ETHYLENE CHLOROHYDRIN

ECH

CAUTIONARY RESPONSE INFORMATION

Common Synonyms
2-Chlorethanol
2-Chloroethanol
2-Chloroethyl alcohol
Ethylene chlorhydrin
Glycol chlorohydrin

Liquid | Colorless | Faint sweet pleasant odor

Mixes with water. Irritating vapor is produced.

Keep people away.
Avoid inhalation.
Stay upwind. Use water spray to ``knock down'' vapor.
Call fire department.
Notify local health and pollution control agencies.
Protect water intakes.

Fire

Combustible.
POISONOUS GASES MAY BE PRODUCED IN FIRE.
Extinguish with water, dry chemicals, alcohol foam, or carbon dioxide.

Exposure

Call for medical aid.

VAPOR
Irritating to eyes, nose and throat.
If inhaled will cause coughing or difficult breathing.
Move victim to fresh air.
If breathing has stopped, give artificial respiration.
If breathing is difficult, give oxygen.

LIQUID
Irritating to skin and eyes.
Harmful if swallowed.
Remove contaminated clothing and shoes.
Flush affected areas with plenty of water.
IF IN EYES, hold eyelids open and flush with plenty of water.
IF SWALLOWED, and victim is CONSCIOUS, have victim drink water or milk.
DO NOT INDUCE VOMITING.

Water Pollution

Effect of low concentrations on aquatic life is unknown.
May be dangerous if it enters water intakes.
Notify local health and wildlife officials.
Notify operators of nearby water intakes.

1. CORRECTIVE RESPONSE ACTIONS

Dilute and disperse
Stop discharge
Do not burn

2. CHEMICAL DESIGNATIONS

2.1 CG Compatibility Group: 20; Alcohol, glycol
2.2 Formula: $ClCH_2CH_2OH$
2.3 IMO/UN Designation: 3.3/1135
2.4 DOT ID No.: 1135
2.5 CAS Registry No.: 107-07-3
2.6 NAERG Guide No.: 131
2.7 Standard Industrial Trade Classification: 51219

3. HEALTH HAZARDS

3.1 Personal Protective Equipment: Organic canister mask or self-contained breathing apparatus; goggles or face shield; rubber gloves.
3.2 Symptoms Following Exposure: Inhalation causes irritation of upper respiratory system, nausea, headache, delirium, coma, collapse. Liquid causes irritation of eyes and skin; prolonged contact with skin may allow penetration into body and cause same symptoms as following ingestion or inhalation. Ingestion causes nausea, headache, delirium, coma, and collapse.
3.3 Treatment of Exposure: INHALATION: remove from exposure; give artificial respiration if breathing has stopped; call physician. EYES: flush with water for at least 15 min.; get medical attention if irritation persists. SKIN: wash off with copious amounts of water; call physician if contact has been prolonged. INGESTION: give large amounts of water; get medical attention.
3.4 TLV-TWA: Not listed.
3.5 TLV-STEL: Not listed.
3.6 TLV-Ceiling: 1 ppm
3.7 Toxicity by Ingestion: Grade 3; oral LD_{50} = 71 mg/kg (rat)
3.8 Toxicity by Inhalation: Currently not available.
3.9 Chronic Toxicity: Damage to central nervous system and liver in humans
3.10 Vapor (Gas) Irritant Characteristics: Currently not available
3.11 Liquid or Solid Characteristics: Currently not available
3.12 Odor Threshold: Currently not available
3.13 IDLH Value: 7 ppm
3.14 OSHA PEL-TWA: 5 ppm.
3.15 OSHA PEL-STEL: Not listed.
3.16 OSHA PEL-Ceiling: Not listed.
3.17 EPA AEGL: Not listed

4. FIRE HAZARDS

4.1 Flash Point: 139°F O.C.
4.2 Flammable Limits in Air: 4.9%-15.9%
4.3 Fire Extinguishing Agents: Water, alcohol foam, dry chemical, or carbon dioxide
4.4 Fire Extinguishing Agents Not to Be Used: Not pertinent
4.5 Special Hazards of Combustion Products: Toxic hydrogen chloride and phosgene fumes may be formed.
4.6 Behavior in Fire: Vapors are heavier than air and may flash back to a source of ignition.
4.7 Auto Ignition Temperature: 797°F
4.8 Electrical Hazards: Currently not available
4.9 Burning Rate: 1.7 mm/min.
4.10 Adiabatic Flame Temperature: Currently not available
4.11 Stoichometric Air to Fuel Ratio: 11.9 (calc.)
4.12 Flame Temperature: Currently not available
4.13 Combustion Molar Ratio (Reactant to Product): 5.0 (calc.)
4.14 Minimum Oxygen Concentration for Combustion (MOCC): Not listed

5. CHEMICAL REACTIVITY

5.1 Reactivity with Water: No reaction
5.2 Reactivity with Common Materials: No reaction
5.3 Stability During Transport: Stable
5.4 Neutralizing Agents for Acids and Caustics: Not pertinent
5.5 Polymerization: Not pertinent
5.6 Inhibitor of Polymerization: Not pertinent

