

ETHYL CHLORIDE

ECL

CAUTIONARY RESPONSE INFORMATION

Common Synonyms Chloroethane Ether, hydrochloric Monochloroethane		Liquid	Colorless	Pleasant odor
		Floats and may boil on water. Flammable, irritating vapor is produced. Boiling point is 54°F.		
<p>Evacuate. Keep people away. Avoid inhalation. Shut off ignition sources and call fire department. Avoid contact with liquid. Stay upwind and use water spray to "knock down" vapor. Notify local health and pollution control agencies. Protect water intakes.</p>				
Fire	<p>FLAMMABLE. Flashback along vapor trail may occur. Vapor may explode if ignited in an enclosed area. Wear goggles and self-contained breathing apparatus. Stop flow of gas or liquid if possible. Cool exposed containers and men effecting shutoff with water. Let fire burn.</p>			
Exposure	<p>CALL FOR MEDICAL AID.</p> <p>VAPOR Irritating to eyes, nose and throat. If inhaled, will cause dizziness or loss of consciousness. Move to fresh air. If breathing has stopped, give artificial respiration. If breathing is difficult, give oxygen.</p> <p>LIQUID Irritating to skin and eyes. Will cause frostbite. Flush affected areas with plenty of water. IF IN EYES, hold eyelids open and flush with plenty of water. DO NOT RUB AFFECTED AREAS.</p>			
Water Pollution	Not harmful to aquatic life. May be dangerous if it enters water intakes. Notify operators of nearby water intakes.			

1. CORRECTIVE RESPONSE ACTIONS

Stop discharge

2. CHEMICAL DESIGNATIONS

- 2.1 **CG Compatibility Group:** 36; Halogenated hydrocarbon
- 2.2 **Formula:** C₂H₅Cl
- 2.3 **IMO/UN Designation:** 2.0/1037
- 2.4 **DOT ID No.:** 1037
- 2.5 **CAS Registry No.:** 75-00-3
- 2.6 **NAERG Guide No.:** 115
- 2.7 **Standard Industrial Trade Classification:** 51136

3. HEALTH HAZARDS

- 3.1 **Personal Protective Equipment:** Neoprene rubber clothing where liquid contact is likely; chemical worker's goggles. **RESPIRATORY PROTECTION:** for 1000 ppm to 2% for 1/2 hr or less, full face mask and organic vapor canister; for greater levels, self-contained breathing apparatus or equivalent.
- 3.2 **Symptoms Following Exposure:** Vapor causes drunkenness, anesthesia, possible lung injury. Liquid may cause frostbite on eyes and skin.
- 3.3 **Treatment of Exposure:** **INHALATION:** get person to fresh air, keep warm and quiet. Get medical attention. **SKIN:** treat frostbite.
- 3.4 **TLV-TWA:** 100 ppm
- 3.5 **TLV-STEL:** Not listed.
- 3.6 **TLV-Ceiling:** Not listed.
- 3.7 **Toxicity by Ingestion:** Not pertinent
- 3.8 **Toxicity by Inhalation:** Currently not available.
- 3.9 **Chronic Toxicity:** Currently not available
- 3.10 **Vapor (Gas) Irritant Characteristics:** Vapors cause a slight smarting of the eyes or respiratory system if present in high concentrations. The effect is temporary.
- 3.11 **Liquid or Solid Characteristics:** Minimum hazard. If spilled on clothing and allowed to remain, may cause smarting and reddening of the skin.
- 3.12 **Odor Threshold:** Currently not available
- 3.13 **IDLH Value:** 3,800 ppm
- 3.14 **OSHA PEL-TWA:** 1,000 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:** -45°F O.C. -58°F C.C.
- 4.2 **Flammable Limits in Air:** 3.6%-12%
- 4.3 **Fire Extinguishing Agents:** Water fog, carbon dioxide, dry chemical. For large fires it is best to allow material to burn while cooling surrounding equipment. Stop flow of ethyl chloride.
- 4.4 **Fire Extinguishing Agents Not to Be Used:** Not pertinent
- 4.5 **Special Hazards of Combustion**
Products: Toxic and irritating gases are generated in fires.
- 4.6 **Behavior in Fire:** Containers may explode.
- 4.7 **Auto Ignition Temperature:** 966°F
- 4.8 **Electrical Hazards:** Not pertinent
- 4.9 **Burning Rate:** 3.8 mm/min.
- 4.10 **Adiabatic Flame Temperature:** Currently not available
- 4.11 **Stoichiometric Air to Fuel Ratio:** 14.3 (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: 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:** Currently not available
- 6.2 **Waterfowl Toxicity:** Currently not available
- 6.3 **Biological Oxygen Demand (BOD):** Currently not available
- 6.4 **Food Chain Concentration Potential:** None
- 6.5 **GESAMP Hazard Profile:** Not listed

