. A maximum of 20 drums of sludge will be generated during the reclamation of the inventoried waste solvents.

Empty 55-gallon drum containers would be sold for reconditioning and resale by a drum reconditioner. Although Pride Solvents currently receives $5.00 per drum from drum reconditioners, for the purpose of this plan, the empty drums were assumed to have no resale value.

All reclaimed solvents will be removed from the three distillate storage tanks and placed in 55-gallon drum containers for resale through Pride Solvents' distribution facility.

2.5 RECLAMATION SYSTEM DECONTAMINATION

After reclaiming all inventoried waste solvents, the reclamation system will be decontaminated. It is assumed that all

reclamation process equipment will contain residual amounts of waste solvent. Process equipment requiring decontamination include:

- settling tank
- distillation unit
- drying column system
- distillate storage tanks 1, 2 and 3
- pumps and piping

Decontamination of the process equipment during the planned closure will be performed by qualified Pride Solvents personnel. However, during the unplanned closure, the cost estimate for decontamination will be based upon the use of third party labor. Personnel will be equipped with solvent resistant coveralls, head protection, gloves, boots and face respirators.

The reclamation process equipment will be decontaminated as follows:

1. All screenings and residues from the settling tank will be removed and placed in a secure 55-gallon drum container.
2. Resins from the ion exchange drying column system will be removed and placed in secure 55-gallon drum containers.
3. All pumps, piping and valves will be disconnected and dismantled. Residues will be removed from the pumps, piping and valves by steam cleaning.

4. The settling tank, distillation unit, drying columns and distillation holding tanks will be decontaminated by steam cleaning. To assess whether the decontamination has been successful, a portable gas chromatograph shall be used to measure solvent concentrations in the air inside each tank. The presence of more than 25 ppm of any solvent will result in rewashing the tank.

5. Contaminated wash waters generated during the decontamination of the reclamation process equipment will be collected in secure 55-gallon drum containers. An estimated 8 drums of contaminated wash water will be generated. This estimate is based upon wash water requirements of approximately 10 percent of the tank volumes.

6. All 55-gallon drums containing sludges from the distillation unit, screenings and residues from the settling tank, resins from the drying columns and contaminated wash waters from process equipment decontamination shall be shipped off-site to a licensed TSD facility.

7. After removing all drummed materials from the drum storage area, the floors, berms and ramp-ways which make up the spill containment system in the drum storage and reclamation areas shall

be decontaminated by steam cleaning. All resulting wash waters will be collected in secure 55-gallon drum containers. An estimated 13 drums of contaminated wash water will be generated. This estimate is based upon a steam cleaner that operates for 4 hours and uses water at a rate of 3 gallons per minute. To assess whether the decontamination of the drum storage and reclamation areas is complete, samples of the final wash waters shall be collected and analyzed for volatile halogenated organics. Decontamination by steam cleaning shall be repeated if the concentration of any individual contaminant (i.e. 1,1,1-trichloroethane, trichloroethylene, tetrachloroethylene, methylene chloride, trichlorotrifluoroethane) exceeds 1.0 mg/l or combination of contaminants exceeds 2.0 mg/l.

8. After all process equipment and containment systems have been decontaminated, 55-gallon drums containing contaminated wash waters will be shipped off-site for disposal at a licensed TSD facility.

9. Decontaminated process equipment shall be sold as scrap or as used equipment, depending upon its condition.

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October 13, 2000

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Environmental Engineer One
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Environmental Conservation
Division of Solid Hazardous
Materials, Region One
Building 40 - SUNY
Stoney Brook, New York 11790-2356

Re: Closure Plan for 78-88 Lamar Street, West Babylon, dated May 2000
EPA Identification Number: NYD 057 722 258

Dear Mr. Snee:

Mr. Dhom has asked me to respond to your letter of September 29, 2000.

The closure plan which was submitted to you by Mr. Dhom on July 6, 2000 was for the DEC's information. A closure plan had been submitted with Pride's permit application pursuant to Title 6, Section 373-1.5(a)(2)(xiii) and approved by the Commissioner as part of the permit issuance procedures. Accordingly, it is that approved closure plan that Pride intends to follow. That closure plan has not been amended or changed in any manner.

Furthermore, in accordance with the regulations, Title 6, Section 373-2.7(b)(5), nothing in the regulations covering closure plans "preclude[s] the owner or operator from removing hazardous wastes and decontaminating or dismantling equipment in accordance with the approved partial or final closure plan at any time before or after notification of partial or final closure".

Furthermore, Pride intends to provide certification of closure in accordance with Title 6, Section 373-2.7(f) by it and by an independent professional engineer registered in New York.

Accordingly, we shall keep you advised as to when the closure is complete and will provide certification of closure as required by the regulations.

LAW OFFICES
ROBERT G. DEL GADIO

To my understanding, there is nothing in the regulations which allow you to unilaterally change or require additional and more extensive work than is required by the original approved closure plan which has become a condition to the permit. To the extent that you have in mind regulations that give you the right to request the additional work as provided for in your letter, please advise and we will give it consideration.

Very truly yours,

ROBERT G. DEL GADIO

RDG:ak
cc: Arthur W. Dhom, Jr. (by facsimile 516-758-0290)

C:\Shared\2455\170.16-ltr to S. Snee.10-13-00.wpd

New York State Department of Environmental Conservation
Division of Solid & Hazardous Materials, Region One
Building 40 - SUNY, Stony Brook, New York 11790-2356
Phone: (631) 444-0375 • **FAX:** (631) 444-0231
Website: www.dec.state.ny.us

John P. Cahill
Commissioner

FAX

TO: Ravi Pilar

FAX #: 485-8769 **PHONE #:**

FROM: Shaun Snee **DATE:** 10/13/2000

FAX#: (631)-444-0231 **PHONE#:** (631)-444-0375

NUMBER OF PAGES INCLUDING COVER SHEET 4

MESSAGE: This just arrived. Could you get copies to: Jim Dolen, Gary Casper, Isaac Natarajan, J. Pettet, + Steve Hamilton.

Due to the secondary spill containment system at Pride Solvents, soils beneath the facility are not expected to be contaminated by the waste storage and reclamation activities. However, soil samples will be collected and analyzed at the time of closure to ensure that the soil is uncontaminated.

2.6 PARTIAL CLOSURE

Partial closure of Pride Solvents waste solvent storage and reclamation systems is not anticipated. If a partial closure of one or more of the reclamation system's process tanks becomes necessary, the tanks would be decontaminated in accordance with the procedures set forth in Section 2.5 of this plan.

2.7 CERTIFICATION OF CLOSURE

Upon completion of the facility closure, Pride Solvents and an independent registered professional engineer will submit to the NYSDEC, certification documenting that the facility was closed in conformance with this closure plan.

3.0 CLOSURE COST ESTIMATE

Two closure cost estimates have been prepared for Pride Solvents' waste storage and reclamation facility. The first cost estimate assumes that the maximum waste inventory would be reclaimed at the time of closure. The second cost estimate assumes that the reclamation process is inoperable and the maximum waste inventory must be disposed of off-site.

Each closure cost estimate has been divided into several categories dealing with waste inventory reclamation/disposal, equipment and containment system decontamination, waste disposal, sampling and analyses, and closure certification. Both cost estimates include an administration cost of 15 percent and contingencies of 25 percent.

3.1 PLANNED CLOSURE - COST ESTIMATE

Table I, Closure Cost Estimate - Planned Closure, presents the itemized costs to perform the facility closure in accordance with the provisions of Sections 2.4 and 2.5 of this plan. It is assumed that the maximum waste inventory will be reclaimed by Pride Solvents at the time of closure. As shown in Table I, Pride Solvents' labor and utility costs to reclaim the waste solvents is $6,700.00.

Costs to decontaminate the reclamation equipment and containment systems are estimated at $2,655.00 and $1,870.00, respectively. This includes plant personnel labor and supervision, and rental costs for steam cleaning equipment.

Waste disposal costs include disposal of solvent sludges, wash waters, screenings, resins and residues. Wastes would be disposed of via General Chemical Co. at $120.00 per drum, including transportation.

An allowance of $1,650.00 was included to cover the cost of air sampling and to collect and analyze wash water and soil samples for contamination. Closure certification by a professional

engineer was estimated at 40 hours over the course of closure at $75.00 per hour.

As indicated in Table I, the total estimated closure cost, including administration and contingencies, is $30,855.00. This cost would be more than offset by the income realized by the resale of the reclaimed waste solvent inventory. Income from this sale of reclaimed solvent is estimated between $70,000.00 and $85,000.00.

3.2 UNPLANNED CLOSURE - COST ESTIMATE

Table II, Closure Cost Estimate - Unplanned Closure, presents the itemized costs to perform an unplanned facility closure. The principal assumption for an unplanned closure is that the reclamation system would be inoperative or otherwise unable to reclaim the waste solvents. The waste inventory would therefore require disposal at an off-site TSD facility.

Waste inventory disposal costs are estimated at $33,030.00. This includes a disposal cost of $80.00 per drum at General Chemical Co., including transportation. Disposal of bulk wastes from the process tanks are estimated at $1.00 per gallon, including transportation.

Equipment and containment area decontamination costs are estimated at $3,870.00 and $2,750.00, respectively. Waste disposal costs for wastes generated during closure are slightly less than under a planned closure due to the absence of additional sludges generated during solvent reclamation. As shown in Table II, waste disposal costs were estimated at

$4,043.00. This includes a disposal cost of $120.00 per drum, including transportation.

Costs for sampling and analyses, and closure certification remain the same as under a planned closure. The total cost for an unplanned closure, including administration and contingencies was estimated at $67,678.00.

4.0 CLOSURE SCHEDULE

Two schedules for closing Pride Solvents' facility are presented in Tables III and IV, Closure Schedule - Planned and Unplanned Closure. The Planned Closure Schedule provides for notifying the generators and NYSDEC 180 days prior to closure. Both plans call for the completion of closure activities within 180 days of accepting the last shipment of spent solvents.

TABLE I

CLOSURE COST ESTIMATE

PLANNED CLOSURE

I. WASTE INVENTORY RECLAMATION	
1) Labor (280 man hrs. @ $15/hr)	$ 4,200.
2) Supervision (40 man hrs. @ $25/hr)	1,000.
3) Utilities	1,500.
Sub-Total	$ 6,700.
II. EQUIPMENT DECONTAMINATION	
1) Labor (72 man hrs. @ $15/hr)	$ 1,080.
2) Supervision (18 man hrs. @ $25/hr)	450.
3) Steam Cleaner Rental (3 days @ $375/day)	1,125.
Sub-Total	$ 2,655.
III. CONTAINMENT DECONTAMINATION	
1) Labor (48 man hrs. @ $15/hr)	$ 720.
2) Supervision (16 man hrs. @ $25/hr)	400.
3) Steam Cleaner Rental (2 days @ $375/day)	750.
Sub-Total	$ 1,870.
IV. WASTE DISPOSAL	
1) Solvent Sludges (20 drums @ $120/drum)	$ 2,400.
2) Screenings, Residues & Resins (10 drums @ $120/drum)	1,200.
3) Wash Waters (21 drums @ $120/drum)	2,520.
4) Labor (3 man hrs. @ $15/hr)	45.
Sub-Total	$ 6,165.
V. SAMPLING AND ANALYSES	
1) Soil and Wash Water Sample Collection	$ 400.
2) Soil Analyses	800.
3) Air Sampling (Portable GC)	200.
4) Wash Water Analyses	250.
Sub-Total	$ 1,650.

TABLE I (CONT'D.)

VI. CLOSURE CERTIFICATION	
1) Engineer (40 man hrs. @ $75/hr)	$ 3,000.
VII. SUB-TOTAL	$22,040.
1) Administration 15%	3,305.
2) Contingencies 25%	5,510.
VIII. TOTAL ESTIMATED CLOSURE COST	$30,855.

TABLE II

CLOSURE COST ESTIMATE

UNPLANNED CLOSURE

I. WASTE INVENTORY DISPOSAL	
1) Waste Solvent (360 drums @ $80/drum)	$28,800.
2) Waste Solvent (3,900 gals. @ $1.00/gal.)	3,900.
3) Labor (12 man hrs. @ $27.50/hr.)	330.
Sub-Total	$33,030.
II. EQUIPMENT DECONTAMINATION	
1) Labor (72 man hrs. @ $27.50/hr.)	$ 1,980.
2) Supervision (18 man hrs. @ $42.50/hr.)	765.
3) Steam Cleaner Rental (3 days @ $375/day)	1,125.
Sub-Total	$ 3,870.
III. CONTAINMENT DECONTAMINATION	
1) Labor (48 man hrs. @ $27.50/hr.)	$ 1,320.
2) Supervision (16 man hrs. @ $42.50/hr.)	680.
3) Steam Cleaner Rental (2 days @ $375/day)	750.
Sub-Total	$ 2,750.
IV. WASTE DISPOSAL	
1) Screening, Residues, Sludges and Resins (12 drums @ $120/drum)	$ 1,440.
2) Wash Waters (21 drums @ $120/drum)	2,520.
3) Labor (3 hrs. @ $27.50/hr.)	83.
Sub-Total	$ 4,043.
V. SAMPLING AND ANALYSES	
1) Soil and Wash Water Sample Collection	$ 400.
2) Soil Analyses	800.
3) Air Sampling (Portable GC)	200.
4) Wash Water Analyses	250.
Sub-Total	$ 1,650.

TABLE II (CONT'D.)

VI. CLOSURE CERTIFICATION	
1) Engineer (40 hrs. @ $75/hr)	$ 3,000.
VII. SUB-TOTAL	$48,343.
1) Administration 15%	7,250.
2) Contingencies 25%	12,085.
VIII. TOTAL ESTIMATED CLOSURE COST	$67,678.

TABLE III

CLOSURE SCHEDULE

PLANNED CLOSURE

1) Notify NYSDEC and Customers/ Generators of Pending Facility Closure	180 days prior to facility closure
2) Submit Closure Plan to NYSDEC	180 days prior to facility closure
3) Receive Final Volume of Waste	180 days following notification
4) Reclaim Waste Solvent Inventory	Concurrent with Item 3
5) Inspection/Certification	Upon completion of waste solvent inventory reclamation
6) Decontaminate Reclamation Equipment	Upon completion of Item 5
7) Inspection/Certification	Upon completion of reclamation equipment decontamination
8) Dispose of Sludges, Screenings, Residues, Resins, Wash Waters and Empty Drums	Upon completion of Item 7 and within 90 days of Item 3
9) Decontaminate Containment Structures	Upon completion of Item 8
10) Collect and Analyze Soil Samples	Concurrent with Item 9
11) Dispose of Final Wash Wastes	Upon completion of Item 9
12) Final Inspection/Certification	Upon completion of Items 10 and 11 and within 180 days of Item 3

TABLE IV

CLOSURE SCHEDULE

UNPLANNED CLOSURE

1)	Receive Final Volume of Waste Solvents	
2)	Dispose of Waste Solvent Inventory	Within 90 days of Item 1
3)	Inspection/Certification	Upon completion of waste inventory disposal
4)	Decontaminate Reclamation Equipment and Containment Structures	Upon completion of Item 3
5)	Inspection/Certification	Upon completion of decontamination work
6)	Dispose of Sludges, Screenings, Resins, Residues and Wash Waters	Upon completion of Item 5
7)	Collect and Analyze Soil Samples	Concurrent with Item 6
8)	Final Inspection/Certification	Upon completion of Items 6 & 7 and within 180 days of Item 1

J. FINANCIAL REQUIREMENTS

J. FINANCIAL REQUIREMENTS

This section describes Pride Solvents' conformance with 6 NYCRR 373-2.8, Financial Requirements. The information presented in this section is submitted in accordance with 6 NYCRR 373-1.5 (a)(2)(xv).

