US EPA RECORDS CENTER REGION 5
483459

STATE OF MICHIGAN
DEPARTMENT OF NATURAL RESOURCES
WATER RESOURCES COMMISSION

IN THE MATTER OF

NPDES PERMIT NO. MI 0003654

BASF Wyandotte Corporation
South Works

WRC NO.: NC-9-77-04-2551

NOTICE OF NONCOMPLIANCE AND ORDER TO COMPLY

TO: BASF Wyandotte Corporation
1609 Biddle Avenue
Wyandotte, Michigan 48192

Attn: Mr. W. J. Leisten, Manager, Environmental Control

PLEASE BE ADVISED that we have sufficient information to believe that your facility has failed to comply with the terms and conditions of your National Pollutant Discharge Elimination System Permit issued on December 19, 1974.

PURSUANT to the terms of the aforementioned permit (Part I, Section A.6), any discharge from your facility is limited to the following for Outfall 003:

Effluent Characteristics	Discharge Limitations lbs/day Daily Average	lbs/day Daily Maximum	mg/l Daily Average	mg/l Daily Maximum
Total Suspended Solids	5921 (net)	10,362 (net)	20 (net)	35 (net)
Total Chlorine Residual	----	---	--	.5
Total Lead	1.63	3.25	--	--
pH	Shall not be less than 6.5 nor greater than 9.5			

The monthly monitoring reports submitted for the months of June and July, 1977, show that your facility exceeded its authorized discharge limits according to the following:

Date Sampled	Effluent Characteristics	Reported Value
6/3/77	Total Suspended Solids	47 mg/l (net)
6/4/77	Total Suspended Solids	58 mg/l (net)
6/5/77	Total Suspended Solids	56 mg/l (net)
6/6/77	Total Suspended Solids	47 mg/l (net)
6/7/77	Total Suspended Solids	58 mg/l (net)
6/9/77	Total Suspended Solids	36 mg/l (net)
6/10/77	Total Suspended Solids	62 mg/l (net)
6/11/77	Total Suspended Solids	55 mg/l (net)
6/14/77	Total Suspended Solids	43 mg/l (net)
6/16/77	Total Suspended Solids	42 mg/l (net)
6/17/77	Total Suspended Solids	49 mg/l (net)
6/18/77	Total Suspended Solids	42 mg/l (net)
6/19/77	Total Suspended Solids	39 mg/l (net)
6/3/77	Total Suspended Solids	12,098 lbs/day (net)
6/4/77	Total Suspended Solids	15,702 lbs/day (net)
6/5/77	Total Suspended Solids	15,860 lbs/day (net)
6/6/77	Total Suspended Solids	12,920 lbs/day (net)
6/7/77	Total Suspended Solids	15,944 lbs/day (net)
6/10/77	Total Suspended Solids	16,527 lbs/day (net)
6/11/77	Total Suspended Solids	14,661 lbs/day (net)
6/14/77	Total Suspended Solids	10,925 lbs/day (net)
6/17/77	Total Suspended Solids	12,694 lbs/day (net)
6/18/77	Total Suspended Solids	10,671 lbs/day (net)
6/19/77	Total Suspended Solids	10,721 lbs/day (net)