7. SHIPPING INFORMATION

- 7.1 **Grades of Purity:** Technical: 98-100%; USP: 100%
- 7.2 **Storage Temperature:** Ambient
- 7.3 **Inert Atmosphere:** No requirement
- 7.4 **Venting:** Safety relief
- 7.5 **IMO Pollution Category:** Currently not available
- 7.6 **Ship Type:** 2
- 7.7 **Barge Hull Type:** 2

8. HAZARD CLASSIFICATIONS

- 8.1 **49 CFR Category:** Flammable gas
- 8.2 **49 CFR Class:** 2.1
- 8.3 **49 CFR Package Group:** Not pertinent.
- 8.4 **Marine Pollutant:** No
- 8.5 **NFPA Hazard Classification:**

Category	Classification
Health Hazard (Blue).....	2
Flammability (Red).....	4
Instability (Yellow).....	0
- 8.6 **EPA Reportable Quantity:** 100 pounds
- 8.7 **EPA Pollution Category:** B
- 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:** Gas
- 9.2 **Molecular Weight:** 64.52
- 9.3 **Boiling Point at 1 atm:** 54.0°F = 12.2°C = 285.4°K
- 9.4 **Freezing Point:** -213°F = -136°C = 137°K
- 9.5 **Critical Temperature:** 369.0°F = 187.2°C = 460.4°K
- 9.6 **Critical Pressure:** 758 psia = 51.6 atm = 5.23 MN/m²
- 9.7 **Specific Gravity:** 0.906 at 12.2°C (liquid)
- 9.8 **Liquid Surface Tension:** 19.5 dynes/cm = 0.0195 N/m at 20°C
- 9.9 **Liquid Water Interfacial Tension:** (est.) 40 dynes/cm = 0.04 N/m at 0°C
- 9.10 **Vapor (Gas) Specific Gravity:** 2.2
- 9.11 **Ratio of Specific Heats of Vapor (Gas):** 1.155
- 9.12 **Latent Heat of Vaporization:** 163 Btu/lb = 90.6 cal/g = 3.79 X 10⁵ J/kg
- 9.13 **Heat of Combustion:** -8100 Btu/lb = -4500 cal/g = -188.4 X 10⁵ 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:** 16.49 cal/g
- 9.18 **Limiting Value:** Currently not available
- 9.19 **Reid Vapor Pressure:** 34.5 psia

NOTES

ETHYL CHLORIDE

ECL

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
C U R R E N T L Y N O T A V A I L A B L E		-20	0.299	28	0.880	15	0.364
		-15	0.305	30	0.878	20	0.354
		-10	0.312	32	0.876	25	0.345
		-5	0.319	34	0.875	30	0.336
		0	0.325	36	0.873	35	0.328
		5	0.332	38	0.871	40	0.320
		10	0.339	40	0.869	45	0.312
		15	0.345	42	0.868	50	0.305
		20	0.352	44	0.866		
		25	0.359	46	0.864		
		30	0.365	48	0.863		
		35	0.372	50	0.861		
		40	0.379	52	0.859		
		45	0.385	54	0.858		
		50	0.392				

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	0.600	-35	1.419	-35	0.02008	0	0.207
		-30	1.659	-30	0.02320	25	0.215
		-25	1.932	-25	0.02671	50	0.223
		-20	2.242	-20	0.03065	75	0.231
		-15	2.594	-15	0.03506	100	0.239
		-10	2.991	-10	0.03997	125	0.247
		-5	3.438	-5	0.04544	150	0.254
		0	3.939	0	0.05151	175	0.262
		5	4.501	5	0.05822	200	0.269
		10	5.129	10	0.06563	225	0.277
		15	5.828	15	0.07379	250	0.284
		20	6.604	20	0.08275	275	0.291
		25	7.465	25	0.09257	300	0.298
		30	8.416	30	0.10330	325	0.305
		35	9.466	35	0.11500	350	0.311
		40	10.620	40	0.12780	375	0.318
		45	11.890	45	0.14160	400	0.324
		50	13.280	50	0.15670	425	0.331
		55	14.810	55	0.17290	450	0.337
		60	16.470	60	0.19050	475	0.343
		65	18.290	65	0.20950	500	0.349
		70	20.260	70	0.22990	525	0.355
		75	22.400	75	0.25180	550	0.360
		80	24.730	80	0.27540	575	0.366
		85	27.240	85	0.30060	600	0.372