J-1. FINANCIAL ASSURANCE OF CLOSURE

Pride Solvents has established a trust fund with Pittsburgh National Bank as the mechanism for financial assurance of closure. A copy of the trust fund agreement is provided in Appendix .

J-2. LIABILITY INSURANCE

Pride Solvents has obtained liability insurance against sudden accidental occurrences in the amount of One Million Dollars ($1,000,000.) per occurrence and Two Million Dollars ($2,000,000.) aggregate. A copy of the liability insurance certificate is provided in Appendix .

Because Pride Solvents' hazardous waste activities do not involve landfill, surface impoundment or land treatment, no liability insurance for non-sudden accidental occurrences is required.

APPENDIX J

TRUST FUND AGREEMENT

PITTSBURGH NATIONAL BANK

An affiliate of PNC FINANCIAL CORP

Trust Division

Pittsburgh, PA 15265

October 14, 1986

Mr. Arthur Dhom
President
Pride Solvents & Chemical Company
88 Lamar Street
West Babylon, New York 11704

In re: Trust Agreement between Pride Solvents & Chemical Co., Inc & Pittsburgh National Bank dated March 20, 1986
Trust #142103-5

Dear Mr. Dhom:

In accordance with your telephone request, we enclose herewith a copy of the subject Trust Agreement.

Very truly yours,

F. J. Deramo
Vice President

mh
Enclosure

142103 5

TRUST AGREEMENT, the "Agreement", entered into as of March 20th, 1986, by and between PRIDE SOLVENTS & CHEMICAL CO., INC., a domestic corporation having its principal office located at 88 Lamar Street, West Babylon, New York 11704, the "Settlor", and PITTSBURGH NATIONAL BANK, a national bank, having its office located in Pittsburgh, Pennsylvania 15265, the "Trustee".

WHEREAS, the New York State Department of Environmental Conservation (hereinafter referred to as "NYSDEC") has established certain regulations applicable to the Settlor, requiring that an owner or operator of a hazardous waste management facility shall provide financial assurance that funds will be available when needed for the facility closure (hereinafter referred to as "Closure) and

WHEREAS, the Settlor has elected to establish a trust to provide all or part of such financial assurance for the facilities identified herein, and

WHEREAS, the Settlor acting through its duly authorized officers, has selected the Trustee to be the trustee under this Agreement, and the Trustee is willing to act as trustee,

NOW, THEREFORE, the Settlor and the Trustee agree as follows:

Section 1. Definitions, As used in this Agreement:

(a) The term "Settlor" means the owner or operator who enters into this Agreement and any successors or assigns of the Settlor.

(b) The term "Trustee" means the Trustee who enters into this Agreement and any successor Trustee.

(c) The term "Commissioner" means the Commissioner of the New York State Department of Environmental Conservation, or his duly appointed designee.

Section 2. Identification of Facilities and Cost Estimates. This Agreement pertains to the facilities and cost estimates identified on attached Schedule A.

Section 3. Establishment Fund. The Settlor and the Trustee hereby establish a trust fund (hereinafter referred to as the "Fund") for the benefit of NYSDEC. The Settlor and the Trustee intend that no third party have access to the Fund except as herein provided. The Fund is established initially as consisting of the

property, which is acceptable to the Trustee, described in Schedule B annexed hereto. Such property and any other property subsequently transferred to the Trustee is referred to as the Fund, together with all earnings and profits thereon, less any payments or distributions made by the Trustee pursuant to this Agreement. The Fund shall be held by the Trustee, IN TRUST, as hereinafter provided. The Trustee shall not be responsible, nor shall it undertake any responsibility for the amount or adequacy of, nor any duty to collect from the Settlor, any payments necessary to discharge any liabilities of the Settlor established by NYSDEC.

Section 4. Payment for Closure, Postclosure. The Trustee shall make payment from the Fund as the Commissioner shall direct, in writing, to provide for the payment of the costs of Closure and Postclosure of the facilities covered by this Agreement. The Trustee shall reimburse the Settlor or other person as specified by the Commissioner from the Fund for the expenditures of such covered activities in such amounts as the Commissioner shall direct in writing. In addition, the Trustee shall refund to the Settlors such amounts as the Commissioner specifies in writing. Upon refund, such funds shall no longer constitute part of the Funds as defined herein.

Section 5. Payments Comprising the Fund. Payments made to the Trustee for the Fund shall consist of cash or securities acceptable to the Trustee.

Section 6. Trustee Management. The Trustee shall invest and reinvest the principal and income of the Fund and keep the Fund invested as a single fund, without distinction between principal and income, in accordance with general investment policies and guidelines which the Settlor may communicate in writing to the Trustee from time to time, subject, however, to the provisions of this Section. In investing, reinvesting, exchanging, selling, and managing the Fund, the Trustee shall discharge his duties with respect to the trust fund solely in the interest of the beneficiary and with the care, skill, prudence, and diligence under the circumstances then prevailing which persons of prudence, acting in a like capacity and familiar with such matters, would use in the conduct of an enterprise of a like character and with like aims; except that:

(i) Securities or other obligations of the Settlor, or any other owner or operator of the facilities, or any of their affiliates as defined in the Investment Company Act of 1940, 15 USCA 80a-2.(a) (see subdivision 370.1(e)), shall not be acquired or held, unless they are securities or other obligations of the Federal or a State government;

(ii) The Trustee is authorized to invest the Fund in time or demand deposits of the Trustee, to the extent insured by an agency of the Federal or State government; and

(iii) The Trustee is authorized to hold cash awaiting investment or distribution uninvested for a reasonable time and without liability for the payment of interest thereon.

Section 7. Commingling and Investment. The Trustee is expressly authorized in its discretion:

(a) To transfer from time to time any or all of the assets of the Fund to any common, commingled, or collective trust fund created by the Trustee in which the Fund is eligible to participate, subject to all of the provisions thereof, to be commingled with the assets of other trusts participating therein; and

(b) To purchase shares in any investment company registered under the Investment Company Act of 1940, 15 USCA 80a-1 et seq. (see 6NYCRR subdivision 370.1(e)), including one which may be created, managed, underwritten, or to which investment advice is rendered or the shares of which are sold by the Trustee. The Trustee may vote such shares in its discretion.

Section 8. Express Powers of Trustees. Without in any way limiting the powers and discretions conferred upon the Trustee by the other provisions of this Agreement or by law, the Trustee is expressly authorized and empowered:

(a) To sell, exchange, convey, transfer, or otherwise dispose of any property held by it, by public or private sale. No person dealing with the Trustee shall be bound to see to the application of the purchase money or to inquire into the validity or expediency of any such sale or other disposition;

(b) To make, execute, acknowledge, and deliver any and all documents of transfer and conveyance and any and all other instruments that may be necessary or appropriate to carry out the powers herein granted;

(c) To register any securities held in the Fund in its own name or in the name of a nominee and to hold any security in bearer from or in book entry, or to combine certificates representing such securities with certificates of the same issue held by the trustee in other fiduciary capacities, or to deposit or arrange for the deposit of such securities in a qualified central depository even though, when so deposited, such securities may be merged and held in bulk in the name of the nominee of such depository with other securities deposited therein by another

person, or to deposit or arrange for the deposit of any securities issued by the United States Government, or any agency or instrumentality thereof, with a Federal Reserve bank, but the books and records of the Trustee shall at all times show that all such securities are part of the Fund;

(d) To deposit any cash in the Fund in interest-bearing accounts maintained or savings certificates issued by the Trustee, in its separate corporate capacity, or in any other banking institution affiliated with the Trustee, to the extent insured by an agency of the Federal or State government; and

(e) To accept additions to the Fund from sources other than the Settlor of the Trust.

(f) To contest, compromise, or otherwise settle any claim in favor of the Fund or Trustee, or in favor of third persons and against the Fund or Trustee.

Section 9. Taxes and Expenses. All taxes of any kind that may be assessed or levied against or in respect of the Fund and all brokerage commissions incurred by the fund shall be paid from the Fund. All other expenses incurred by the Trustee in connection with the administration of this Trust, including fees for legal services rendered to the Trustee, the compensation of the Trustee to the extent not paid directly by the Settlor, and all other proper charges and disbursements of the Trustee shall be paid from the Fund.

Section 10. Annual Valuation. The Trustee shall annually, at least 30 days prior to the anniversary date of establishment of the fund, furnish to the Settlor and to the Commissioner, a statement confirming the value of the Trust. Any securities in the Fund shall be valued at market value as of no more than 60 days prior to the anniversary date of the establishment of the Fund. The failure of the Settlor to object in writing to the Trustee within 90 days after the statement has been furnished to the Settlor and to the Commissioner shall constitute a conclusively binding assent by the Settlor, barring the Settlor from asserting any claim or liability against the Trustee with respect to matters disclosed in the statement.

Section 11. Advice of Counsel. The Trustee may from time to time consult with counsel, who may be counsel to the Settlor, with respect to any question arising as to the construction of this Agreement or any action to be taken hereunder. The Trustee shall be fully protected, to the extent permitted by law, in acting upon the advice of counsel.

Section 12. Trustee Compensation. The Trustee shall be entitled to reasonable compensation for its service as agreed upon in writing from time to time with the Settlor.

Section 13. Successor Trustee. The Trustee may resign or the Settlor may replace the Trustee, but such resignation or replacement shall not be effective until the Settlor has appointed a successor Trustee and this successor accepts the appointment. The successor trustee shall have the same powers and duties as those conferred upon the Trustee hereunder. Upon the successor trustee's acceptance of the appointment, the Trustee shall assign, transfer, and pay over to the successor trustee the funds and properties then constituting the Fund. If for any reason the Settlor cannot or does not act in the event of the resignation of the Trustee, the Trustee may apply to a court of competent jurisdiction for the appointment of a successor trustee or for instruction. The successor trustee shall specify the date on which it assumes administration of the trust in a writing sent to the Settlor, the Commissioner, and the present Trustee by certified mail, return receipt requested, 10 days before such change becomes effective. Any expenses incurred by the Trustee as a result of any of the acts contemplated by this Section shall be paid as provided in Section 9.

Section 14. Instructions to the Trustee. All orders, requests, and instructions by the Settlor to the Trustee shall be given in writing, signed by such persons as are designated in the attached Exhibit A or such other designees as the Settlor may designate by amendment to Exhibit A. The Trustee shall be fully protected in acting without inquiry in accordance with the Settlor's orders, requests, and instructions. All orders, requests, and instructions by the Commissioner to the Trustee shall be in writing, signed by the Commissioner, and the Trustee shall act and shall be fully protected in acting in accordance with such orders, requests, and instructions. The Trustee shall have the right to assume, in the absence of written notice to the contrary, that no event constituting a change or a termination of the authority of any person to act on behalf of the Settlor or NYSDEC hereunder has occurred. The Trustee shall have no duty to act in the absence of such orders, requests, and instructions from the Settlor and/or NYSDEC except as provided for herein.

Section 15. Notice of Nonpayment. The Trustee shall notify the Settlor and the Commissioner, by certified mail, return receipt requested, within 10 days following the expiration of the 30-day period after the anniversary of the establishment of the Trust, if no payment is received from the Settlor during that period. After the pay-in period is completed, the Trustee shall not be required to send a notice of nonpayment.

Section 16. Amendment of Agreement. This Agreement may be amended by an instrument in writing executed by the Settlor, the Trustee, and the Commissioner or by the Trustee and the Commissioner if the Settlor ceases to exist.

Section 17. Irrevocability and Termination. Subject to the right of the parties to amend this Agreement as provided in Section 16, this Trust shall be irrevocable and shall continue until terminated at the written agreement of the Settlor, the Trustee, and the Commissioner, or by the Trustee and the Commissioner, if the Settlor ceases to exist. Upon termination of the Trust, all remaining trust property, less final trust administration expenses, shall be delivered to the Settlor.

Section 18. Immunity and Idemnification. The Trustee shall not incur personal liability of any nature in connection with any act or omission, made in good faith, in the administration of this Trust, or in the carrying out of any directions by the Settlor or the Commissioner issued in accordance with this Agreement. The Trustee shall be indemnified and saved harmless by the Settlor or from the Trust Fund, or both, from and against any personal liability to which the Trustee may be subjected by reason of any act or conduct in its official capacity, including all expenses reasonably incurred in its defense in the event the Settlor fails to provide such defense.

Section 19. Choice of Law. This Agreement shall be administered, construed, and enforced according to the laws of the State of New York.

Section 20. Interpretation. As used in this Agreement, words in the singular include the plural and words in the plural include the singular. The descriptive headings for each Section of this Agreement shall not affect the interpretation or the legal efficacy of this Agreement.

IN WITNESS WHEREOF, the parties have caused this Agreement to be executed by their respective officers duly authorized and their corporate seals to be hereunto affixed and attested as of the date first above written. The parties below certify that the wording of this Agreement is identical to the wording specified in 6 NYCRR 370

et seq. as such regulations were constituted on the date first above written.

PRIDE SOLVENTS & CHEMICAL CO., INC.

By: _____
ARTHUR DHOM - President

PITTSBURGH NATIONAL BANK

By: _____
F. J. DERAMO
VICE PRESIDENT

STATE OF NEW YORK)
)ss.:
COUNTY OF SUFFOLK)

On this day of March, 1986, before me personally came ARTHUR DHOM, to me known, who, being by me duly sworn, did depose and say that he resides at 10 Serene Court, Dix Hills, New York; that he is the President of PRIDE SOLVENTS & CHEMICAL CO., INC., the corporation described in and which executed the within Trust Agreement; that he knew the seal of said corporation; that the seal affixed to said instrument was such corporate seal; that it was so affixed by order of the board of directors of said corporation, and that he signed his name thereto by like order.

_____
Notary Public
ROBERT GADUE
NOTARY PUBLIC, State of New York
No. 52-1357512
Qualified in Suffolk County
Commission Expires March 30, 1987

STATE OF Pennsylvania)
)ss.:
COUNTY OF Allegheny)

On this 21st day of March, 1986, before me personally came F. J. DeRamo, to me personally known, who, by me duly sworn, did depose and say that (s)he resides in Sewickley, Pa; that (s)he is the Vice President of PITTSBURGH NATIONAL BANK, the banking institution described in and which executed the within Trust Fund Agreement; and that (s)he signed his/her name thereto by authority of such banking institution.