Date Sampled (Con't.)	Effluent Characteristics	Reported Value
6/14/77	pH	12.0
6/14/77	pH	10.1
6/15/77	pH	11.5
6/16/77	pH	10.0
6/16/77	pH	9.6
6/21/77	pH	10.4
6/22/77	pH	10.2
6/24/77	pH	11.2
6/25/77	pH	12.2
6/25/77	pH	10.5
6/26/77	pH	11.8
6/26/77	pH	10.1
6/27/77	pH	11.0
6/27/77	pH	10.1
6/28/77	pH	11.7
6/29/77	pH	10.2
6/30/77	pH	10.4
6/30/77	pH	4.8
7/1/77	pH	10.6
7/1/77	pH	2.9
7/2/77	pH	10.9
7/3/77	pH	11.2
7/3/77	pH	3.0
7/4/77	pH	6.3
7/5/77	pH	10.3
7/6/77	pH	11.7
7/7/77	pH	6.4
7/8/77	pH	10.5
7/8/77	pH	4.1
7/9/77	pH	9.6
7/10/77	pH	6.1
7/11/77	pH	10.6
7/11/77	pH	6.3
7/12/77	pH	10.3
7/12/77	pH	6.2
7/13/77	pH	12.0
7/14/77	pH	10.6
7/14/77	pH	6.0
7/15/77	pH	10.5
7/15/77	pH	6.0
7/16/77	pH	6.0
7/17/77	pH	10.3
7/17/77	pH	6.0
7/18/77	pH	10.0
7/19/77	pH	9.8
7/20/77	pH	10.7
7/20/77	pH	6.0
7/21/77	pH	10.6
7/21/77	pH	6.0
7/22/77	pH	10.5
7/22/77	pH	6.0
7/23/77	pH	6.3
7/24/77	pH	11.0
7/25/77	pH	10.3
7/25/77	pH	6.0
7/26/77	pH	11.4
7/26/77	pH	6.0
7/27/77	pH	11.2
7/27/77	pH	6.0
7/28/77	pH	10.4
7/29/77	pH	10.0
7/30/77	pH	9.7
7/31/77	pH	10.8
7/31/77	pH	6.0

Report Date	Effluent Characteristics	Reported Average
June, 1977	Total Suspended Solids	28 mg/l (net)
June, 1977	Total Suspended Solids	7,356 lbs/day (net)
June, 1977	Total Lead	4 lbs/day

Table 1 Fathead minnow mortality after exposure to various concentrations of BASF Wyandotte effluent from outfall 820180 (001).

Nominal Effluent Concentration %	Percent Mortality/Exposure Period								
	2 hours	7 hours	18 hours	24 hours	31 hours	41 hours	48 hours	72 hours	96 hours
100	100	--	--	--	--	--	--	--	100
88	100	--	--	--	--	--	--	--	100
75	70	85	85	100	--	--	--	--	100
66	80	80	80	100	--	--	--	--	100
50	0	5	5	10	10	20	20	30	35
33	0	0	0	0	0	0	0	0	0
25	0	0	0	0	0	0	0	0	0
12	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0

96 hour LC50 = 53% effluent
approximate 95% confidence limits = 48 and 59% effluent

%		
100	0	0
88	0	10
75	0	10
66	0	0
50	0	0
33	0	0
25	0	0
12	0	0
0 (control)	0	10

48-hour ECSO: Cannot be determined - insufficient immobilization.

b. Chemical/Physical Data

Parameter	6/23/81 Control	6/23/81 50%	6/23/81 100%	6/25/81 Control	6/25/81 50%	6/25/81 100%
Dissolved oxygen (mg/l)	8.2	7.2	6.1	8.2	7.5	7.3
Oxygen saturation (%)	99	87	74	95	87	85
pH (S.U.)	8.1	8.0	7.9	8.2	8.0	7.9
Temperature (°C)	24	24	25	22	22	22
Conductivity (umhos)	226	240	247	226	239	246
Alkalinity (mg/l)	--	--	--	88	--	88
Hardness (mg/l)	--	--	--	100	--	100

Table 3 Results of a 48-hour static *D. magna* toxicity test conducted with effluent from outfall 820178 (003) at BASF Wyandotte - 6/23-25/81.

a. Biological Data

Nominal % Effluent	% immobilization at 24 hours	% immobilization at 48 hours
100	0	10
75	0	0
50	0	0
25	0	0
10	0	0
0 (control)	0	0

48 hour EC50: Cannot be determined - insufficient immobilization.

