

# 1,2-DICHLOROETHYLENE

DEL

## CAUTIONARY RESPONSE INFORMATION

<b>Common Synonyms</b> Acetylene dichloride trans-1,2-Dichloroethylene cis-1,2-Dichloroethylene sym-Dichloroethylene Dioform			Liquid	Colorless	Sweet pleasant odor
Sinks in water. Flammable, irritating vapor is produced.					
<p><b>Evacuate.</b>  <b>Keep people away.</b>  <b>Wear goggles and self-contained breathing apparatus.</b>  <b>Shut off ignition sources. Call fire department.</b>  <b>Notify local health and pollution control agencies.</b>  <b>Protect water intakes.</b></p>					
<b>Fire</b>	<p><b>FLAMMABLE.</b>  <b>POISONOUS GASES MAY BE PRODUCED IN FIRE.</b>                  Containers may explode in fire.                  Flashback along vapor trail may occur.                  Vapor may explode if ignited in an enclosed area.                  Extinguish with dry chemicals, foam or carbon dioxide.                  Water may be ineffective on fire.                  Cool exposed containers with water.</p>				
<b>Exposure</b>	<p>Call for medical aid.</p> <p><b>VAPOR</b>                  If inhaled will cause dizziness, nausea, vomiting, or difficult breathing.                  Move victim to fresh air.                  If breathing has stopped, give artificial respiration.                  If breathing is difficult, give oxygen.</p> <p><b>LIQUID</b>                  Harmful if swallowed.                  IF SWALLOWED and victim is CONSCIOUS, have victim drink water or milk.</p>				
<b>Water Pollution</b>	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

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

### 2. CHEMICAL DESIGNATIONS

2.1 **CG Compatibility Group:** Not listed.  
 2.2 **Formula:** ClCH = CHCl  
 2.3 **IMO/UN Designation:** 3.2/1150  
 2.4 **DOT ID No.:** 1150  
 2.5 **CAS Registry No.:** 540-59-0  
 2.6 **NAERG Guide No.:** 132P  
 2.7 **Standard Industrial Trade Classification:** 51138

### 3. HEALTH HAZARDS

- 3.1 **Personal Protective Equipment:** Rubber gloves; safety goggles; air supply mask or self-contained breathing apparatus.
- 3.2 **Symptoms Following Exposure:** Inhalation causes nausea, vomiting, weakness, tremor, epigastric cramps, central nervous depression. Contact with liquid causes irritation of eyes and (on prolonged contact) skin. Ingestion causes slight depression to deep narcosis.
- 3.3 **Treatment of Exposure:** INHALATION: remove from further exposure; if breathing is difficult, give oxygen; if victim is not breathing, give artificial respiration, preferably mouth-to-mouth; give oxygen when breathing is resumed; call a physician. EYES: flush with water for at least 15 min. SKIN: wash well with soap and water. INGESTION: give gastric lavage and cathartics.
- 3.4 **TLV-TWA:** 200 ppm  
 3.5 **TLV-STEL:** Not listed.  
 3.6 **TLV-Ceiling:** Not listed.  
 3.7 **Toxicity by Ingestion:** Grade 2; oral LD<sub>50</sub> = 770 mg/kg (rat)  
 3.8 **Toxicity by Inhalation:** Currently not available.  
 3.9 **Chronic Toxicity:** Produces liver and kidney injury in experimental animals.  
 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:** 1,000 ppm  
 3.14 **OSHA PEL-TWA:** 200 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:** 37°F C.C.  
 4.2 **Flammable Limits in Air:** 9.7%-12.8%  
 4.3 **Fire Extinguishing Agents:** Dry chemical, foam, carbon dioxide  
 4.4 **Fire Extinguishing Agents Not to Be Used:** Water may be ineffective.  
 4.5 **Special Hazards of Combustion Products:** Phosgene and hydrogen chloride fumes may form in fires.  
 4.6 **Behavior in Fire:** Vapor is heavier than air and may travel a considerable distance to a source of ignition and flash back.  
 4.7 **Auto Ignition Temperature:** 860°F  
 4.8 **Electrical Hazards:** Currently not available  
 4.9 **Burning Rate:** 2.6 mm/min.  
 4.10 **Adiabatic Flame Temperature:** Currently not available  
 4.11 **Stoichiometric Air to Fuel Ratio:** 9.5 (calc.)  
 4.12 **Flame Temperature:** Currently not available  
 4.13 **Combustion Molar Ratio (Reactant to Product):** 4.0 (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:** Will not occur under ordinary conditions of shipment. The reaction is not vigorous.  
 5.6 **Inhibitor of Polymerization:** None used

