

# 1,1-DICHLOROETHANE

DCH

## CAUTIONARY RESPONSE INFORMATION

<b>Common Synonyms</b> Chlorinated hydrochloric ether Ethylidene chloride Ethylidene dichloride		Oily liquid	Colorless	Chloroform like etheral
Sinks and mixes with water.				
<p>Evacuate. Keep people away. Wear goggles, self-contained breathing apparatus, and rubber overclothing (including gloves). Shut off ignition sources and call fire department. Avoid contact with liquid. Notify local health and pollution control agencies. Protect water intakes.</p>				
<b>Fire</b>	<p>Flammable. POISONOUS GAS MAY BE PRODUCED IN FIRE OR WHEN HEATED. Containers may explode in fire. Wear goggles and self-contained breathing apparatus. Extinguish with alcohol foam, carbon dioxide, or dry chemical. Water may be ineffective on fire.</p>			
<b>Exposure</b>	<p>CALL FOR MEDICAL AID.</p> <p>LIQUID If swallowed may cause nausea, vomiting and faintness. Irritating to skin and eyes. 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 induce vomiting.</p>			
<b>Water Pollution</b>	<p>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.</p>			

### 1. CORRECTIVE RESPONSE ACTIONS

Stop discharge  
Contain  
Collection Systems: Pump; Dredge  
Do not burn

### 2. CHEMICAL DESIGNATIONS

2.1 **CG Compatibility Group:** 36; Halogenated hydrocarbon  
2.2 **Formula:** C<sub>2</sub>H<sub>2</sub>Cl<sub>2</sub>  
2.3 **IMO/UN Designation:** Not listed  
2.4 **DOT ID No.:** 2362  
2.5 **CAS Registry No.:** 75-34-3  
2.6 **NAERG Guide No.:** 130  
2.7 **Standard Industrial Trade Classification:** 51138

### 3. HEALTH HAZARDS

- 3.1 **Personal Protective Equipment:** In areas of poor ventilation or high concentration, a self-contained breathing apparatus with full face mask should be worn. Chemical workers goggles, rubber gloves, and protective clothing should be worn.
- 3.2 **Symptoms Following Exposure:** INHALATION: Irritation of respiratory tract. Salivation, sneezing, coughing, dizziness, nausea, and vomiting. EYES: Irritation, lacrimation, and reddening of conjunctiva. SKIN: Irritation. Prolonged or repeated skin contact can produce a slight burn. INGESTION: Ingestion incidental to industrial handling is not considered to be a problem. Swallowing of substantial amounts could cause nausea, vomiting, faintness, drowsiness, cyanosis, and circulatory failure.
- 3.3 **Treatment of Exposure:** Call a doctor. INHALATION: Remove from contaminated area; keep warm and quiet. If breathing has stopped, give artificial respiration. Administer oxygen. EYES: Flush with large amounts of water or weak bicarbonate of soda solution. SKIN: Dilute with large amounts of water. Remove contaminated clothing. INGESTION: Attempt to empty stomach; dilute by administering fluids (tap water, soapy water, salt water, or milk).
- 3.4 **TLV-TWA:** 100 ppm.  
3.5 **TLV-STEL:** Not listed.  
3.6 **TLV-Ceiling:** Not listed.  
3.7 **Toxicity by Ingestion:** Grade 2; LD<sub>50</sub> = 0.5 to 5 g/kg (rat).  
3.8 **Toxicity by Inhalation:** Currently not available.  
3.9 **Chronic Toxicity:** Chronic exposure may cause liver damage and dermatitis. Animal experimentation has shown this compound to be slightly embryo-toxic and to retard fetal development.  
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 skin.  
3.12 **Odor Threshold:** Currently not available  
3.13 **IDLH Value:** 3,000 ppm  
3.14 **OSHA PEL-TWA:** 100 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:** 57°F O.C.  
= 22°F C.C.
- 4.2 **Flammable Limits in Air:** 5.6% to 11.4%
- 4.3 **Fire Extinguishing Agents:** Alcohol foam, water, foam, CO<sub>2</sub>, dry chemical, carbon tetrachloride
- 4.4 **Fire Extinguishing Agents Not to Be Used:** Water may be ineffective
- 4.5 **Special Hazards of Combustion Products:** When heated to decomposition emits highly toxic fumes to phosgene.
- 4.6 **Behavior in Fire:** Explosion hazard
- 4.7 **Auto Ignition Temperature:** 856°F
- 4.8 **Electrical Hazards:** Currently not available
- 4.9 **Burning Rate:** Currently not available
- 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):** Not listed