b. Chemical/Physical Data

Parameter	6/23/81 Control	6/23/81 50%	6/23/81 100%	6/25/81 Control	6/25/81 50%	6/25/81 100%
Dissolved oxygen (mg/l)	8.4	8.5	8.6	8.5	8.3	8.2
Oxygen Saturation (%)	98	99	98	94	92	91
pH (S.U.)	7.8	7.8	7.8	8.2	8.2	8.2
Temperature (°C)	22	22	21	20	20	20
Conductivity (umhos)	234	796	1360	231	787	1330
Alkalinity (mg/l)	84		140	--		
Hardness (mg/l)	100		180	--		

Table 4 On-site analyses of effluent grab samples collected at BASF Wyandotte Corporation, outfall 820180 (0[illegible]) during 6/22-26/81.

Date	Time	Temp.* (°C)	pH (S.U.)	Conductivity (umhos)	D.O. (mg/l)	Chlorine (mg/l)	Alkalinity (mg/l)	Hardness (mg/l)
6-22-81	1400	23	7.6	597	4.8	Trace①	--	--
	1740	22	7.8	270	5.4	--	--	--
	2140	22	7.8	262	4.8	U②	88	110
6-23-81	0800	21	7.7	277	5.3	--	96	110
	1125	23	7.6	260	3.9	U	--	--
	1550	24	7.7	306	4.1	--	--	--
	2140	21	7.8	249	6.0	U	--	--
6-24-81	0740	22	7.7	251	4.9	U	--	--
	1140	22	7.7	251	5.5	--	100③	110③
	1540	23	7.7	309	3.7	--	--	--
	2130	22	7.2	301	3.2	--	--	--
6-25-81	0840	21	7.6	303	4.2	U	--	--
	1120	23	7.6	287	3.9	U	--	--
	1515	25	7.0	260	1.6	--	96	110
	2125	22	7.5	288	3.4	--	--	--
6-26-81	0840	22	7.6	321	2.9	U	88	100
	1140	23	7.8	240	4.4	--	--	--
	1405	23	7.9	250	4.5	--	--	--

* - After the heat exchanger
① - Trace: present in quantity << detection limit of 0.2 mg/l
② - U = undetected
③ - Actual analyses performed at 1040

Table 5 On-site analyses of diluent (Detroit River) grab samples collected during 6/22-26/81.

Date	Time	Temp.* (°C)	pH (S.U.)	Conductivity (umhos)	D.O. (mg/l)	Chlorine (mg/l)	Alkalinity (mg/l)	Hardness (mg/l)
6-22-81	1400	22	7.9	244	7.4	Trace①	--	--
	1740	21	7.9	240	7.4	--	--	--
	2140	21	7.9	234	7.6	U②	84	110
6-23-81	0800	21	7.9	241	8.0	--	88	100
	1125	22	7.9	231	8.2	U	--	--
	1550	22	8.1	225	8.5	--	--	--
	2140	20	7.9	237	8.5	U	--	--
6-24-81	0740	20	7.7	238	8.4	Trace	--	--
	1140	21	7.9	231	8.5	--	84③	100③
	1540	21	7.9	229	8.4	--	--	--
	2130	20	7.9	233	8.6	--	--	--
6-25-81	0840	22	7.8	231	8.4	Trace	--	--
	1120	21	7.8	228	8.4	U	--	--
	1515	22	8.0	220	8.4	--	88	100
	2125	21	7.8	227	8.4	--	--	--
6-26-81	0840	20	7.9	226	8.4	U	88	100
	1140	21	8.0	225	8.3	--	--	--
	1405	21	7.9	225	8.3	--	--	--

* - After the heat exchanger
① - Trace = present in quantity << detection limit of 0.2 mg/l
② - U = undetected
③ - Actual analyses performed at 1040

Table 6 Laboratory analyses of effluent composite samples collected from outfall 820180 (001) at BASF Wyandotte Corporation.