6. WATER POLLUTION

6.1 Aquatic Toxicity: Currently not available
6.2 Waterfowl Toxicity: Currently not available
6.3 Biological Oxygen Demand (BOD): 0.50 lb/lb, 10 days
6.4 Food Chain Concentration Potential: None
6.5 GESAMP Hazard Profile:
Bioaccumulation: 0
Damage to living resources: 2
Human Oral hazard: 2
Human Contact hazard: II
Reduction of amenities: XX

7. SHIPPING INFORMATION

7.1 Grades of Purity: 99+%
7.2 Storage Temperature: Ambient
7.3 Inert Atmosphere: No requirement
7.4 Venting: Open (flame arrester)
7.5 IMO Pollution Category: C
7.6 Ship Type: 2
7.7 Barge Hull Type: 1

8. HAZARD CLASSIFICATIONS

8.1 49 CFR Category: Poison
8.2 49 CFR Class: 6.1
8.3 49 CFR Package Group: I
8.4 Marine Pollutant: No
8.5 NFPA Hazard Classification:

Category	Classification
Health Hazard (Blue).....	3
Flammability (Red).....	2
Instability (Yellow).....	0

8.6 EPA Reportable Quantity: Not listed.
8.7 EPA Pollution Category: Not listed.
8.8 RCRA Waste Number: Not listed
8.9 EPA FWPCA List: Not listed

9. PHYSICAL & CHEMICAL PROPERTIES

9.1 Physical State at 15° C and 1 atm: Liquid
9.2 Molecular Weight: 80.51
9.3 Boiling Point at 1 atm: 263.7°F = 128.7°C = 401.9°K
9.4 Freezing Point: –80.7°F = –62.6°C = 210.6°K
9.5 Critical Temperature: Not pertinent
9.6 Critical Pressure: Not pertinent
9.7 Specific Gravity: 1.197 at 20°C (liquid)
9.8 Liquid Surface Tension: Currently not available
9.9 Liquid Water Interfacial Tension: Not pertinent
9.10 Vapor (Gas) Specific Gravity: 2.8
9.11 Ratio of Specific Heats of Vapor (Gas): Currently not available
9.12 Latent Heat of Vaporization: 221 Btu/lb = 123 cal/g = 5.15 X 10^5 J/kg
9.13 Heat of Combustion: –6,487 Btu/lb = –3,604 cal/g = –150.8 X 10^5 J/kg
9.14 Heat of Decomposition: Not pertinent
9.15 Heat of Solution: Not pertinent
9.16 Heat of Polymerization: Not pertinent
9.17 Heat of Fusion: Currently not available
9.18 Limiting Value: Currently not available
9.19 Reid Vapor Pressure: Currently not available

NOTES

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9.20 SATURATED LIQUID DENSITY		9.21 LIQUID HEAT CAPACITY		9.22 LIQUID THERMAL CONDUCTIVITY		9.23 LIQUID VISCOSITY	
Temperature (degrees F)	Pounds per cubic foot	Temperature (degrees F)	British thermal unit per pound-F	Temperature (degrees F)	British thermal unit inch per hour-square foot-F	Temperature (degrees F)	Centipoise
35	75.980	65	0.451	51	1.048	52	4.323
40	75.790	70	0.453	52	1.048	54	4.196
45	75.599	75	0.454	53	1.048	56	4.074
50	75.410	80	0.456	54	1.048	58	3.956
55	75.209	85	0.458	55	1.048	60	3.842
60	75.020	90	0.460	56	1.048	62	3.732
65	74.830	95	0.462	57	1.048	64	3.627
70	74.639	100	0.463	58	1.048	66	3.525
75	74.450	105	0.465	59	1.048	68	3.426
80	74.259	110	0.467	60	1.048	70	3.331
85	74.070	115	0.469	61	1.048	72	3.240
90	73.879	120	0.471	62	1.048	74	3.151
95	73.690	125	0.472	63	1.048	76	3.066
100	73.500	130	0.474	64	1.048	78	2.984
105	73.309			65	1.048	80	2.904
110	73.120			66	1.048	82	2.827
115	72.929			67	1.048	84	2.753
120	72.740			68	1.048	86	2.681
						88	2.611
						90	2.544
						92	2.479
						94	2.416

9.24 SOLUBILITY IN WATER		9.25 SATURATED VAPOR PRESSURE		9.26 SATURATED VAPOR DENSITY		9.27 IDEAL GAS HEAT CAPACITY	
Temperature (degrees F)	Pounds per 100 pounds of water	Temperature (degrees F)	Pounds per square inch	Temperature (degrees F)	Pounds per cubic foot	Temperature (degrees F)	British thermal unit per pound-F
	M	60	0.073	60	0.00105		N
	I	70	0.103	70	0.00147		O
	S	80	0.146	80	0.00203		T
	C	90	0.203	90	0.00277		
	I	100	0.279	100	0.00374		P
	B	110	0.379	110	0.00499		E
	L	120	0.510	120	0.00660		R
	E	130	0.679	130	0.00864		T
		140	0.896	140	0.01120		I
		150	1.171	150	0.01440		N
		160	1.517	160	0.01836		E
		170	1.950	170	0.02322		N
		180	2.486	180	0.02915		T
		190	3.146	190	0.03632		
		200	3.954	200	0.04495		
		210	4.935	210	0.05527		
		220	6.119	220	0.06752		
		230	7.540	230	0.08199		
		240	9.235	240	0.09900		
		250	11.250	250	0.11890		
		260	13.620	260	0.14200		