_____
Notary Public
RENEE L. SCHWERER, NOTARY PUBLIC
PITTSBURGH ALLEGHENY COUNTY
MY COMMISSION EXPIRES JUNE 19, 1989
Member, Pennsylvania Association of Notaries

CERTIFIED MAIL

RETURN RECEIPT REQUESTED

December 29, 1993

ECS
Underwriting,
Inc.

520 Eagleview Boulevard
PO Box 636
Exton, PA 19341-0636
(215) 458-0570
(800) ECS-1414
outside Pennsylvania
Fax (215) 458-8667

Ms. Margaret O'Neil
Dept of Environmental Conservation
Bureau of Pollution Prevention
Division of Hazardous Waste Substances
50 Wolf Road
Albany, NY 12233-7253

RE: PRIDE SOLVENTS
POLICY #NTA1634004

Dear Ms. O'Neil:

Enclosed please find the Hazardous Waste Facility Certificate of Liability Insurance for the above-reference account as required by New York State Law.

If you have any questions, please do not hesitate to contact me.

Sincerely,

Larissa Solowjow
Technical Assistant
Pollution Liability Department

/ls

Enclosure

cc: Scott Britt

RECEIVED
JAN 03 1994
HW COMPLIANCE UNIT
DIVISION OF HAZARDOUS
SUBSTANCES REGULATION

HAZARDOUS WASTE FACILITY CERTIFICATE OF LIABILITY INSURANCE

1. Planet Insurance Company, (the "Insurer"), of 4 Penn Center Plaza, Philadelphia, PA 19103 hereby certifies that it has issued a policy of liability insurance (the "Policy") covering bodily injury and property damage to Pride Solvents & Chemical Company, Incorporated (the "Insured"), of 78-88 Lamar Street, West Babylon, NY 11704 in connection with the Insured's obligation to demonstrate financial responsibility under 6 NYCRR Part 370 et seq. The coverage applies at 78-88 Lamar Street, West Babylon, NY 11704 EPA# NYD057722258 for "sudden and nonsudden accidental occurrences". The limits of liability are $1,000,000 each occurrence and $2,000,000 annual aggregate, exclusive of legal defense costs. The coverage is provided under Policy number NTA1634004 issued on December 1, 1993.

2. The Insurer further certifies the following with respect to the insurance described in Paragraph 1:

(a) Bankruptcy or insolvency of the insured shall not relieve the Insurer of its obligations under the policy.

(b) The Insurer is liable for the payment of amounts within any deductible applicable to the policy, with the right of reimbursement from the Insured for any payment made by the insurer. This provision does not apply with respect to the amount of any deductible for which coverage is demonstrated by virtue of the Insured's satisfying the financial test for liability coverage as established by the New York State Department of Environmental Conservation (hereinafter "NYSDEC") or by the Commissioner of NYSDEC (hereinafter referred to as the "Commissioner") and as specified in 6 NYCRR Part 370 et seq.

(c) Whenever requested by the Commissioner, the Insurer agrees to furnish to the Commissioner a signed duplicate original of the policy and all endorsements.

(d) Cancellation of the insurance, whether by the Insurer, the Insured, a parent corporation providing insurance coverage for its subsidiary, or by a firm having an insurable interest in and obtaining liability insurance on behalf of the owner or operator of the Hazardous Waste Management Facility, will be effective only upon written notice, certified mail, return receipt requested, and only after the expiration of sixty (60) days after a copy of such written notice is received by the Commissioner.

(e) Any other termination of the insurance will be effective only upon written notice, certified mail, return receipt requested, and only after the expiration of thirty (30) days after a copy of such written notice is received by the Commissioner.

I hereby certify that the wording of this instrument is identical to the wording specified in 6 NYCRR Part 370 373-2.8(J)(8) as such regulation was constituted on the date first above written, and that the insurer is authorized by the Superintendent of the New York State Department of Insurance to conduct the business of an insurer or is eligible to provide insurance as an excess or surplus lines insurer in the State of New York.

(Signature of Authorized Representative of Insurer)

Paul M. Murdoch, Assistant Vice President
Authorized Representative of Planet Insurance Company

c/o Environmental Compliance Services, Inc.
520 Eagleview Boulevard
P.O. Box 636
Exton, PA 19341-0636

D-2. CONTAINERS

D-2a. CONDITION OF CONTAINERS

All spent solvents awaiting reclamation by Pride Solvents are received and stored in 55-gallon drums. The drums must be in a condition acceptable for DOT common carrier transport. That is, all drums must conform to DOT Class 17E containers, as per CFR Title 49, Part 178, Subpart 116. Once inside Pride Solvents' facility, the drums are inspected daily for leaks, spills and deterioration. If a drum is found to be leaking, the contents will immediately be transferred to another drum. Pride Solvents' secondary spill containment measures provide additional protection from leaking drums.

CONTAINER STORAGE AREA

Waste type and storage capacity:

AREA	WASTE TYPE	CONTAINER VOLUME	TOTAL AMOUNT OF DRUMMED WASTE
Drum Storage Area 2,200 Sq. Feet Indoor Storage	1,1,1-Trichloroethane F001 & F002 Trichloroethylene F001 & F002 Methylene Chloride F001 & F002 Tetrachloroethylene F001 & F002 Freon F001 & F002 N. Propyl Bromide Not Listed Sludge and still bottoms generated by on-site reclamation of solvents F001 & F001	55 Gallons DOT Class 17E	360 Drums 360 x 55 = 19,800 gallons

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D-2. CONTAINERS

D-2a. CONDITION OF CONTAINERS

All spent solvents awaiting reclamation by Pride Solvents are received and stored in 55-gallon drums. The drums must be in a condition acceptable for DOT common carrier transport. That is, all drums must conform to DOT Class 17E containers, as per CFR Title 49, Part 178, Subpart 116. Once inside Pride Solvents' facility, the drums are inspected daily for leaks, spills and deterioration. If a drum is found to be leaking, the contents will immediately be transferred to another drum. Pride Solvents' secondary spill containment measures provide additional protection from leaking drums.

CONTAINER STORAGE AREA

Waste type and storage capacity:

AREA	WASTE TYPE	CONTAINER VOLUME	TOTAL AMOUNT OF DRUMMED WASTE
Drum Storage Area 2,200 Sq.Feet Indoor Storage	1,1,1-Trichloroethane F001 & F002 Trichloroethylene F001 & F002 Methylene Chloride F001 & F002 Tetrachloroethylene F001 & F002 Freon F001 & F002 Sludge and still bottoms generated by on-site reclamation of solvents F001 & F002	55 Gallons DOT Class 17E	360 Drums 360 X 55 = 19,800 gallons

D-2b. COMPATIBILITY OF WASTES WITH CONTAINERS

Because the spent solvents which Pride Solvents accepts for reclamation (chlorinated fluorocarbons) do not exhibit corrosive characteristics, they are compatible with the steel drums they are stored in and do not require any special inner lining. (Reference: Fire Protection Guide for Hazardous Materials, 7th Edition, NFPA, CFR Title 49, Parts 172, 173 and 178).

D-2c. MANAGEMENT OF CONTAINERS

All drummed spent solvents awaiting reclamation are stored within a bermed area. The drum storage area was constructed in compliance with Article XII of the Suffolk County Sanitary Code. The drums are palletized and stacked two pallets high. Aisle space between the pallets is provided to allow for daily inspections. Drums of spent solvent are always closed when in storage. All drums are stored and handled in a manner which prevents the probability of ruptures or leaks. Pride Solvents inspects stored drums for leaks, spills and deterioration on a daily basis. A drum inventory is taken on a weekly basis. See Sample Inspection Log in Appendix D.

Waste solvents generated off-site are received exclusively in 55-gallon drums. Truck deliveries are received on the north side of the reclamation building (78 Lamar St.) just outside the entrance to the drum storage portion of the building. Drums are unloaded from the trucks using forklifts equipped with drum pickers and placed on wooden 4 foot by 4 foot pallets within the

indoor drum storage area. Once inside the drum storage facility, the drums are moved within the facility either on pallets using forklifts or individually using forklifts equipped with drum pickers. The maximum number of drums to be temporarily stored awaiting reclamation is 360.

D-2d. SPECIAL REQUIREMENTS FOR IGNITABLE OR REACTIVE WASTES

Because none of the spent solvents accepted by Pride Solvents are ignitable or reactive, no special requirements are necessary.

D-2e. SPECIAL REQUIREMENTS FOR INCOMPATIBLE WASTES

Because none of the spent solvents accepted by Pride Solvents are incompatible, no special requirements are necessary.

D-2f. SPILL CONTAINMENT PROVISIONS

All 55-gallon drums containing waste solvents awaiting reclamation are stored indoors. The drum storage area and reclamation area afford a total of approximately 3,800 square feet of floor area. The perimeter of the storage and reclamation areas are surrounded by a 8-inch tall concrete berm. The containment volume afforded by the bermed area is approximately 16,500 gallons (83 percent of the total storage capacity of 360 drums). Concrete rampways provide access to and from the bermed containment area. The floor is constructed of a 4-inch thick concrete slab with 66/1010 WW fabric reinforcement. Reinforcement in the

main entrance rampway consists of 66/66 WW fabric. All floors, berms and rampways are constructed of 3,000 psi concrete.

There are no floor drains within the bermed containment area. All floor joints and/or cracks were sealed using "Preco-Tile" epoxy sealant. All exposed floor, berm and rampway surfaces have received one coat of "Preco-Tile" epoxy sealant and one coat of "Preco Liqui-Steel". Technical data sheets for these two Preco products are provided in Appendix E.

Minor spills within the bermed drum storage area will be removed using absorbent material. Larger spills would be handled using a portable pump. In either case, the waste material resulting from a spill cleanup will be placed in 55-gallon drum containers. If the spill incident involves a single product, the material recovered would be held for reclamation. All other materials recovered from a spill, including contaminated absorbent material, would be disposed of via an off-site TSD facility.

Because the drum storage area is located indoors, provisions to remove storm water are not necessary. No waste materials are stored outdoors.

D-3 TANKS

Table D-4, Distillation Process Equipment, presents the design capacities of each tank and process unit in the distillation operation. Every tank in the distillation process is equipped with high level sensors with audible alarms, as well as sight gauges for visual inspection to prevent the possibility of overfilling. All process tanks are vented to the outside.

The tank's high level sensors are mechanical float type sensors as manufactured by McDonnell & Miller/ITT. Each level sensor is mounted to sound an alarm when the tank level reaches 85 percent capacity.

D-3a. COMPATIBILITY OF WASTES WITH TANKS

With the exception of the distillation unit and drying columns, which are made of stainless steel, all process tanks are constructed of mild steel. Because the spent solvents accepted for reclamation do not exhibit corrosive characteristics, they are compatible with the steel process tanks.

TABLE D-4

DISTILLATION PROCESS EQUIPMENT

PRIDE SOLVENTS & CHEMICAL CO., INC.

TANK	PROCESS EQUIPMENT	CAPACITY IN GALLONS
A A	Settling Tank	650 A
B E	Distillation Unit	75/150 gallons/hr. E
C	Drying Column System	150 gallons/hr.
D G	Distillate Storage Tank-1	2000 G
E H	Distillate Storage Tank-2	500 H
F I	Distillate Storage Tank-3 Rect	275 I
G	Cooling Water Reservoir	250

D-3b. MANAGEMENT OF TANKS

All Pride Solvents' process tanks and distillate storage tanks used in the reclamation process are housed indoors within a bermed process area.

Spent solvents are transferred from tank to tank, in batches, using manually controlled pumps. The distillate tanks are equipped with sight gauges and high level sensors with audible alarms to prevent overfilling. Secondary containment, consistent with the requirements of the Suffolk County Sanitary Code, Article XII, is provided for the entire reclamation area.

Pride Solvents inspects the process tanks, distillate tanks and their appurtenances on a routine basis. This includes the tanks, overfill alarms, pumps, piping and containment berms. A more detailed description of Pride Solvents' inspection procedures is presented in Section F-2.

D-3c. MINIMUM SHELL THICKNESS

To ensure the structural integrity of the various tanks in the reclamation area Pride Solvents will maintain a minimum shell thickness in accordance with those specified in Table D-5, Tank Design. The minimum shell thickness specified in Table D-5 take into account the specific gravity of the materials to be stored (1.05 to 1.60), tank dimensions, materials of construction and allowable stress. Detailed drawings of each tank are provided in Appendix F.

Pride Solvents shall check the tanks' shell thickness biennially to ensure that the minimum shell thickness is being maintained. Shell thickness shall be measured using a check line Model TI-107 Ultrasonic Tester Technical information on the ultrasonic tester is provided in Appendix G. Ultrasonic measurements will be taken vertically down the side of each tank at 12-inch intervals. Ultrasonic testing of the tank's top and bottom plates will be tested biennially at the same time the shell thickness tests are performed. Top and bottom plates will be tested a 6-inch intervals along 90 degree grids. All ultrasonic testing data will be recorded in an inspection log and maintained with Pride Solvents' daily and weekly facility inspection logs. A sample inspection log is provided in Appendix D.

In the event that the ultrasonic testing indicates a shell thickness below minimum thickness specified in Table D-5, Pride Solvents will perform additional testing in the area immediately adjacent to the suspect location. Shell thickness shall be measured at 48 locations within a 9-inch radius of the initial

D-3b. MANAGEMENT OF TANKS

All of Pride Solvents' process tanks used in the reclamation process are housed indoors within a bermed process area.

Spent solvents are transferred from tank to tank, in batches, using manually controlled pumps. The process tanks are equipped with sight gauges and high level sensors with audible alarms to prevent overfilling. Secondary containment, consistent with the requirements of the Suffolk County Sanitary Code, Article XII, is provided for the entire reclamation area.

Pride Solvents inspects the process tanks and their appurtenances on a routine basis. This includes the tanks, overfill alarms, pumps, piping and containment berms. A more detailed description of Pride Solvents' inspection procedures is presented in Section F-2.

D-3c. MINIMUM SHELL THICKNESS

To ensure the structural integrity of the various tanks in the reclamation area Pride Solvents will maintain a minimum shell thickness in accordance with those specified in Table D-5, Tank Design. The minimum shell thicknesses specified in Table D-5 take into account the specific gravity of the materials to be stored (1.05 to 1.60), tank dimensions, materials of construction and allowable stress. Detailed drawings of each tank are provided in Appendix F.

Pride Solvents shall check the tanks' shell thickness on a monthly basis to ensure that the minimum shell thickness is being maintained. Shell thickness shall be measured using a T-Mike

TABLE D-5

TANK DESIGN

PRIDE SOLVENTS & CHEMICAL CO., INC.