Sample Period From	6-22-81 - 1600		6-24-81 - 0815	
To	6-23-81 - 1600		6-25-81 - 0815	
Computed flow rate① (M^3/day)	23,000		25,000	
	mg/l	kg/day	mg/l	kg/day
Suspended solids	13	300	20	500
Dissolved solids	150	3,400	170	4,200
COD	97	2,200	180	4,500
TOC	31	710	34	850
Cyanide (Total)	0.009	0.2	--	--
Cyanide (Free)	< 0.009	--	--	--
Sulfide	< 0.02②	--	--	--
BOD_5	24	550	15	380
Nitrite & nitrate nitrogen-N	0.31	7.1	--	--
Ammonia nitrogen-N	0.32	7.4	0.43	11.
Kjeldahl nitrogen-N	1.3	30.	1.0	25
Total phosphorus-P	0.09	2	0.06	2
Chlorides	18.2	419	19.3	482
MBAS	0.02③	0.5	--	--
	ug/l		ug/l	
Phenol	17④	0.39	8④	0.2
Total cadmium (Cd)	< 20	--	< 20	--
Total chromium (Cr)	< 50	--	< 50	--
Hexavalent chromium (Cr^{+6})	< 2	--	--	--
Total copper (Cu)	< 20	--	< 20	--
Total nickel (Ni)	< 50	--	< 50	--
Total lead (Pb)	< 50	--	< 50	--
Total zinc (Zn)	< 50	--	< 50	--
Total iron (Fe)	580	13	--	--
Total mercury (Hg)	< 1.	--	--	--
Polynuclear aromatic hydrocarbons	< 1	--	--	--
PCB 1242	< 0.1	--	--	--
PCB 1254	< 0.1	--	--	--
PCB 1260	< 0.1	--	--	--
Other PCB's & organochlorine pesticides	U⑤	--	--	--

① - Flow rates used in the computation of kg/day-obtained from company MOR.
② - Possible interference
③ - Maximum holding time was exceeded
④ - Analytical method not yet approved by laboratory
⑤ - U = undetected
To obtain MGD multiply M^3/day by 0.0002642
To obtain lbs/day multiply kg/day by 2.205

Table 7 Laboratory analyses of effluent grab samples collected from outfall 820180 (001) at BASF Wyandotte Corporation.

Date	6-22-81	6-22-81	6-23-81	6-23-81①	6-24-81	6-25-81
Time	1610	2315	0850	1135	2150	0805
	mg/l*	mg/l	mg/l	mg/l*	mg/l	mg/l
Suspended solids	15	8	16	--	--	--
Dissolved solids	140	140	180	--	--	--
COD	58	42	420	--	--	--
TOC	14	14	110	--	--	--
BOD_5	8.0	12.	78.	--	--	--
Chlorine Residual	U②	U	U	U	--	--
Nitrite & nitrate nitrogen-N	0.37	0.33	0.28	--	--	--
Ammonia nitrogen-N	0.29	0.27	0.43	--	--	--
Kjeldahl nitrogen-N	1.3	0.87	1.8	--	--	--
Total phosphorus-P	0.09	0.06	0.11	--	--	--
Chlorides	21.	16.	33.	--	--	--
Oil & Grease (Grav.)	6	< 2	15	--	--	--
Oil & Grease (I.R.)	14	1	11	--	--	--
Petroleum hydrocarbons	11	< 1	4	--	--	--
	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l
Phenol	6③	11③	30③	--	--	--
Total aromatic amines	< 100	< 100	< 100	< 100	< 100	< 100
Total aliphatic amines	220	130	240	160	280	200
Chloroform	< 10	< 10	< 10	< 10	< 1	< 1
1,2-dichloroethane	< 10	< 10	< 10	--	--	--
1,2-dichloropropane	< 10	< 10	< 10	--	--	--
Benzene	< 10	< 10	< 10	55	< 10	< 10
Toluene	< 10	< 10	< 10	15	23	< 10
Xylene	< 10	< 10	< 10	--	--	--
Styrene	< 10	< 10	< 10	< 10	20	< 10
Ethylbenzene	< 10	< 10	< 10	< 10	< 10	< 10
Acrylonitrile	<1000	<1000	<1000	U	--	--
Trichloroethylene	--	--	--	--	--	2
Other purgeable hydrocarbons	U	U	U	U	U	U