### 5. CHEMICAL REACTIVITY

- 5.1 **Reactivity with Water:** No reaction
- 5.2 **Reactivity with Common Materials:** Currently not available
- 5.3 **Stability During Transport:** Currently not available
- 5.4 **Neutralizing Agents for Acids and Caustics:** Currently not available
- 5.5 **Polymerization:** Currently not available
- 5.6 **Inhibitor of Polymerization:** Currently not available

### 6. WATER POLLUTION

- 6.1 **Aquatic Toxicity:**  
TL<sub>n</sub> (Marine pinperch) 250 to 275 mg/l 24-hour  
TL<sub>n</sub> Brine shrimp: 320 mg/l 24-hour  
TL<sub>n</sub> Pinperch: 160 mg/l
- 6.2 **Waterfowl Toxicity:** Currently not available
- 6.3 **Biological Oxygen Demand (BOD):**  
Percent, 0.05 g/g for 10 days Percent, 0.002 g/g for 5 days
- 6.4 **Food Chain Concentration Potential:** Currently not available
- 6.5 **GESAMP Hazard Profile:**  
Bioaccumulation: 0  
Damage to living resources: (1)  
Human Oral hazard: 1  
Human Contact hazard: 0  
Reduction of amenities: 0

### 7. SHIPPING INFORMATION

- 7.1 **Grades of Purity:** Currently not available
- 7.2 **Storage Temperature:** Cool
- 7.3 **Inert Atmosphere:** Currently not available
- 7.4 **Venting:** Currently not available
- 7.5 **IMO Pollution Category:** D
- 7.6 **Ship Type:** 3
- 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)..... | 0              |
- 8.6 **EPA Reportable Quantity:** 1000 pounds
- 8.7 **EPA Pollution Category:** C
- 8.8 **RCRA Waste Number:** U076
- 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:** 98.97
- 9.3 **Boiling Point at 1 atm:** 135.14°F = 57.3°C = 330.5°K
- 9.4 **Freezing Point:** -143.32°F = -97.4°C = 175.75°K
- 9.5 **Critical Temperature:** 502.7°F = 261.5°C = 534.7°K
- 9.6 **Critical Pressure:** 734.8 psia = 50 atm = 5.065 MN/m<sup>2</sup>
- 9.7 **Specific Gravity:** 1.174 at 20°C
- 9.8 **Liquid Surface Tension:** 24.75 dynes/cm = 0.02475 N/m at 20°C
- 9.9 **Liquid Water Interfacial Tension:** Currently not available
- 9.10 **Vapor (Gas) Specific Gravity:** 3.42
- 9.11 **Ratio of Specific Heats of Vapor (Gas):** 1.136 at 20°C (68°F)
- 9.12 **Latent Heat of Vaporization:** 131.6 Btu/lb = 73.1 cal/g = 3.06 X 10<sup>5</sup> J/kg
- 9.13 **Heat of Combustion:** -4,774 Btu/lb = -2,652 cal/g = -111 X 10<sup>3</sup> J/kg
- 9.14 **Heat of Decomposition:** Currently not available
- 9.15 **Heat of Solution:** Currently not available
- 9.16 **Heat of Polymerization:** Currently not available
- 9.17 **Heat of Fusion:** Currently not available
- 9.18 **Limiting Value:** Currently not available
- 9.19 **Reid Vapor Pressure:** 7.35 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	75.198		C	35	0.804	35	0.617
40	74.929		U	40	0.799	40	0.595
45	74.660		R	45	0.795	45	0.574
50	74.389		R	50	0.791	50	0.555
55	74.120		E	55	0.786	55	0.537
60	73.851		N	60	0.782	60	0.520
65	73.580		T	65	0.778	65	0.504
70	73.311		L	70	0.773	70	0.489
75	73.042		Y	75	0.769	75	0.475
80	72.771			80	0.765	80	0.462
85	72.502		N	85	0.760	85	0.449
			O	90	0.756	90	0.437
			T	95	0.752	95	0.426
				100	0.747	100	0.415
			A	105	0.743	105	0.405
			V	110	0.739	110	0.395
			A			115	0.386
			I			120	0.377
			L				
			A				
			B				
			L				
			E				

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	0.500	-70	-1.334	-100	0.07407		C
		-60	-1.944	-80	0.05000		U
		-50	-0.555	-60	0.02594		R
		-40	0.835	-40	0.00187		R
		-30	0.225	-20	0.02219		E
		-20	0.386	0	0.04626		N
		-10	0.996	20	0.07032		T
		0	1.607	40	0.09439		L
		10	2.217	60	0.11845		Y
		20	2.827	80	0.14252		
		30	3.438	100	0.16658		N
		40	4.048	120	0.19065		O
		50	4.658	140	0.21471		T
		60	5.269	160	0.23878		
		70	5.879				A
		80	6.489				V
		90	7.100				A
		100	7.710				I
		110	8.321				L
		120	8.931				A
		130	9.541				B
							L
							E