	Tank	Capacity (Gallons)	Materials of Construction	Dimensions	Shell Thickness	Min. Shell Thickness
A A	Settling Tank	650	Carbon Steel	73"L x 54"W x 43"H	3/16" (0.1875)	1/8" (0.125)
E B	Distillation Tank	600	304 St. Steel	72"L x 48"W x 100"H (Maximum Operating Depth = 40")	12 G. (0.1072)	14G (0.0766)
G D	Distillate Storage Tank 1	2,000	Carbon Steel	64" Dia. x 144"H	3/16" (0.1875)	1/8" (0.125)
H E	Distillate Storage Tank 2	500	Carbon Steel	48" Dia. x 72"H	3/16" (0.1875)	1/8" (0.125)
I F	Distillate Storage Tank 3	275	Carbon Steel	70"L x 28"W x 43"H	3/16" (0.1875)	1/8" (0.125)

43.

Revised by NYSDEC to delete references to the 3 closed feed tanks

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Model 3000 Ultrasonic Tester. Technical inform on on the ultrasonic tester is provided in Appendix G. Ultra ic measurements will be taken vertically down the side of h tank at 12-inch intervals. The locations tested will vary ch month. Each month between twelve (12) points set at degree intervals around the tank circumference in accordance ith the following schedule:

MONTH	TEST LOCATIO
1	0°
2	180°
3	90°
4	270°
5	30°
6	210°
7	120°
8	300°
9	60°
10	240°
11	150°
12	330°

Ultrasonic testing of the tank's top a bottom plates will be tested once every six (6) months. Top an bottom plates will be tested at 6-inch intervals along 90 deg grids. All ultrasonic testing data will be recorded in an insp tion log and maintained with Pride Solvents' daily and weekly acility inspection logs. A sample inspection log is provided in pendix D.

In the event that the ultrasonic esting indicates a shell thickness below the minimum thickne specified in Table D-5, Pride Solvents will perform additiona esting in the area immediately adjacent to the suspect locat . Shell thickness shall be measured at 48 locations within a inch radius of the initial

low shell thickness point. A 360 degree grid will be established with measurements taken at 1.5-inch intervals every 45 degrees.

If the additional testing confirms a shell thickness below the minimum specified, Pride Solvents will take the appropriate corrective action. Depending upon the nature and severity of the problem, corrective actions may involve either the repair or replacement of the tank. Tank repairs will be limited to cold mechanical type seals (threaded plug) in instances of isolated pitting type corrosion. If the tank cannot be repaired utilizing mechanical seals, the tank will be replaced. No welded type patches or repairs will be attempted.

Replacement tanks will be of similar design and capacity as the existing tanks. Pride Solvents will notify NYSDEC prior to replacing an existing tank. In notifying NYSDEC, design plans will be submitted for the proposed replacement tank.

D-3d. SPECIAL REQUIREMENTS FOR IGNITABLE OR REACTIVE WASTES

Because the spent solvents accepted by Pride Solvents are neither ignitable nor reactive, no special requirements are necessary.

D-3e. SPILL CONTAINMENT PROVISIONS

As indicated in Section D-2f, the reclamation operation is housed within an area affording approximately 3,800 square feet. The perimeter of the drum storage and reclamation system is surrounded by a 8-inch tall concrete berm. The spill containment

volume provided by the bermed area is approximately 16,500 gallons.

Concrete rampways provide access to and from the bermed containment area. The concrete floor slab, berms and rampways have all received a protective epoxy coating to ensure that all exposed surfaces are impervious to spills and/or leaks. See Appendix E for details on sealant and epoxy coating.

D. PROCESS INFORMATION

D. PROCESS INFORMATION

This section provides detailed information on Pride Solvents' waste storage and reclamation activities. The information is submitted in accordance with the requirements of 6 NYCRR 373-1.5(b) and (c).

As previously mentioned, Pride Solvents' operations include the reclamation of waste solvents by a distillation process at 78 Lamar Street. The facility has undergone extensive modifications in accordance with construction plans submitted to and approved by the Suffolk County Department of Health Services (SCDHS) to assure overall compliance with Article XII of the Suffolk County Sanitary Code (Toxic and Hazardous Materials Storage and Handling Control). The finished facility was inspected by SCDHS and approved for operation. In accordance with New York State Department of Environmental Conservation regulations, Pride Solvents applied for and was granted a Part 360 Permit to operate a solid waste management facility (Permit No. 52W01).

The Pride Solvents facility is equipped to receive and store waste chlorinated solvents and freons, then reclaim the material by a distillation process. Waste solvents are received exclusively in 55-gallon drums. No bulk shipments are accepted. Waste materials received in 55-gallon drums will be palletized and stored indoors within a bermed epoxy coated containment area. The drum storage area affords approximately 2,200 square feet of available floor space and is designed to accept a maximum of 360 drums for temporary storage.

Revised by NYSDEC to delete references to feed tanks closed by the permittee

Table D-1 Waste Solvent Reclamation, provides details on the type and quantities of waste solvents received for reclamation.

Table D-2, Waste Generation, lists the hazardous wastes generated as a result of Pride Solvents' reclamation activities. Wastes generated as a result of the reclamation activities are placed in 55 gallon drums, stored temporarily in the drum storage area and disposed off-site at a permitted TSD facility.

D-1. SOLVENT RECLAMATION

D-1a. PROCESS DESCRIPTION

A schematic of Pride Solvents' waste reclamation process is presented in Figure III, solvent Reclamation Schematic. Waste 1,1,1-trichloroethane, trichlorethylene, methylene chloride and tetrachloroethylene are pumped from the drums in which they are received to a 650 gallon settling tank. The settling tank is equipped with 40 and 80 mesh screens for solids removal. From the settling tank the solvent is pumped to the Detrex Solvent Still, Model No.S400. Because they are generally clean (free of solids), waste freon solvents are pumped from the 55 gallon containers directly into the Solvent Still.

Waste solvents are heated to their boiling

TABLE D-1

WASTE SOLVENT RECLAMATION

PRIDE SOLVENTS & CHEMICAL CO., INC.

Waste 1,1,1-Trichloroethane

General Description:	Spent halogenated solvent
Hazardous Characteristics:	Toxic
EPA Hazardous Waste No:	F001 and F002
Storage Mode:	55-gallon drums
Storage Location:	Indoor at 78 Lamar St.
Maximum Quantity Stored:	360 drums (19,800 gals.)
Disposition:	On-site reclamation by distillation
Avg. Annual Qty. Processed:	160,000 gals/yr.

Waste Trichloroethylene

General Description:	Spent halogenated solvent
Hazardous Characteristics:	Toxic
EPA Hazardous Waste No:	F001 and F002
Storage Mode:	55-gallon drums
Storage Location:	Indoor at 78 Lamar St.
Maximum Quantity Stored:	360 drums (19,800 gals.)
Disposition:	On-site reclamation by distillation
Avg. Annual Qty. Processed:	30,000 gals/yr.

Waste Methylene Chloride

General Description:	Spent halogenated solvent
Hazardous Characteristics:	Toxic
EPA Hazardous Waste No:	F001 and F002
Storage Mode:	55-gallon drums
Storage Location:	Indoor at 78 Lamar St.
Maximum Quantity Stored:	360 drums (19,800 gals.)
Disposition:	On-site reclamation by distillation
Avg. Annual Qty. Processed:	2,500 gals/yr.

Waste Tetrachloroethylene

General Description:	Spent halogenated solvent
Hazardous Characteristics:	Toxic
EPA Hazardous Waste No:	F001 and F002
Storage Mode:	55-gallon drums
Storage Location:	Indoor at 78 Lamar St.
Maximum Quantity Stored:	360 drums (19,800 gals.)
Disposition:	On-site reclamation by distillation
Avg. Annual Qty. Processed:	7,500 gals/yr.

TABLE D-1 (CONT'D.)

Waste Freon Solvents

General Description:	Spent halogenated solvents containing trichlorotrifluoroethane
Hazardous Characteristics:	Toxic
EPA Hazardous Waste No:	F001 and F002
Storage Mode:	55-gallon drums
Storage Location:	Indoor at 78 Lamar St.
Maximum Quantity Stored:	360 drums (19,800 gals.)
Disposition:	On-site reclamation by distillation
Avg. Annual Qty. Processed:	2,500 gals/yr.

TABLE D-2

WASTE GENERATION

PRIDE SOLVENTS & CHEMICAL CO., INC.

SCREENINGS	
General Description:	Coarse and fine screenings containing waste halogenated solvents
Hazardous Characteristic:	Toxic
EPA Hazardous Waste No:	F001 and F002
Storage Mode:	55-gallon drums
Storage Location:	Indoor at 78 Lamar St.
Maximum Qty. Stored:	2 drums (110 gals.)
Disposition:	Off-site disposal at licensed TSD facility
Avg. Annual Qty. Generated:	1-2 drums (55-110 gals.)
SLUDGE & STILL BOTTOMS	
General Description	Sludge and still bottoms generated by the reclamation by distillation of waste halogenated solvents
Hazardous Characteristic:	Toxic
EPA Hazardous Waste No:	F002
Storage Mode:	55-gallon drums
Storage Location:	Indoor at 78 Lamar St.
Max. Qty. Stored:	120 drums (6,600 gals.)
Disposition:	Off-site disposal at licensed TSD facility
Avg. Annual Qty. Generated:	175 drums (9,625 gals.)

Revised By NYSDEC to delete the 3 closed feed tanks

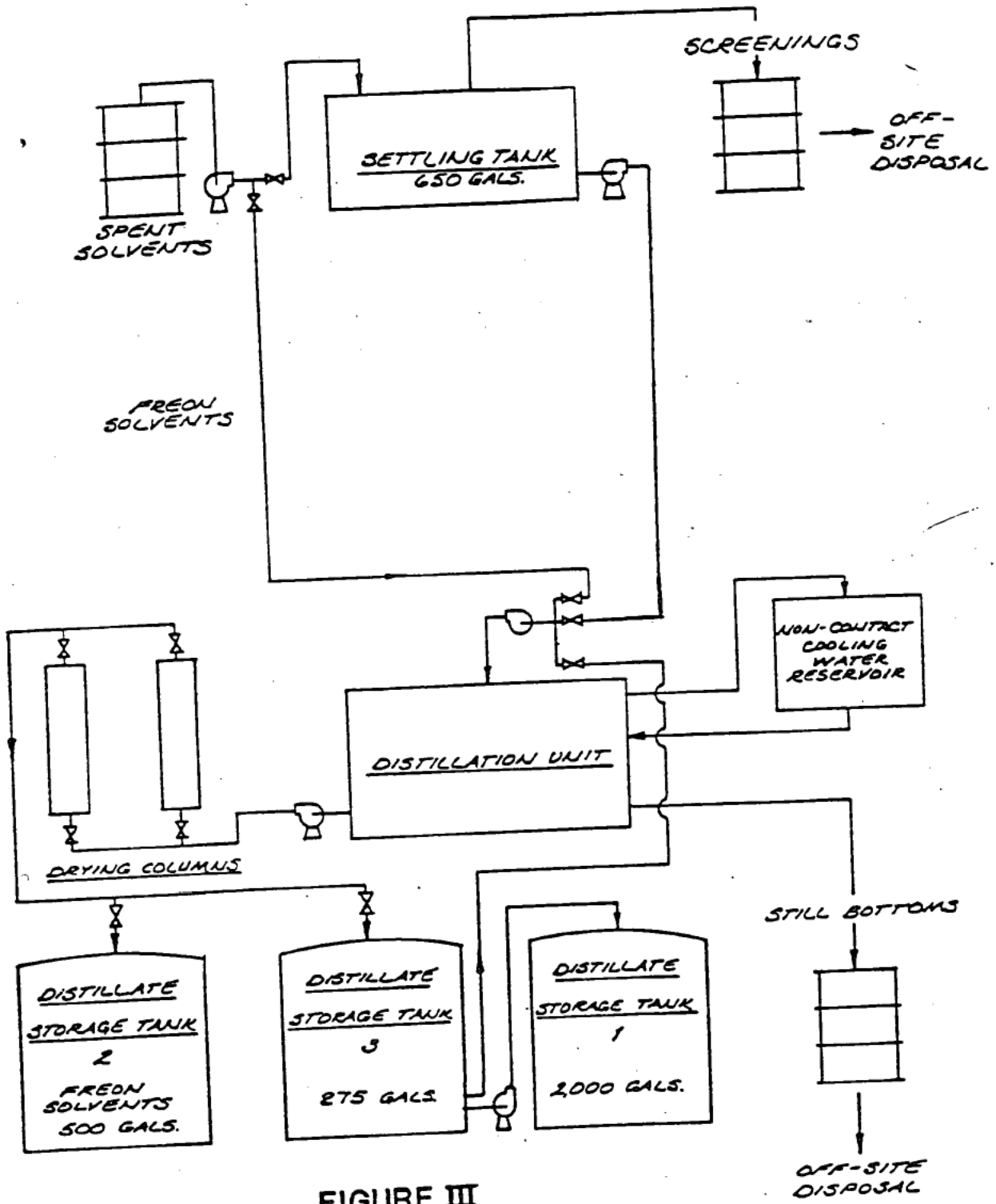

FIGURE III

SOLVENT RECLAMATION SCHEMATIC

PRIDE SOLVENTS & CHEMICAL CO., INC.

point, thereby vaporizing the solvent, freeing it from any non-solvent contaminants. Solvent vapors then pass over condensers, and the clean solvent distillate flows from a condensate pan to a water-cooled water separator.

Heat to the distillation unit is provided in the form of steam by a 20 H.P. Fulton Boiler. Cooling water to the condensers and water separator is supplied by a closed loop non-contact cooling water system.

Distillate from the water separator is pumped through a Detrex Drying System, consisting of two ion exchange columns. Preset valves determine which of the two drying columns is in operation.

Reclaimed freon solvents are directed to a 500 gallon distillate storage tank. Reclaimed 1,1,1-trichloroethane, trichloroethylene, methylene chloride, and tetrachloroethylene are directed to a 250 gallon distillate storage tank. Samples of the reclaimed solvents are collected from these tanks and analyzed to confirm that the solvent meets Pride Solvents' reclaim specifications (see Section D-1b). Off-spec solvent is returned to the distillation unit. Reclaimed solvent is repackaged for sale.

Screenings and sludges generated by the distillation process are collected in 55 gallon drums and disposed of via North American Environmental Corporations facility in Georgia, Chemical Conservation of Georgia EPA I.D. # GAD 093380814,

D-1b. RECLAIMED SOLVENTS

To ensure that the reclaimed solvent meets Pride Solvents' specifications, samples of the product are collected, analyzed

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point, thereby vaporizing the solvent, freeing it from any non-solvent contaminants. Solvent vapors then pass over condensers, and the clean solvent distillate flows from a condensate pan to a water-cooled water separator.

Heat to the distillation unit is provided in the form of steam by a 20 H.P. Fulton Boiler. Cooling water to the condensers and water separator is supplied by a closed loop non-contact cooling water system.

Distillate from the water separator is pumped through a Detrex Drying System, consisting of two ion exchange columns. Preset valves determine which of the two drying columns is in operation.

Reclaimed freon solvents are directed to a 500 gallon distillate storage tank. Reclaimed 1,1,1-trichloroethane, trichloroethylene, methylene chloride and tetrachloroethylene are directed to a 250 gallon distillate storage tank. Samples of the reclaimed solvents are collected from these tanks and analyzed to confirm that the solvent meets Pride Solvents' reclaim specifications (see Section D-1b.). Off-spec solvent is returned to the distillation unit. Reclaimed solvent is repackaged for sale.