* - Collected during a period of fish stress and turnover.
① - Collected inside mobile laboratory rather than at the outfall sampling site.
② - U = undetected
③ - Analytical method not yet approved by laboratory.

boratory analyses of diluent composite samples collected from the
troit River at BASF Wyandotte's north intake.

od	From	6-22-81 - 1630	6-24-81 - 0755
	To	6-23-81 - 1630	6-25-81 - 0755
		mg/l	mg/l
olids		11	17
olids		160	140
		8	14
		3.0	3.7
tal)		< 0.005	--
		< 0.02	--
		2.9	2.3
itrate nitrogen-N		0.31	--
rogen-N		0.33	0.35
trogen-N		0.63	0.61
horus-P		0.06	0.03
		13.5	12.3
		0.02 (1)	--
		ug/l	ug/l
		5 (2)	3 (2)
ium (Cd)		< 20	< 20
mium (Cr)		< 50	< 50
chromium (Cr^{+6})		< 2	--
er (Cu)		< 20	< 20
el (Ni)		< 50	< 50
(Pb)		< 50	< 50
(Zn)		< 50	< 50
(Fe)		270	--
r aromatic hydrocarbons		< 1	--
		< 0.1	--
		< 0.1	--
		< 0.1	--
s & organochlorine		U (3)	--
es			

m holding time exceeded.
ical method not yet approved by laboratory.
detected

Table 9 Laboratory analyses of diluent grab samples collected from the Detroit River at BASF Wyandotte Corporation.

Sample Location	North Intake①				At the Diluent Pump
Date	6-22-81	6-23-81	6-24-81	6-25-81	6-23-81
Time	2330	0915	2155	0750	0910
	mg/l	mg/l			mg/l
COD	6	8			15
TOC	3.5	3.5			3.4
Chlorides	12.8	13.0			12.9
Oil & Grease (Grav.)	< 2	< 2			--
Oil & Grease (I.R.)	< 1	< 1			--
Petroleum hydrocarbons	< 1	< 1			--
	ug/l	ug/l	ug/l	ug/l	ug/l
Total aliphatic amines	< 100	< 100	< 100	< 100	< 100
Total aromatic amines	< 100	< 100	< 100	< 100	< 100
Toluene	< 10	< 10	< 10	< 10	< 10
Xylene	< 10	< 10	--	--	--
Styrene	< 10	< 10	< 10	< 10	< 10
Benzene	< 10	< 10	< 10	< 10	< 10
Ethylbenzene	< 10	< 10	< 10	< 10	< 10
Chloroform	< 10	< 10	< 1	< 1	< 10
Trichloroethylene	--	--	Trace②	3	--
1,2-dichloroethane	< 10	< 10	--	--	--
1,2-dichloropropane	< 10	< 10	--	--	--
Acrylonitrile	< 1,000	< 1,000	--	--	U
Other purgeable hydrocarbons	U③	U	U	U	U

① - Additional intake data are available in a 1981 report by Rock and Browne.
② - Present in quantity less than detection limit.
③ - U = undetected

Table 10 Laboratory analyses of selected effluent grab samples collected at outfall 820178 (003).①

