

ETHYLENE DICHLORIDE

EDC

CAUTIONARY RESPONSE INFORMATION

Common Synonyms Brocide 1,2-Dichloroethane Dutch liquid EDC Ethylene chloride Glycol dichloride	Liquid Colorless Sweet odor Sinks in water. Flammable, irritating vapor is produced.
Keep people away. Avoid contact with liquid and vapor. Avoid inhalation. Wear goggles, self-contained breathing apparatus, and rubber overclothing (including gloves). Shut off ignition sources and call fire department. Stay upwind and use water spray to "knock down" vapor. Notify local health and pollution control agencies. Protect water intakes.	
Fire	FLAMMABLE. POISONOUS GASES ARE PRODUCED IN FIRE. Flashback along vapor trail may occur. Vapor may explode if ignited in an enclosed area. Wear goggles, self-contained breathing apparatus, and rubber overclothing (including gloves). Extinguish with dry chemical, foam, or carbon dioxide. Water may be ineffective on fire. Cool exposed containers with water.
Exposure	CALL FOR MEDICAL AID. VAPOR Irritating to eyes, nose and throat. If inhaled, will cause nausea, dizziness or difficult breathing. Move to fresh air. If breathing has stopped, give artificial respiration. If breathing is difficult, give oxygen. LIQUID Will burn 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 and have victim induce vomiting. IF SWALLOWED and victim is UNCONSCIOUS OR HAVING CONVULSIONS, do nothing except keep victim warm.
Water Pollution	Dangerous to aquatic life in high concentrations. May be dangerous if it enters water intakes. Notify local health and wildlife officials. Notify operators of nearby water intakes.

1. CORRECTIVE RESPONSE ACTIONS

Stop discharge
Collection Systems: Pump; Dredge
Do not burn

2. CHEMICAL DESIGNATIONS

- 2.1 **CG Compatibility Group:** 36; Halogenated hydrocarbon
2.2 **Formula:** C₂H₂Cl₂
2.3 **IMO/UN Designation:** 3.2/1184
2.4 **DOT ID No.:** 1184
2.5 **CAS Registry No.:** 107-06-2
2.6 **NAERG Guide No.:** 129
2.7 **Standard Industrial Trade Classification:** 51135

3. HEALTH HAZARDS

- 3.1 **Personal Protective Equipment:** Clean, body-covering clothing and safety glasses with side shields.
Respiratory protection: up to 50 ppm, none; 50 ppm to 2%, 1/2 hr or less, full face mask and canister; greater than 2%, self-contained breathing apparatus.
- 3.2 **Symptoms Following Exposure:** Inhalation of vapors causes nausea, drunkenness, depression.
Contact of liquid with eyes may produce corneal injury. Prolonged contact with skin may cause a burn.
- 3.3 **Treatment of Exposure:** INHALATION: if victim is overcome, remove him to fresh air, keep him quiet and warm, and get medical attention immediately; if breathing stops, give artificial respiration.
INGESTION: induce vomiting; call a physician; treat the symptoms. EYES: flush immediately with copious amounts of flowing water for at least 15 min. SKIN: remove clothing and wash skin thoroughly with soap and water; wash contaminated clothing before reuse.
- 3.4 **TLV-TWA:** 10 ppm
3.5 **TLV-STEL:** Not listed.
3.6 **TLV-Ceiling:** Not listed.
3.7 **Toxicity by Ingestion:** Grade 2; LD₅₀ = 0.5 to 5 g/kg (rat)
3.8 **Toxicity by Inhalation:** Currently not available.
3.9 **Chronic Toxicity:** Currently not available
3.10 **Vapor (Gas) Irritant Characteristics:** Vapors cause moderate irritation such that personnel will find high concentrations unpleasant. The effect is temporary.
3.11 **Liquid or Solid Characteristics:** Causes smarting of the skin and first-degree burns on short exposure; may cause secondary burns on long exposure.
3.12 **Odor Threshold:** 100 ppm
3.13 **IDLH Value:** 50 ppm
3.14 **OSHA PEL-TWA:** 50 ppm
3.15 **OSHA PEL-STEL:** 200 ppm 5 minute peak in any 3 hours
3.16 **OSHA PEL-Ceiling:** 100 ppm
3.17 **EPA AEGL:** Not listed

4. FIRE HAZARDS

- 4.1 **Flash Point:** 60°F O.C. 55°F C.C.
4.2 **Flammable Limits in Air:** 6.2%-15.6%
4.3 **Fire Extinguishing Agents:** Foam, carbon dioxide, dry chemical
4.4 **Fire Extinguishing Agents Not to Be Used:** Water may be ineffective.
4.5 **Special Hazards of Combustion Products:** Toxic and irritating gases (hydrogen chloride, phosgene) are generated.
4.6 **Behavior in Fire:** Vapor is heavier than air and may travel considerable distance to a source of ignition and flash back.
4.7 **Auto Ignition Temperature:** 775°F
4.8 **Electrical Hazards:** Class I, group D
4.9 **Burning Rate:** 1.6 mm/min
4.10 **Adiabatic Flame Temperature:** Currently not available
4.11 **Stoichiometric 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):** N₂ diluent: 11.5-13.0%