Screenings and sludges generated by the distillation process are collected in 55 gallon drums and disposed of via General Chemical Co., Framingham, MA (EPA ID No. MAD 019371079).

D-1b. RECLAIMED SOLVENTS

To ensure that the reclaimed solvent meets Pride Solvents' specifications, samples of the product are collected, analyzed

and compared against standard specifications. Samples are collected for analyses from each batch of reclaimed solvent. A copy of Pride Solvents' specifications for reclaimed 1,1,1-trichloroethane (Cyclo-Thane) is presented in Appendix C. For the purpose of comparison, a copy of Dow Chemical's specifications for virgin 1,1,1-trichloroethane, and GC analyses for both virgin and reclaimed products are also included in Appendix C.

Reclaimed solvents can be used for most every application as the virgin product. The principal exception is in instances where a manufacturer or government specification expressly prohibits the use of recycled products. A comparison of virgin product and reclaimed product costs is presented in Table D-3, Solvent Costs.

TABLE D-3

SOLVENT COSTS(1)

PRIDE SOLVENTS & CHEMICAL CO., INC.

SOLVENT	UNIT COST PER POUND	
	VIRGIN PRODUCT	RECLAIMED PRODUCT
1,1,1-Trichloroethane	$0.40	$0.30
Trichloroethylene	0.38	0.32
Methylene Chloride	0.32	0.22
Tetrachloroethylene	0.28	0.23
Freon Solvent	1.20	0.65 - 0.75

(1) Costs are based upon bulk volumes and are rounded off to the nearest cent.

D-2g. CONTAINMENT CALCULATIONS

Total Floor Area = 4600 s.f. (drum storage and reclamation areas)

Boiler Room Area = 200 s.f.

Lab Room Area = 360 s.f.

Area Occupied by Rampways = 240 s.f.

Area Occupied by Reclamation Process Tanks and Equipment = 150 s.f.

Net Available Floor Area = 4600-200-360-240-150 = 3650 s.f.

Berm Height = 8 in. (0.67 ft.)

Total Containment Volume = 3650 (0.67) = 2433.3 c.f.

Volume Occupied by Drums and Pallets = 220 c.f.

Net Available Containment Volume = 2433.3-220 = 2213.3 c.f.

2213.3 c.f. (7.48 gals/c.f) = 16,555 Gals.

APPENDIX E

EPOXY SEALANT & COATING

TECHNICAL DATA SHEETS

Resin System	Epoxy/ Polyamide	Federal Test Procedure
Weight per gallon, pounds, mixed	9.90	141,4184
Viscosity, Kreb units, mixed	60-70	141,4281
Percent Solids,		
by weight	60	141,4041
by volume	48	141,4044
Application temperature range, °F	45-125	–
Application thickness		
per coat, mils wet	5.3	–
mils dry	2.5	–
Flexibility ⅛ inch mandrel	Pass	141,6221
Tack free time, hrs. @ 77°F	2-3	141,4061
Hardness, pencil,		
24 hours	HB	ASTM D-3363
3 days	2H	
Sward, 7 days	45-55	ASTM D-2134
Impact resistance,		
direct, in-lb	160	141,6226
reverse, in-lb	60	141,6226
Gloss, 60°	95+	141,6101
Abrasion resistance, Taber CS-17 wheel 500gm. load, 1000 cycles, mg loss	50-60	141,6192
Falling sand, litres/mil	60-65	141,6191
Pot life, hours	12-16	ASTM D-2471
Scrub Resistance, 1000 oscillations	Pass	141,6142
Fire Resistance		ASTM E-162
Flame Spread	0	
Fuel Contributed	0-2	
Smoke Developed	0-3	
Salt Spray Resistance, 500 hours	Passed	141,6061
Freeze Thaw Resistance, 50 cycles	Passed	–

MIXING

LIQUI-STEEL epoxy coating is a two-component system, consisting of a base (Mix A) and a catalyst (Mix B). Both components are equivalent in volume and are mixed together and allowed to stand 15 to 20 minutes before coating. NEVER USE WITHOUT MIXING. Mix quantity required for use within 16 hours.

COLORS

Over 800 different colors are available.

PACKAGING

5 gallon steel pails. 1 gallon steel containers.

A. Concrete should be clean and dry. Highly dense concrete floors should be etched with 10-12% hydrochloric (muriatic) acid (1 gallon to every 6 square yards or 1 litre per square meter, spread by stiff-bristle brooms). When bubbling subsides (about 15 minutes), wash with clean water by high-pressure hose until all slush is removed and the surface is neutral to litmus. Final rinsing with 1% ammonia solution followed by clean water is good practise – this ensures thorough neutralization. Allow the surface to dry thoroughly. Remove dust preferably by vacuum-cleaner.

Proper surface preparation means the difference between a long lasting job and a total failure.

B. Steel surfaces should be clean (free from oil, grease, dust, scale, rust and other foreign matter), dry and grit-blasted to a commercial blast as specified by the steel structures painting council specification, SSPC-SP-6. All work blasted in one day should be coated in the same day.

C. Wood should be clean, dry and sanded smooth.

D. Over previously applied coatings consult PRECO's technical staff for requirements.

PRIMER

A. Concrete — none required, but the first coat should be thinned 50%.

B. Steel — for exterior application, or interiors where high humidities or immersion conditions are expected, use LIQUI-STEEL Zinc Primer.

C. Wood — none required, thin first coat 25%.

D. LIQUI-STEEL Non-Slip, on porous surfaces, should be primed with LIQUI-STEEL, in the same color, that has been reduced 50%.

METHOD OF APPLICATION Brush, roller, or spray.

THINNING: Brush or roller, non required. Reduce, as required up to 25% with REDUCER L for spray.

Concrete — reduced 50%. Second coat should be used without thinning.

Curing is accelerated at higher temperatures. Do not apply at temperatures below 50°F.

CLEAN-UP

Clean equipment immediately after use with REDUCER L.

COVERAGE

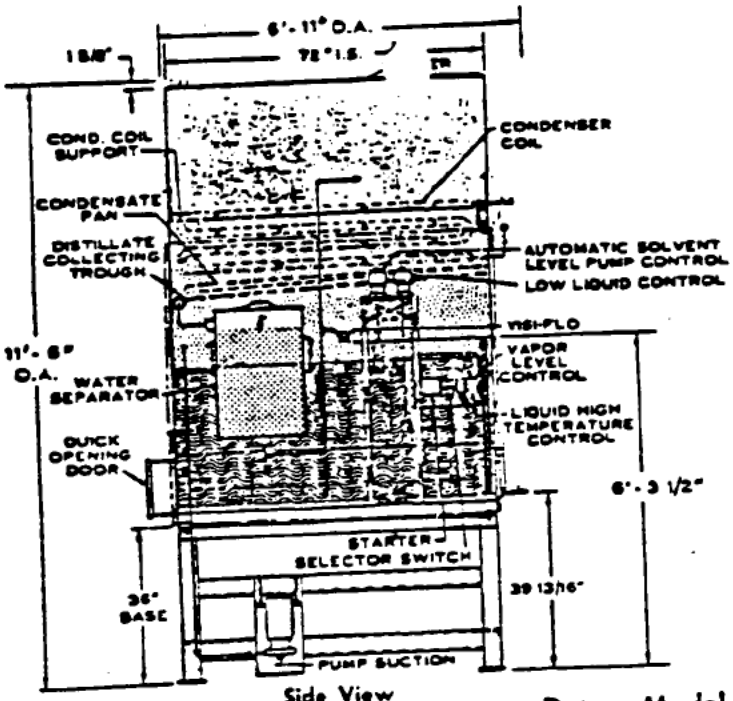
Concrete and Wood — 50% reduction of 1st coat — about 250 sq. ft. per gallon.

Concrete and Wood — 2nd coat — about 300 to 350 sq. ft. per gallon.

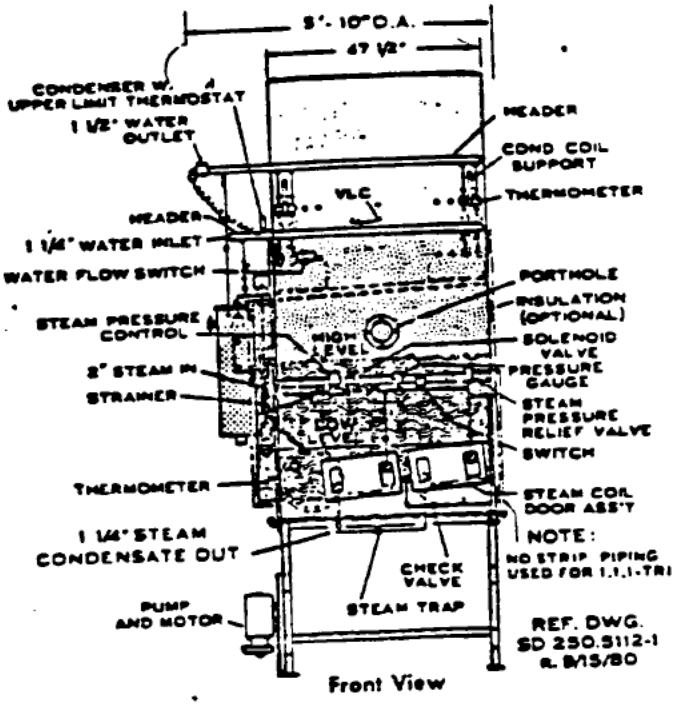
Steel (LIQUI-STEEL Zinc Primer, or LIQUI-STEEL) about 350 to 400 sq. ft. per gallon.

APPENDIX F

TANK DRAWINGS



Side View



Front View

Detrex Model S-400 S Still

TECHNICAL DATA

1. HEAT INPUT	580 lb. steam/hr. maximum
2. RATED VOLTAGE	115/230 V - 1 ph - 60 Hz or 230/460V - 3 ph -60 Hz Correction factor for over or under rated voltage, refer to ED 532 graph data sheet

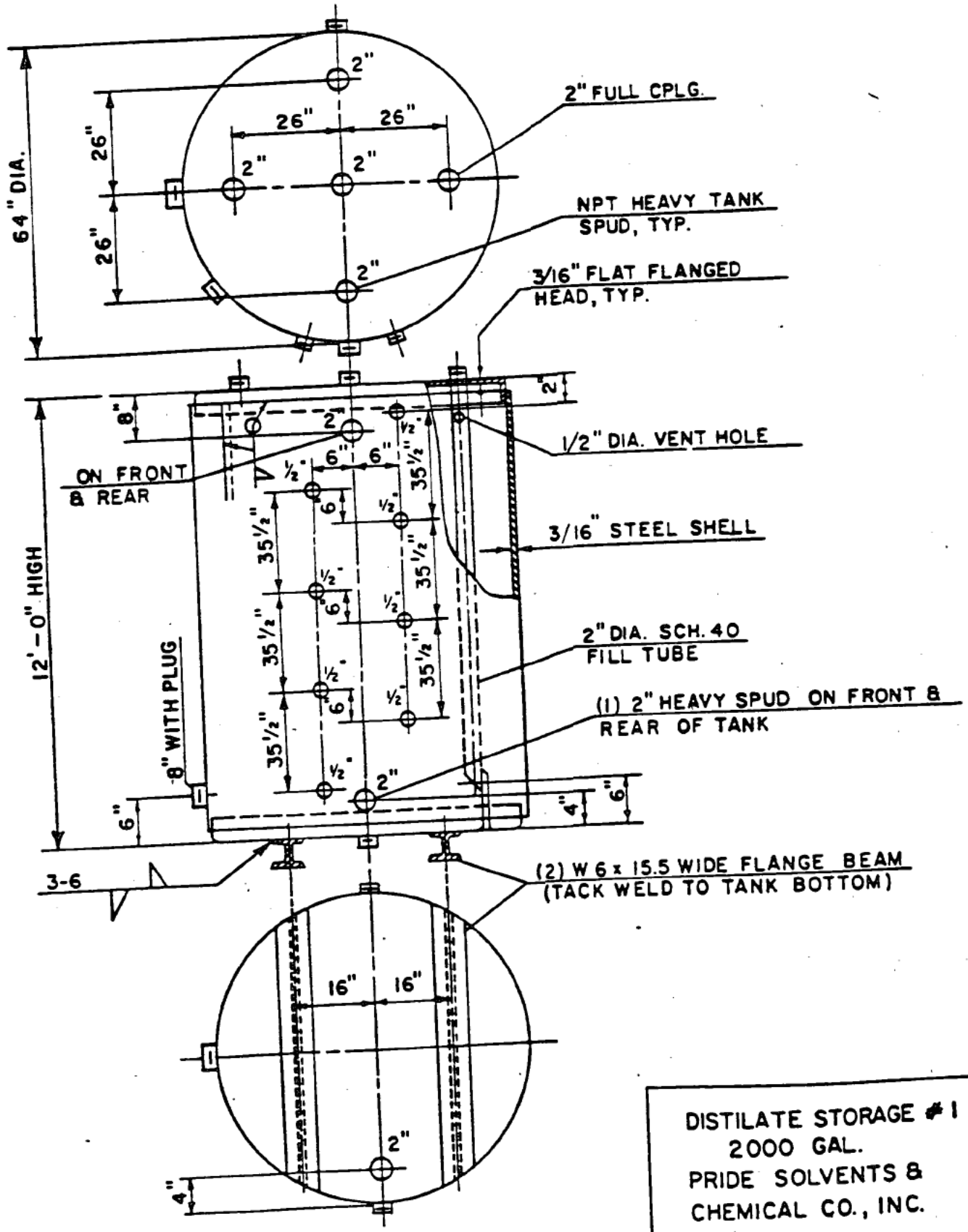
3. DISTILLATION RATE-CLEAN SOLVENT- at rated steam pressure, gal. per hr.		TRICHLOROETHYLENE	PERCHLOROETHYLENE	1,1,1-TRICHLOROETHANE
	Not Insulated (Std.)	380 gph	340 gph	310 gph
	Insulated (Opt.)	400 gph	375 gph	335 gph

4. LIQUID CAPACITY - @ normal operating level 440 gal.

5. TRANSFER PUMP - Iron body 115/230V - 1ph - 60Hz or 230/460V - 3ph - 60Hz, TEBB, 1/2 hp, 3450 rpm 25 gpm @ 20 ft. head

6. FULL LOAD AMPS	
115V - 1 ph - 60Hz	15 amps
230V - 1 ph - 60Hz	8 amps
230V - 3 ph - 60Hz	3 amps
460V - 3 ph - 60Hz	2 amps