Date	6/23/81	6/23/81
Time	0815	1215
	mg/l	mg/l
Suspended solids	23	10
Dissolved solids	1,200	780
COD	300	120
TOC	83	37
BOD_5	11.	16.
Nitrite & nitrate nitrogen-N	0.46	0.40
Ammonia nitrogen-N	0.95	0.84
Kjeldahl nitrogen-N	2.6	2.1
Total phosphorus-P	0.23	0.24
Chlorides	510	320
Oil & Grease (I.R.)	38	13
Oil & Grease (Gravimetric)	68	28
Petroleum hydrocarbons	25	9
	ug/l	ug/l
Phenol	29②	22②
Total aliphatic amines	460	130
Total aromatic amines	< 100	< 100
Benzene	< 10	< 10
Toluene	< 10	< 10
Xylene	< 10	< 10
Styrene	< 10	< 10
Ethylbenzene	< 10	< 10
Acrylonitrile	< 1,000	< 1,000
Chloroform	< 10	< 10
1,2-Dichloroethane	120	39
1,2-Dichloropropane	1,400	1,200
Other purgeable hydrocarbons	U③	U

① - Addition grab and composite sample data available in Rock and Browne (1981).
② - Analytical method not yet approved by laboratory.
③ - U = undetected.

Table 11 Comparison of study results with BASF Wyandotte Corporation's NPDES Permit (MI0000540).

Parameter (Unit)	NPDES Permit Final Limitations		Study Results①	
	Average	Maximum	6/22-23/81	6/24-25/81
820180 (001)				
Flow (M^3/day)	--	--		
BOD5 (mg/l)	--	--	24 (8.0, 12., 78.)	15
Suspended solids (mg/l)	20 net②	60 net	2	3
Suspended solids (kg/day)	811 net	2434 net	46	75
Total phosphorus (mg/l)	1.0	2.0	0.09 (0.09, 0.06, 0.11)	0.06
Total phosphorus (kg/day)	41	81	2	2
Chlorides (mg/l)	--	--	18.2 (21., 16., 33.)	19.3
Chlorine (mg/l)	--	0.5	(U, U, U③ - See also Table 4)	
COD (mg/l)	--	--	97 (58, 42, 420)	180
Petroleum hydrocarbons④ (mg/l)	--	10	(11, <1, 4)	
Phenol (ug/l)	--	--	17 (6, 11, 30)	8
pH (S.U.)	not <6.5 nor >9.5		Study Maximum = 8.4 @ 1115 6/26/81⑤ Study Minimum = 6.8 @ 1730 6/25/81	
Intake⑥				
Suspended solids (mg/l)	--	--	11	17

① - Study results are taken from Tables 6 - 8. Results in parentheses ( ) are for grab samples. Others are composite sample data. To obtain MGD multiply M^3/day by 0.0002642 - to obtain lbs/day, multiply kg/day x 2.205.
② - Net = difference between discharge and intake values.
③ - U = undetected.
④ - As defined by Environmental Monitoring & Support Laboratory, U.S.EPA, Cincinnati, OH (7/75).
⑤ - From a continuous pH recording of the 96-hour study period.
⑥ - Data presented here are from the north (polyols) intake. The south intake (820407) was monitored by BWC for permit reporting purposes at the time of the study.

TOXIC MATERIALS SECTION
Critical Materials Register Chemical Evaluation

Compound Ammonia

Synonyms

General Description

Production Volume (million pounds / year)

National Michigan

Acute Toxicity:

Mammals (LD_{50}) Oral, rat - 350 mg/kg[1]

Aquatic life (96 hr. TL_m) 1-10 ppm[1]; 3.4 ppm (trout, bluegill)[2]
Aesthetic properties[3]

Humans

Chronic Toxicity

Carcinogenicity:

Mutagenicity:
Teratogenicity:
Persistance: No[2]
Bioaccumulation: No[2]
Recommendations for CMR Included on list - moderate toxicity to aquatics -- aesthetic potential.

References
1. RTECS, 1975
2. Determination of Harmful Quantities ...
3. Control of Spillage ...
4.
5.