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:**
150 ppm*/pin perch/TL₅₀/salt water
*Time period not specified.
6.2 **Waterfowl Toxicity:** Currently not available
6.3 **Biological Oxygen Demand (BOD):**
0.002 lb/lb, 5 days
6.4 **Food Chain Concentration Potential:**
None
6.5 **GESAMP Hazard Profile:**
Bioaccumulation: 0
Damage to living resources: 1
Human Oral hazard: 1
Human Contact hazard: 1
Reduction of amenities: X

7. SHIPPING INFORMATION

- 7.1 **Grades of Purity:** Commercial
7.2 **Storage Temperature:** Ambient
7.3 **Inert Atmosphere:** No requirement
7.4 **Venting:** Pressure-vacuum
7.5 **IMO Pollution Category:** B
7.6 **Ship Type:** 2
7.7 **Barge Hull Type:** 3

8. HAZARD CLASSIFICATIONS

- 8.1 **49 CFR Category:** Flammable liquid
8.2 **49 CFR Class:** 3
8.3 **49 CFR Package Group:** II
8.4 **Marine Pollutant:** Yes
8.5 **NFPA Hazard Classification:**

Category	Classification
Health Hazard (Blue).....	2
Flammability (Red).....	3
Instability (Yellow).....	1

8.6 **EPA Reportable Quantity:** 100 pounds
8.7 **EPA Pollution Category:** B
8.8 **RCRA Waste Number:** U077
8.9 **EPA FWPCA List:** Yes

9. PHYSICAL & CHEMICAL PROPERTIES

- 9.1 **Physical State at 15° C and 1 atm:** Liquid
9.2 **Molecular Weight:** 98.96
9.3 **Boiling Point at 1 atm:** 182.3°F = 83.5°C = 356.7°K
9.4 **Freezing Point:** -32.3°F = -35.7°C = 237.5°K
9.5 **Critical Temperature:** 550.4°F = 288°C = 561.2°K
9.6 **Critical Pressure:** 735 psia = 50 atm = 5.1 MN/m²
9.7 **Specific Gravity:** 1.253 at 20°C (liquid)
9.8 **Liquid Surface Tension:** 32.2 dynes/cm = 0.0322 N/m at 20°C
9.9 **Liquid Water Interfacial Tension:** (est.) 30 dynes/cm = 0.03 N/m at 25°C
9.10 **Vapor (Gas) Specific Gravity:** 3.4
9.11 **Ratio of Specific Heats of Vapor (Gas):** 1.118
9.12 **Latent Heat of Vaporization:** 138 Btu/lb = 76.4 cal/g = 3.2 X 10⁵ J/kg
9.13 **Heat of Combustion:** (est.) 3400 Btu/lb
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:** 21.12 cal/g
9.18 **Limiting Value:** Currently not available
9.19 **Reid Vapor Pressure:** 2.7 psia

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	79.879	0	0.283	0	0.990	35	1.098
40	79.629	10	0.285	10	0.982	40	1.054
45	79.379	20	0.288	20	0.974	45	1.013
50	79.129	30	0.290	30	0.965	50	0.975
55	78.879	40	0.293	40	0.957	55	0.938
60	78.620	50	0.296	50	0.949	60	0.904
65	78.370	60	0.298	60	0.941	65	0.871
70	78.120	70	0.301	70	0.933	70	0.840
75	77.860	80	0.303	80	0.924	75	0.811
80	77.599	90	0.306	90	0.916	80	0.784
85	77.349	100	0.309	100	0.908	85	0.758
90	77.089	110	0.311	110	0.900	90	0.733
95	76.830	120	0.314	120	0.892	95	0.709
100	76.570	130	0.317	130	0.883	100	0.687
105	76.309	140	0.319	140	0.875	105	0.665
110	76.049	150	0.322	150	0.867	110	0.645
115	75.790	160	0.324	160	0.859	115	0.625
120	75.520	170	0.327	170	0.850	120	0.607
125	75.259					125	0.589
130	74.990					130	0.573
135	74.730					135	0.556
140	74.459					140	0.541
145	74.190					145	0.526
150	73.919					150	0.512
155	73.660					155	0.499
160	73.379					160	0.486

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
68	0.800	15	0.231	15	0.00449	0	0.177
		20	0.274	20	0.00526	25	0.182
		25	0.323	25	0.00614	50	0.187
		30	0.380	30	0.00715	75	0.191
		35	0.445	35	0.00830	100	0.195
		40	0.520	40	0.00960	125	0.200
		45	0.606	45	0.01108	150	0.204
		50	0.704	50	0.01274	175	0.208
		55	0.816	55	0.01461	200	0.212
		60	0.942	60	0.01671	225	0.217
		65	1.085	65	0.01907	250	0.221
		70	1.246	70	0.02169	275	0.225
		75	1.428	75	0.02462	300	0.229
		80	1.632	80	0.02788	325	0.232
		85	1.860	85	0.03149	350	0.236
		90	2.116	90	0.03548	375	0.240
		95	2.401	95	0.03990	400	0.244
		100	2.718	100	0.04477	425	0.247
						450	0.251
						475	0.254
						500	0.258
						525	0.261
						550	0.265
						575	0.268
						600	0.271