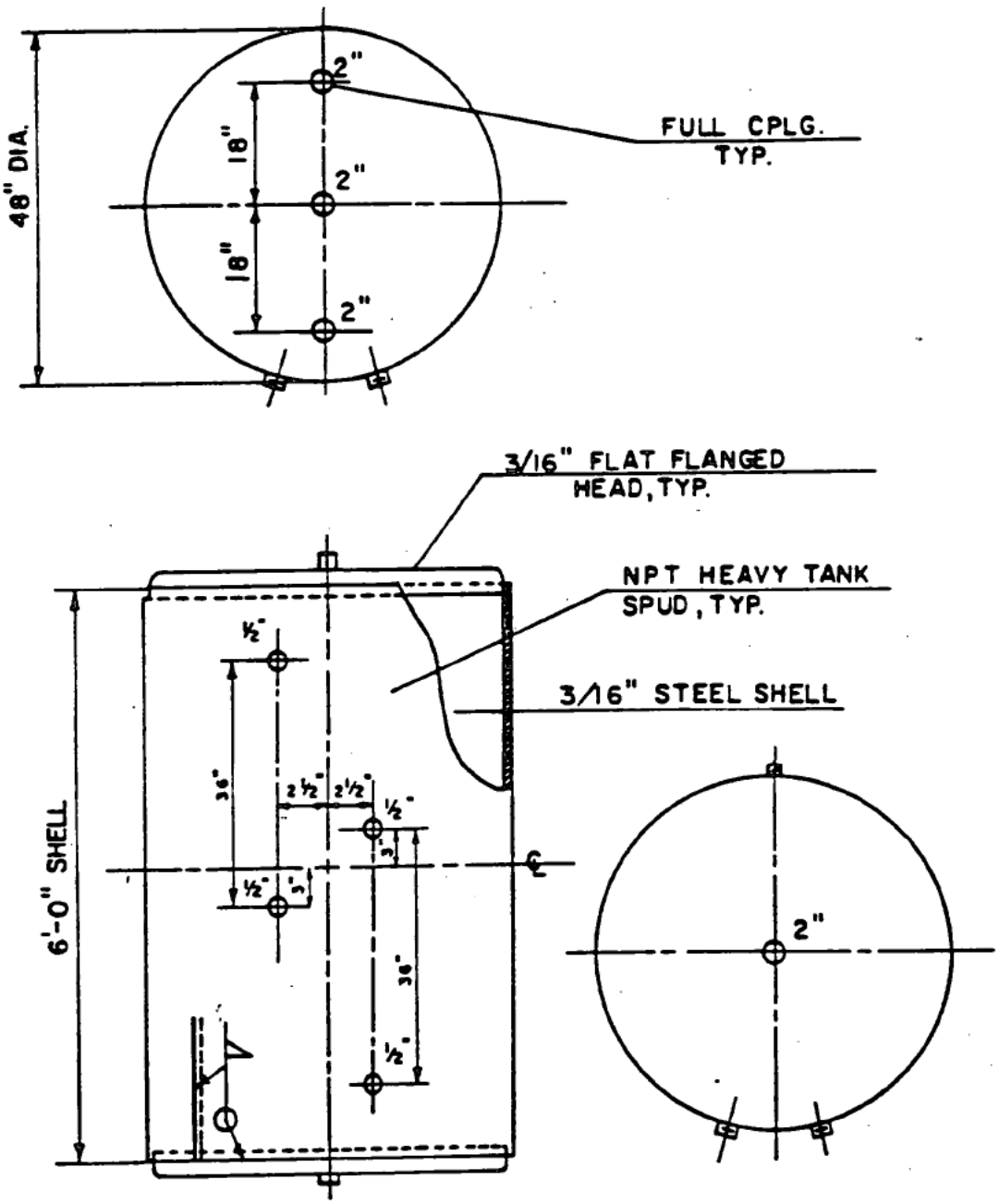
7. COOLING WATER REQUIREMENTS		TRICHLOROETHYLENE	PERCHLOROETHYLENE	1,1,1-TRICHLOROETHANE
Not Insulated (Standard)	50°F rise (110°F max. outlet)	1465 gph	1100 gph	1300 gph
	25°F rise (110°F max. outlet)	2930 gph	2200 gph	2600 gph
Insulated (Optional)	50°F rise (110°F max. outlet)	1550 gph	1450 gph	1150 gph
	25°F rise (110°F max. outlet)	3100 gph	2900 gph	2300 gph



DISTILATE STORAGE #1
2000 GAL.
PRIDE SOLVENTS & CHEMICAL CO., INC.

H2M HOLZMACHER, McLENDON & MURRELL, P.C.
CONSULTING ENGINEERS, ENVIRONMENTAL SCIENTISTS and PLANNERS

MELVILLE, N.Y.
FARMINGDALE, N.Y.
RIVERHEAD, N.Y.



DISTILATE STORAGE #2
500 GAL.
PRIDE SOLVENTS &
CHEMICAL CO., INC.

H2M HOLZMACHER, McLENDON & MURRELL, P.C.
CONSULTING ENGINEERS, ENVIRONMENTAL SCIENTISTS and PLANNERS
MELVILLE, N.Y.
FARMINGDALE, N.Y.
RIVERHEAD, N.Y.

APPENDIX G

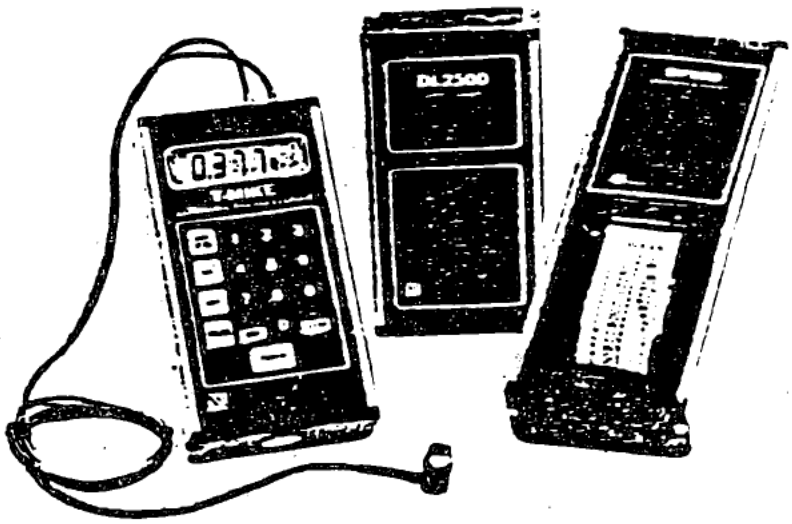
ULTRASONIC TESTER

Microcomputer Based Ultrasonic Computerized Thickness Gauge System

Rugged, Accurate and Inexpensive

T-MIKE Features

- Micro-computer Controlled
- Compact, Rugged Construction
- One-step Material Calibration
- Full Numeric Keyboard For Data Entry
- LCD Display
- Differential Mode
- High-performance Transducers
- Automatic Probe Recognition
- 0.001" Resolution
- Data Logging And Printing Interface
- Automatic Correction For Dual Probe Geometry
- Automatic Selection Of English Or Metric Units



Models For Every Application

T-Mike 2000 is equipped with the standard 5MHz transducer and is today's most advanced general purpose ultrasonic thickness gauge.

The T-Mike 2000 combines the widest possible range of overall thickness measurement (0.070 to 15.999 inches) with sensitivity to material defects required for normal inspection of corrosion, erosion, or pitting.

T-Mike 3000 is equipped with the high sensitivity transducer and is unequaled in detection of small material defects or pitting.

Providing a measurement range of 0.040 to 9.000 inches, the T-Mike 3000 is designed to surpass the most exacting specification now in use in inspection of pipes, boilers, storage tanks, castings, and extrusions. . . . e offers a wide variety of optional tranducers and complete application engineering to optimize the performance of the T-Mike 2000 and 3000 in measuring both metallic and non-metallic substances to the specification and requirement of virtually every industry.

Accurate Ultrasonic Thickness Measurements

The T-Mike gauge incorporates an interactive micro-computer for quick and accurate thickness measurements. Several hundred readings per second are received from the dual element transducer and processed by the micro-computer to produce a single digital thickness measurement automatically corrected for dual probe geometry. The T-Mike offers total portability, simple operation and requires no special operator training.

Battery Operated For Complete Portability

The T-Mike operates with 4 AA NICad batteries which will yield approximately 18 operating hours between charges. A LOW BAT display will signal when batteries should be recharged. A battery charger is included.

Practical Keyboard and Easily Readable Display

The hermetically sealed numeric touchpad is designed for fast and accurate data entry. Special function keys offer the user rapid flexibility.

The large four-digit liquid crystal display (LCD) gives a quick digital readout as measurements are being made and is highly visible in bright sunlight or in dim work areas.

A NO ECHO display alerts the user if no measurements are being received by the micro-computer.

Automatic Field Data Recordation

The T-Mike may be connected to the . . . Field Printer or the . . . Data Logger to provide a fully portable, error proof, data recordation system.

The Field Printer DP500 produces a hard copy printout of thickness measurements and measurement location and is operated from the keyboard of the T-Mike.

The Data Logger DL 2500 provides electronic memory of up to 2500 measurement location and thickness readings. These data may be transferred to the . . . . . Field Printer or via RS232 interface to any computer system for recordation, analysis, and graphic presentation.

Both the Field Printer and Data Logger are battery operated and designed to be worn on the operator's belt in "harsh" working environments.

Differential Mode

The T-Mike will display the difference from a base or normal thickness when the DIFF function key is used. Thus a quick plus-or-minus measurement can be made in actual thickness or percent variation.

Material Calibration

Easy, one-step material calibration is built into the T-Mike. The operator simply places the transducer on a known thickness of the material, enters the thickness on the keypad, and the T-Mike will automatically calibrate itself by calculating the correct sound velocity.

Simple, One-Step Transducer Calibration (Probe Recognition)

The . . . T-Mike offers one-step probe calibration. By means of a test block incorporated in the T-Mike case, probes can be immediately calibrated by a single key stroke. Thus probes may be changed at any time during operation. The T-Mike will accept alternative probes with equal accuracy.

Compact, Rugged Design

The T-Mike is constructed of durable, extruded aluminum and is suitable for heavy industrial use. Just 8¼ inches high and 3½ inches wide, it fits easily in the palm of the hand.

All electronics are of the highest quality and have been environmentally sealed against dirt, moisture and adverse atmospheric conditions.

Physical Description

Unit Size	3.5 in. wide, 6.25 in. long 1.5 in. deep. Weight 20 oz. (approx.).
Case	Weather-resistant, extruded aluminum.
Configuration	Hand-held module contains interactive microcomputer with factory-programmed data calculation capabilities (memory and printing modules optional).
Keyboard	Hermetically sealed numeric touchpad with serial function keys.
Data Transmission	Serial output for optional printer or data logger.

Displays

Measurements	4-digit LCD readout.
Coupling Check	NO ECHO LCD display.
Battery Check	LOW BAT LCD display.
Differential Mode	DIFF LCD display.
Unit Systems	Eng./Metric selectable INCH or MM displayed.

Material

Calibration	Calibrates for various steels, aluminum, glass, and plastics automatically.

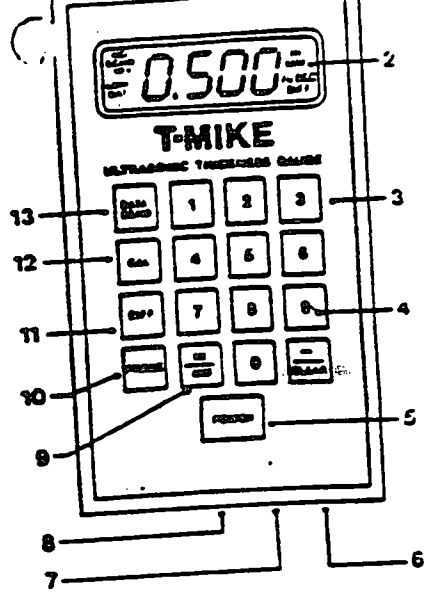
Power Supply

Battery	AA batteries, rechargable NiCad.
Continuous Operating Time	16 hours with NiCad battery charge.

Measuring Range	Typically 0.040 to 13.999 inches (depending on model and material measured).
Measuring Resolution	± 0.001 in. or 0.01 mm.
Sound Velocity Range	From less than 0.590 inches per micro-second.
Allowable Surface Temperature Range	0° F to 200° F, (-18° C to 160°) High temperature probes available.

Transducer

Description	5 MHz, 0.25 in. diameter included. Full range available.
Connection	Lemo quick-disconnect.
Configuration	Dual-element ultrasonic probe.
Cable	4-foot, environment protected.



1 Lemo quick-disconnect transducer connector.
2 High contrast, 4-digit LCD indicates modes and measurements.
3 Durable, lightweight extruded aluminum case.
4 Weather resistant, environment sealed numeric touchpad.
5 Power on-off key
6 Serial port for optional printer or data logger connection.
7 Battery charger connector.
8 Built-in calibration block for transducer recognition.
9 Operator selectable English or Metric mode.
10 Probe recognition calibrates instrument to probe's delay.
11 Differential mode displays the difference from a nominal thickness.
12 One-step material calibration key.
13 Transmits to optional data logger or printer.

DATA LOGGER DL 2500

Physical Description

Unit Size	3.5 in. wide, 6.25 in. long.
Weight	19.5 ounces.
Case	Extruded aluminum.
Configuration	Hand-held or belt mounted.

Data Output

Standard RS232 interface to computer, printer or modem.

Serial output to Field Printer DP 500.

Operation

Memory transmission via RS232 or serial port to Field Printer DP 500 indicated by key-stroke.

Memory held until cleared by depression of protected reset key.

Data may be transmitted to Field Printer DP 500 subsequent to or simultaneous with transmission of data to Data Logger from T-Mike.

Data Input

Serial single cable connection to T-Mike.

Operation

Automatic transmission of thickness readings from T-Mike. Location identification may be entered through the T-Mike.

Visual LED and audible signal to confirm data input.

Available Memory

From 500 to 2500 thickness reading with 8 digit identification code per reading 64K to 320K RAM.

Power Supply

Batteries	4 AA rechargable NiCad.
Operating Time	16 hours between charges. LED visual check to determine battery voltage.

FIELD PRINTER DP 500

Physical Description

Unit Size	3.5 in. wide, 9.87 in. long.
Weight	27 ounces.
Case	Extruded aluminum.
Configuration	Hand-held or belt mounted.

Data Output

16 column thermal paper tape.

Data Input

Serial single cable connection to T-Mike.

Operation

Automatic transmission of thickness readings from T-Mike or Data Logger. Location identification may be entered through the T-Mike keyboard.

Power Supply

6 AA rechargable NiCad batteries. 16 hours operation between charges.

B. FACILITY DESCRIPTION

This section presents a general description of the Pride Solvents & Chemical Co., Inc. facility in accordance with 6 NYCRR 373-1.5(a)(2). This general description is intended to provide an overview of the facility.