C_6H_6O

108-95-2

TOXIC MATERIALS SECTION

Critical Materials Register Chemical Evaluation

Compound Phenol

Synonyms

General Description Soluble in water, pinkish white crystals, bp=182, d=1.07

Production Volume (million pounds / year)

National 1,915 Michigan

Acute Toxicity:

Mammals (LD_{50}) oral-rat 414 mg/L (2); oral-mouse 300 mg/kg. (2); oral-rabbit LDLo 420 mg/kg. (6)

Aquatic life (96 hr. TLm) range -7.5-56 mg/L; 10-100 ppm (2) Aesthetics; 32ppm (Fathead) (5); bluegill 12ppm (3)

Humans oral-hmn TDLo 14 mg/kg Effect on: Gastrointestinal tract; oral-hmn LDLo 140 mg/kg (6)

Chronic Toxicity Kidney, nerve and liver damage, convulsions, hormonal imbalance.

Carcinogenicity: dermal carc. in mice, several non-conclusive studies in mice and G. Pig. (1) Skn-mouse TDLo 4000 mg/kg/20W= Car. (6)

Mutagenicity: Yes (bacteria) (4)

Teratogenicity:

Persistance: rapid biodegradation

Bioaccumulation:

Recommendations for CMR Included on list; moderate mammal tox, aesthetics, mutagenics

References

1. SRI
2. RTECS, 1975
3. Determ. of Harmful Quant.
4. McCann et.al (1975) PNAS 72: 5135
5. Acute tox. of selected [illegible]

TOXIC MATERIALS SECTION
Critical Materials Register Chemical Evaluation

Compound Toluene

Synonyms phenylmethane, methylbenzene

General Description colorless or straw colored, insol. in water, highly flammable; used in aviation gasoline, raw material for organic synthesis, solvent and many others

Production Volume (million pounds / year)

National 6,640[5] Michigan

Acute Toxicity:

Mammals (LD_{50}) oral, rat = 5g/Kg[1]

Aquatic life (96 hr. TLm) 10-100 ppm[1,2], sunfish = 63 ppm (1hr)[4] 1180 ppm (mosquito fish)[2]; 23 ppm (goldfish)[6]

Humans Acute poisoning is rare; 200 ppm or less in air produces no symptoms

Chronic Toxicity

Carcinogenicity: Rat, 590 mg/Kg/day → NEGATIVE[4]

Mutagenicity:
Teratogenicity:
Persistance: No[3]
Bioaccumulation: No[3]
Recommendations for CMR Excluded from list; low mammal and aquatic tox

References

1. RTECS, 1975
2. Water Quality Criteria, 1971.
3. Determ. of Harmful Quant---, EPA, Jan 1975
4. W&C, VI, 1970
5. SRI
6. Water Res 10: 165 '76

CHEMICAL EVALUATION

Compound Styrene Date

Synonyms

Request Source

Reason for inquiry

Summary of hazards:

Recommendations:

Physical and Chemical Characteristics:

Formula Structure $C_6H_5CH:CH_2$ Chemical Abstract Service Number 100-42-5

Melting Point -30.63°C

Boiling Point 146

State Colorless oily liquid Odor aromatic

Specific Gravity .9 Flash Point 88°F

Solubility very slightly Sol (2) in Water ; Sol. in Alcohol + ether

Other

Auto ignition temp 914°F , Dangerous fire risk

Uses:

Production Volume/Location:

Acute Toxicity:

Terrestrial life: Oral-rat LD_{50} 5gm/kg

Aquatic life: Fish Tox. Crit. Conc. 25 mg/l ; Aesthetic Crit. Conc. 0.1 mg/l
Tl m 100-10 ppm (4)

7. Humans: Tolerance 100 ppm - air (3)
8 Inhal-human LCLo 10,000 ppm / 30 min (4)
Affects CNS (4)

Terrestrial life:

Aquatic life:

Humans:

Carcinogenicity:

Mutagenicity:

Teratogenicity:

Environmental Disposition:

Bioaccumulation: No (1)

Persistance: No (1)

Degradation Products:

Metabolism:

Other Effects:

References:

1. Det. of Harm. Quant.
2. Control of Spillage
3. Cond. Chem. Dictionary
4. RTECS 1976
5.
6.
7.
8.
9.
10.

CHEMICAL EVALUATION

Compound Polyols Date

Synonyms Polyhydric alcohols, glycerols, sugar alcohols

Request Source

Reason for inquiry

Summary of hazards:

Recommendations:

Physical and Chemical Characteristics:

Formula
Structure

Chemical Abstract Service Number

Melting Point

Boiling Point

State
Specific Gravity
Solubility
Other

Odor
Flash Point

Uses:

Production Volume/Location:

Acute Toxicity:

Terrestrial life:

Aquatic life: Glycerol: appears to exert no chemical effects other than oxygen demand arising from decomposition. Tetrahymena survive a 16 Hour exposure to 100,000 mg/l without apparent harm.

Humans:

TOXIC MATERIALS SECTION

CHEMICAL EVALUATION

Compound Chloramines Date

Synonyms monochloramine, dichloramine, trichloramine, ~~Chloramine-T~~

Request Source

Reason for inquiry

Summary of hazards:

Recommendations:

Physical and Chemical Characteristics:

Formula
Structure

Chemical Abstract Service Number

Melting Point -66°C

Boiling Point

State Colorless Odor pungent
Specific Gravity Flash Point
Solubility Sol. in Water, Sol. in alcohol + ether
Other

Uses: used to provide disinfection of water w/o chlorine taste, also occur in municipal sewage works (1)

Production Volume/Location:

Acute Toxicity:
Terrestrial life:

Aquatic life: More toxic to fish than free chlorine, 0.4 mg/l kills adult fish 0.06 mg/l lethal to Trout fry; 0.4 mg/l killed Sunfish + bullheads, 0.76 mg/l killed hardy minnows; 1.2 mg/l killed large Carp
Critical level for 72 exposure 0.1 mg/l
TC Daphnia 48 hrs 4 mg/l;
~~5 mg/l of chlor. T killed Daphnia~~. (1)

Humans:

Aquatic life:

Humans:

Carcinogenicity:

Mutagenicity:

Teratogenicity:

Environmental Disposition:

Bioaccumulation:

Persistance:

Degradation Products: Slowly decomp in dilute solut. → N + HCl + ammonium chloride (?)

Metabolism:

Other Effects:

References:

1. WQC (Calif) 1963
2. Condensed Chem Dictionary
3.
4.
5.
6.
7.
8.
9.
10.

TOXIC MATERIALS SECTION

CHEMICAL EVALUATION

Compound Chloramines Date

Synonyms monochloramine, dichloramine, trichloramine, Chloramine-T.

Request Source

Reason for inquiry

Summary of hazards:

Recommendations:

Physical and Chemical Characteristics:

Formula
Structure

Chemical Abstract Service Number

Melting Point -66°C

Boiling Point

State Colorless Odor pungent
Specific Gravity Flash Point
Solubility Sol. in Water, Sol. in alcohol + ether
Other

Uses: used to provide disinfection of water w/o chlorine taste, also occur in municipal sewage works (1)

Production Volume/Location:

Acute Toxicity:
Terrestrial life:

Aquatic life: More toxic to fish than free chlorine, 0.4 mg/l kills adult fish 0.06 mg/l lethal to Trout fry; 0.4 mg/l killed Sunfish + bullheads, 0.76 mg/l killed hardy minnows; 1.2 mg/l killed large carp
Critical level for 72 exposure 0.1 mg/l
TC Daphnia 48 hrs 4 mg/l;
~~Toxic of Chlor. T killed Daphnia~~. (1)

Humans:

Aquatic life:

Humans:

Carcinogenicity:

Mutagenicity:

Teratogenicity:

Environmental Disposition:

Bioaccumulation:

Persistance:

Degradation Products: Slowly decomp in dilute solut. → N + HCl + ammonium chloride (?)

Metabolism:

Other Effects:

References:

1. WQC (Calif) 1963
2. Condensed Chem Dictionary
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