B-1. GENERAL DESCRIPTION

Pride Solvents & Chemical Company, Incorporated (Pride Solvents) operates a chemical and solvent distribution facility and solvent reclamation facility at a 1.3 acre site located on the west side of Lamar Street, West Babylon, New York (see Drawing No. PRID 84-01-1, Topographic Map). The street address is:

Pride Solvents & Chemical Co., Inc.
78 & 88 Lamar St.
West Babylon, NY 11704

The mailing address is:

Pride Solvents & Chemical Co., Inc.
88 Lamar St.
West Babylon, NY 11704

The Pride Solvents facility consists of two buildings, namely, 78 and 88 Lamar Street (see Drawing No. PRID 84-01-2, Facility Site Plan).

Operations conducted at the 5,800 square foot 88 Lamar Street facility are strictly limited to bulk storage and distribution, drum storage and distribution, and drum packaging for distribution. There are no processing or manufacturing operations conducted. The materials handled are limited to three basic categories: non-flammable, flammable and combustible organic solvents.

Pride Solvents' operations also include the reclamation of chlorinated and fluorinated solvents by distillation in an adjacent facility located at 78 Lamar Street. The facility affords approximately 7,700 square feet of available floor space and is designed to receive waste chlorinated solvents and freons in 55-gallon drums, store the waste solvents in an indoor containment area and reclaim the solvents by distillation. Pride Solvents receives waste solvents exclusively in 55-gallon drums. No bulk shipment of waste solvents are accepted. Waste solvents are accepted only from customers who purchase virgin solvent products from Pride Solvents.

Metal finishing and electronics firms make up ninety percent (90%) of the industries serviced by Pride Solvents' solvent distribution and waste solvent reclamation activities. The remaining ten percent (10%) are comprised of a variety of miscellaneous manufacturing and commercial business.

The contact responsible for hazardous waste reclamation activities at Pride Solvents is:

Gerald Nicholas
(516) 643-0041

B-2. TOPOGRAPHIC MAP

Figure I, Location Map, is a 7.5 minute USGS Topographic Map showing the facility site location and surrounding areas within a one mile radius of the site. Contours are shown in five (5) foot intervals. There are no surface waters within a one mile radius of the facility. A more detailed view of the facility and areas

Rev 12/97

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The contact responsible for hazardous waste reclamation activities at Pride Solvents is:

Bruce Brehm, Distillation Manager
(516) 643-4800

B-2. TOPOGRAPHIC MAP

Figure I, Location Map, is a 7.5 minute USGS Topographic Map showing the facility site location and surrounding areas within a one mile radius of the site. Contours are shown in five (5) foot intervals. There are no surface waters within a one mile radius of the facility. A more detailed view of the facility and areas

within a 1,000 foot radius of the facility is presented in Drawing No. PRID 84-01-1, Topographic Map.

B-3. LAND USE

The Pride Solvents site and areas immediately surrounding the site are zoned industrial. Extending further north, south and west are Pinelawn, New Montefiore and St. Charles Cemeteries. Zoning maps for the area may be obtained from the Town of Babylon, Planning Dept.

B-4. LOCATION

The Pride Solvents facility is located on a 1.3 acre site on the west side of Lamar Street, West Babylon, Suffolk County, New York. The site is approximately three miles south of the Long Island Expressway (I-495) and one mile east of Wellwood Avenue. The site is situated approximately 1,000 feet east of the Babylon Town Landfill.

B-5. WIND ROSE

As shown in Figure II, Wind Roses, summer wind direction prevails from the southwest quadrant, and winter winds from the northwest, north and northeast.

B-6. FLOOD-PLAIN STANDARD

The Federal Emergency Management Agency (FEMA) Flood Insurance Rate Map, Community Panel No. 360790 0020C, indicates that the Pride Solvents facility is not located within a 100 year

flood-plain. The facility site is located in an area designated with minimal flooding (Zone C). Flood-plain maps can be obtained from FEMA.

B-7. TRAFFIC PATTERNS

Access to the Pride Solvents facility from the Long Island Expressway is via Wellwood and Edison Avenues. Traffic from the Long Island Expressway turns onto Wellwood Avenue and travels south to Edison Avenue. A left hand turn is made at the traffic signal at the intersection of Wellwood and Edison Avenues. Traffic travels one mile east on Edison Avenue to Lamar Street. A left hand turn is made onto Lamar Street, and the facility site is approximately 1/4 mile north on the left hand side of the street.

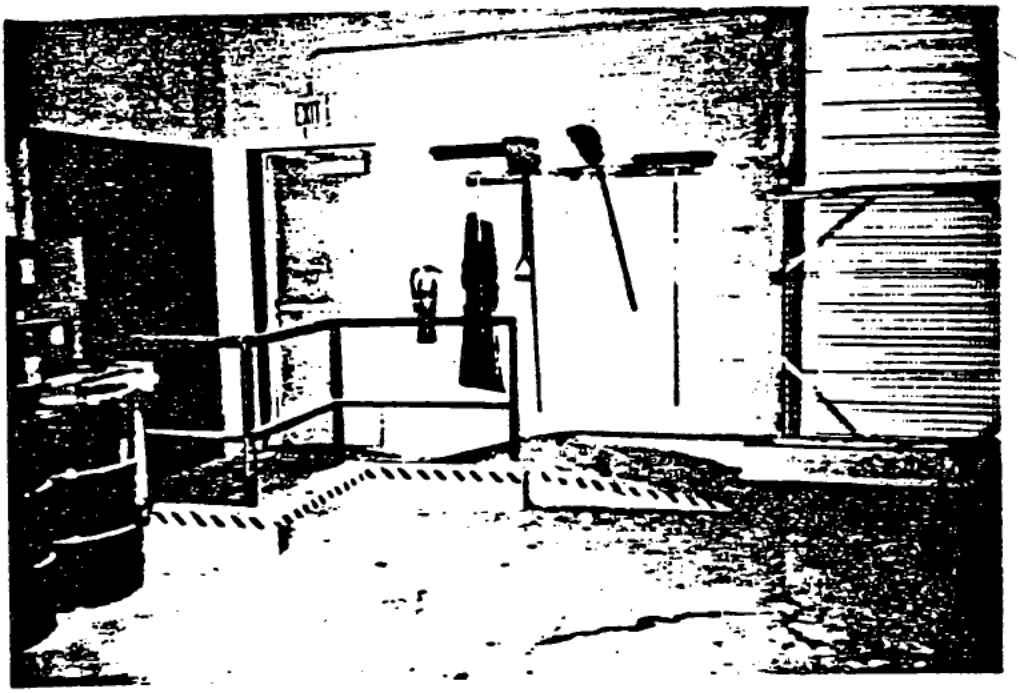
The Long Island Expressway is a six lane, two-way interstate, Wellwood Avenue is a four lane, two-way main road, and Edison Avenue and Lamar Street are both two lane, two-way roads.

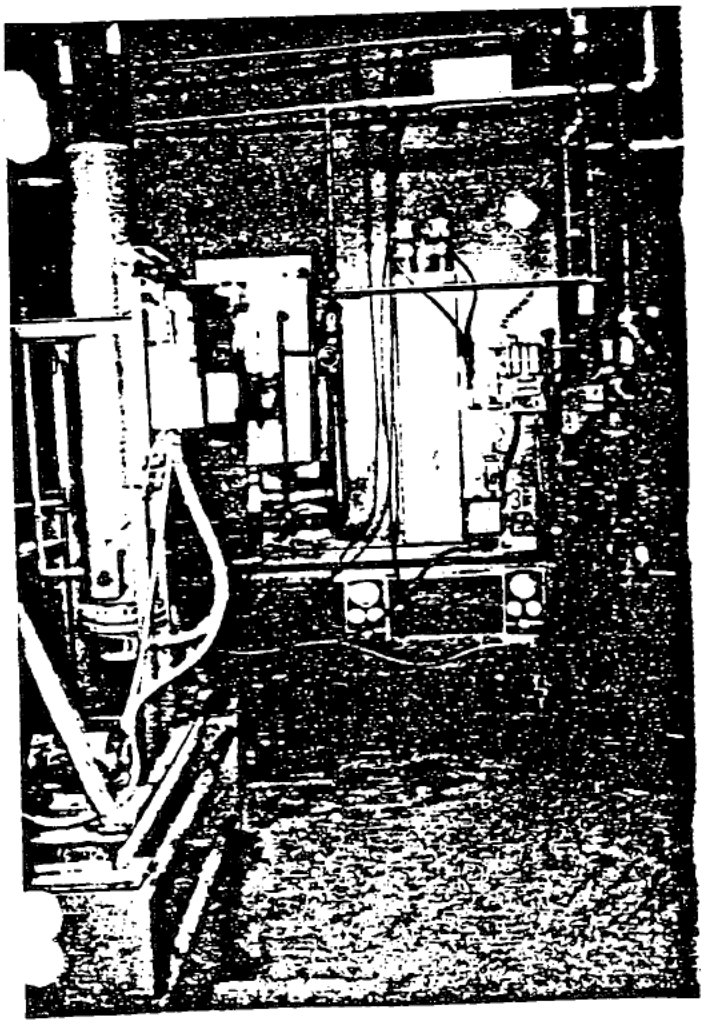
Entry onto the facility site is by two truck gates facing Lamar Street. One gate is located between the 78 and 88 Lamar Street buildings. The second gate is located just north of the 88 Lamar Street building. Hazardous waste deliveries are made only via the gate located between the two buildings. Employee parking is limited to the south side of the 78 Lamar Street building and along the north property line.

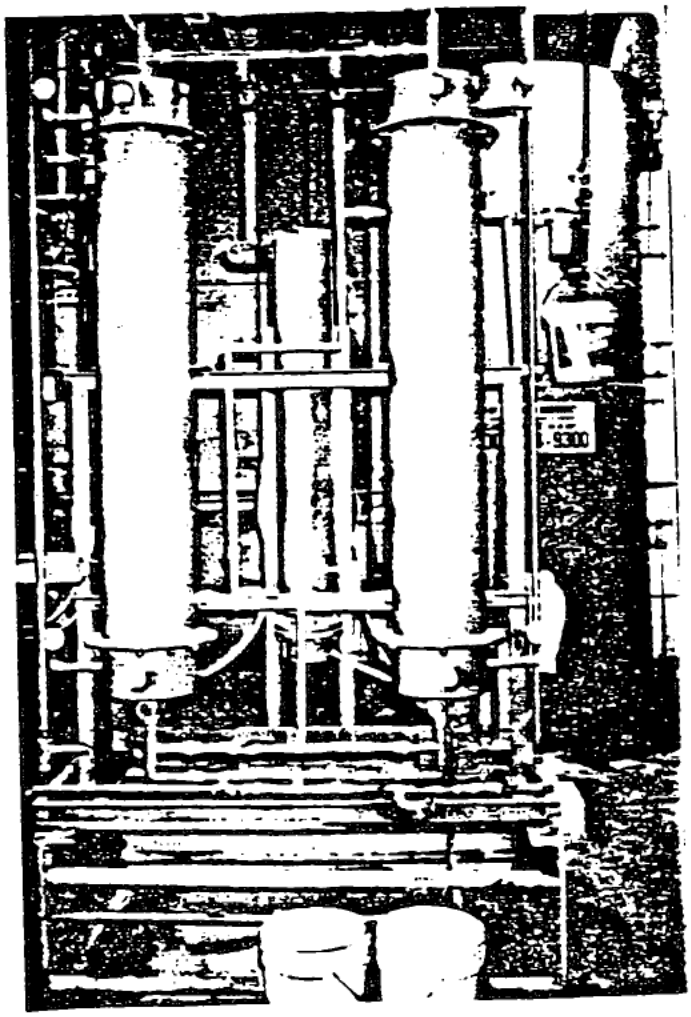
Pride Solvents utilize two (2) size trucks for transporting waste solvents to the site. The smaller sized vehicles have a load capacity of 12,000 pounds and weigh 28,000 pounds fully

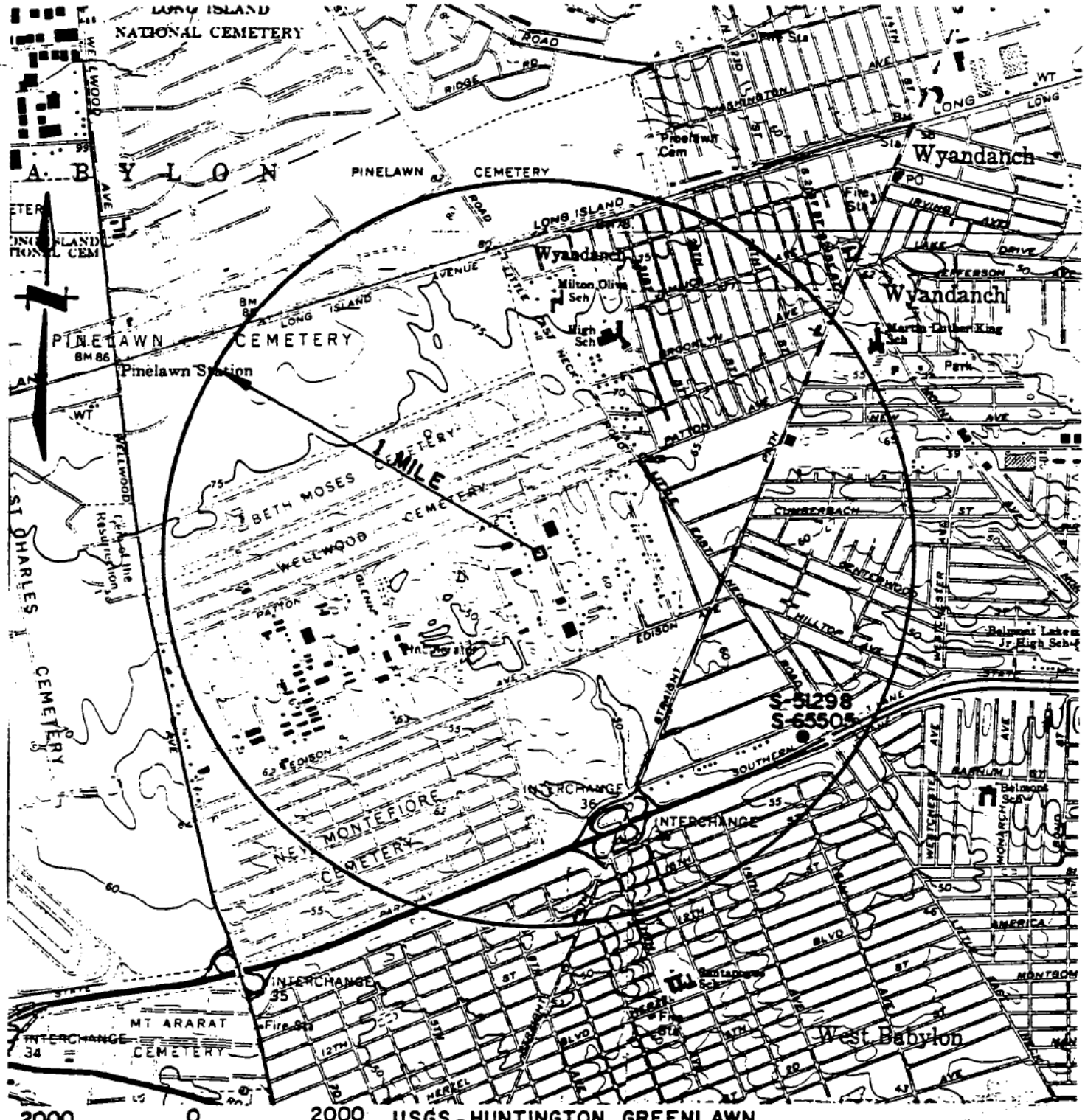
loaded. The larger vehicles have a load capacity of 20,000 pounds and weigh 36,000 pounds fully loaded.

Vehicles delivering spent solvents to the reclamation facility enter the site from Lamar Street through the entrance gate located between the two buildings. The vehicles proceed straight ahead between the buildings until the back of the truck is in front of the entrance door to the reclamation facility. Forklifts equipped with drum pickers are used to transfer the drums of waste solvent from the trucks to the drum storage area within the reclamation facility. Road surfacing between the two buildings consists of a combination of asphalt and concrete pavement.









USGS - HUNTINGTON, GREENLAWN, AMITYVILLE & BAY SHORE WEST QUADRANGLES 7.5 MIN. SERIES

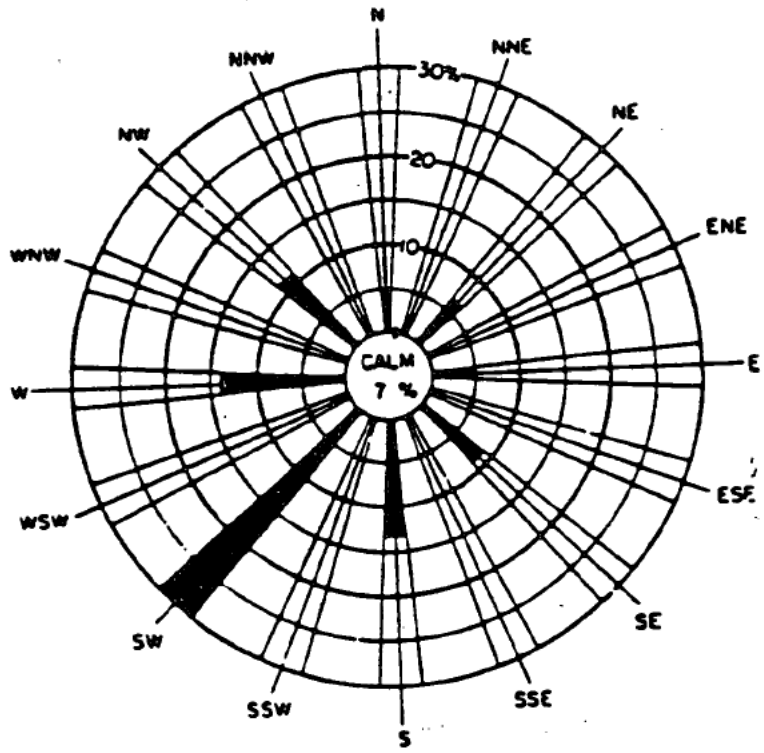
LOCATION MAP

SHOWING PUBLIC WATER

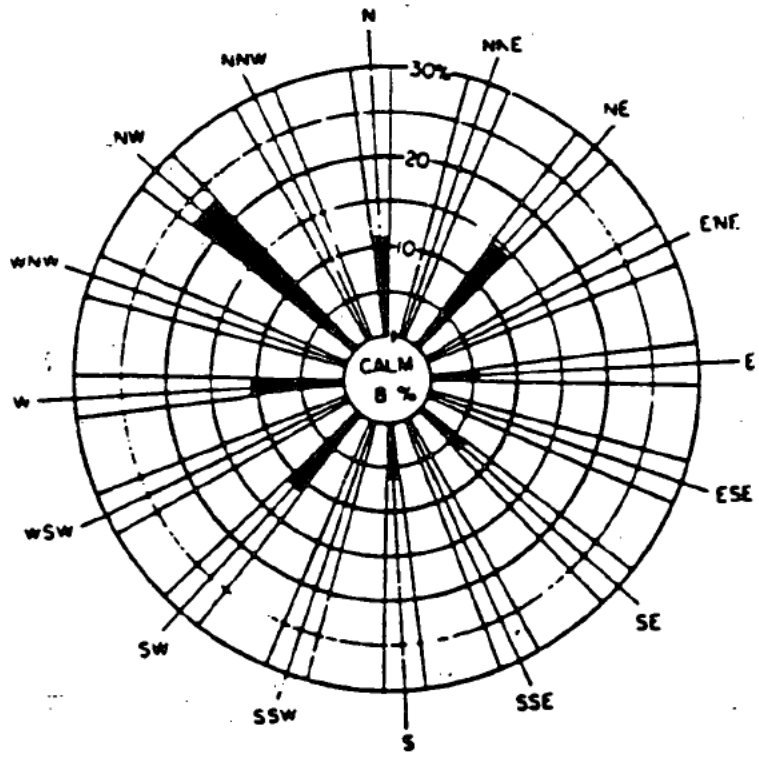
PRIDE SOLVENTS & CHEMICAL CO., INC.

WEST BABYLON, SUFFOLK CO., NEW YORK

EPA I.D. NO. NYD 057722258



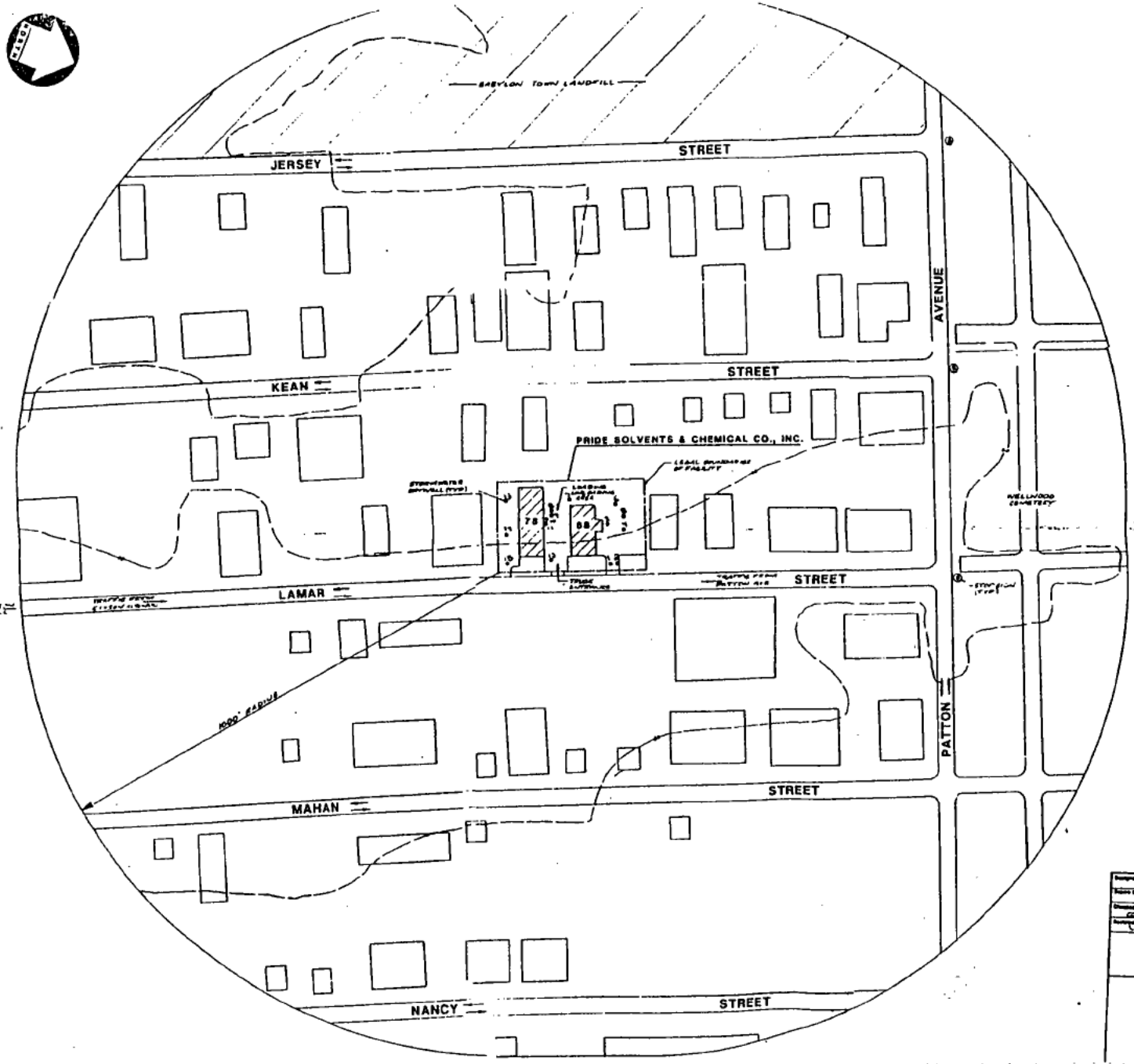
JULY



FEBRUARY

FIGURE II

WIND ROSES



NOTES:

1) THE TOPOGRAPHIC MAP WAS DEVELOPED USING USGS AMITYVILLE, NEW YORK 7.5 MINUTE QUADRANGLE (CONTOUR INTERVAL - 5 FEET) PHOTO REVISED 1979.

2) THE SURROUNDING AREAS ARE ZONEDINDUSTRIAL.

3) THERE ARE NO SURFACE WATERS WITHIN 1,000 FEET OF THE FACILITY.

4) CONTOURS WITHIN THE FACILITY SITE VARY LESS THAN 2 FEET.

5) ON-SITE DRAINAGE IS DIRECTED TO STORMWATER DRY WELLS.

PRIDE SOLVENTS & CHEMICAL COMPANY, INC.

HAZARDOUS WASTE MANAGEMENT

H2M Consulting Engineers Environmental Scientists Planners

Holzmacher, McLendon & Murrell, P.C.

Melville, N.Y. Riverhead, N.Y.

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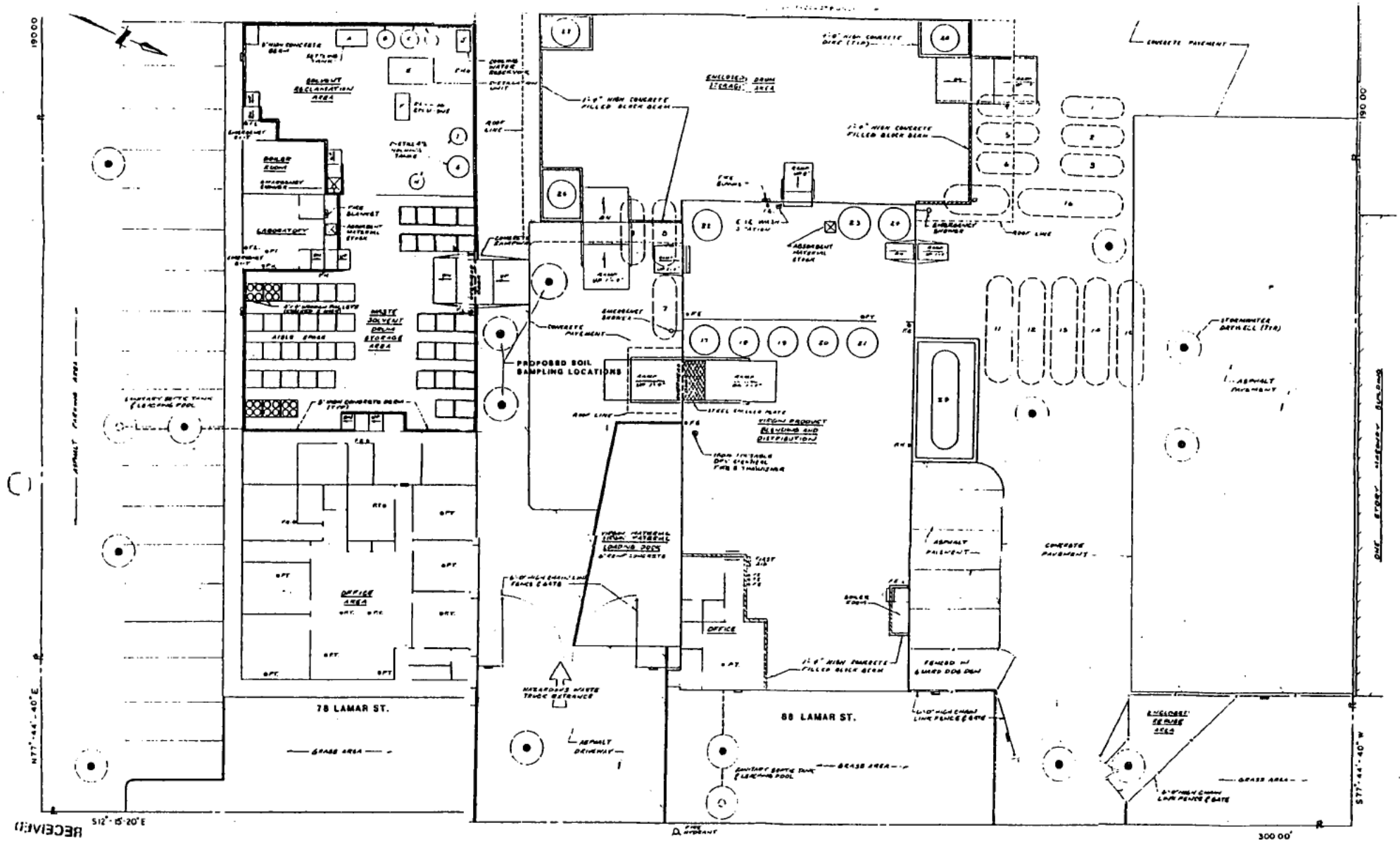

LEGEND

- PT - PAGING TELEPHONE
- PH - PAGING HORNS
- FE - FIRE EXTINGUISHER
- CB - VACUUM SIGN
- LOGE OR ASPHALT PAVEMENT
- STORMWATER DRYWELL

H2M Consulting Engineers Environmental Scientists Planners

Holzmacher, McLendon & Murrell, P.C.

Melville, N.Y. Rimmond, N.Y. Farmingdale, N.Y.

Sheet Title: FACILITY SITE PLAN

Designed by: Drawn by: Checked by: Reviewed by: Date: NOV 1994

Project No. HBM-84-UL

Drawing No. PRIDE-84-UL-2

Scale: 1" = 20'

Revisions: JULY 1994 ADDED ENCLOSED DRUM STORAGE AREA

PRIDE SOLVENTS & CHEMICAL COMP

HAZARDOUS WASTE MANAGEMENT

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L. CERTIFICATION

L. CERTIFICATION

I certify under penalty of law that I have personally examined and am familiar with the information submitted in this document and all attachments and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the 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.

DATE: July 7, 1997

SIGNATURE: Arthur W. Dhom

Arthur Dhom, President

Revision of 12/97

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DATE: OCT 10, 1986

SIGNATURE: Arthur W. Dhom
Arthur Dhom, President