### 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:**  
 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:** Currently not available  
 7.6 **Ship Type:** Currently not available  
 7.7 **Barge Hull Type:** Currently not available

### 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:** No  
 8.5 **NFPA Hazard Classification:**
- | Category                  | Classification |
|---------------------------|----------------|
| Health Hazard (Blue)..... | 2              |
| Flammability (Red).....   | 3              |
| Instability (Yellow)..... | 2              |
- 8.6 **EPA Reportable Quantity:** 1000 pounds  
 8.7 **EPA Pollution Category:** C  
 8.8 **RCRA Waste Number:** U079  
 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:** 97.0  
 9.3 **Boiling Point at 1 atm:** cis: 140°F = 60°C = 333°K trans: 118°F = 48°C = 321°K  
 9.4 **Freezing Point:** cis: -114°F = -81°C = 192°K trans: -58°F = -50°C = 223°K  
 9.5 **Critical Temperature:** Not pertinent  
 9.6 **Critical Pressure:** Not pertinent  
 9.7 **Specific Gravity:** 1.27 at 25°C (liquid)  
 9.8 **Liquid Surface Tension:** 24 dynes/cm = 0.024 N/m at 20°C  
 9.9 **Liquid Water Interfacial Tension:** (est.) 30 dynes/cm = 0.030 N/m at 20°C  
 9.10 **Vapor (Gas) Specific Gravity:** 3.34  
 9.11 **Ratio of Specific Heats of Vapor (Gas):** 1.1468  
 9.12 **Latent Heat of Vaporization:** 130 Btu/lb = 72 cal/g = 3.0 X 10<sup>5</sup> J/kg  
 9.13 **Heat of Combustion:** -4,847.2 Btu/lb = -2,692.9 cal/g = -112.67 X 10<sup>5</sup> 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	81.020	35	0.193	65	0.907	40	0.478
40	80.820	40	0.196	70	0.894	50	0.454
45	80.610	45	0.198	75	0.882	60	0.432
50	80.400	50	0.200	80	0.869	70	0.411
55	80.190	55	0.202	85	0.857	80	0.393
60	79.980	60	0.204	90	0.844	90	0.376
65	79.780	65	0.207	95	0.832	100	0.360
70	79.570	70	0.209	100	0.819	110	0.345
75	79.360	75	0.211	105	0.807	120	0.331
80	79.150	80	0.213	110	0.794	130	0.319
85	78.940	85	0.216	115	0.782	140	0.307
90	78.740	90	0.218	120	0.769	150	0.296
95	78.530	95	0.220	125	0.757	160	0.286
100	78.320	100	0.222	130	0.744	170	0.276
105	78.110	105	0.224			180	0.267
110	77.900	110	0.227			190	0.259
115	77.690	115	0.229			200	0.251
120	77.490	120	0.231			210	0.244
125	77.280	125	0.233				
130	77.070	130	0.236				
135	76.860	135	0.238				
140	76.650	140	0.240				

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	0.630	55	3.009	55	0.05284	0	0.150
		60	3.396	60	0.05906	20	0.153
		65	3.824	65	0.06587	40	0.156
		70	4.297	70	0.07330	60	0.159
		75	4.817	75	0.08141	80	0.162
		80	5.389	80	0.09023	100	0.165
		85	6.016	85	0.09980	120	0.167
		90	6.702	90	0.11020	140	0.170
		95	7.453	95	0.12140	160	0.173
		100	8.272	100	0.13360	180	0.176
		105	9.164	105	0.14660	200	0.179
		110	10.130	110	0.16070	220	0.182
		115	11.190	115	0.17590	240	0.185
		120	12.330	120	0.19220	260	0.188
		125	13.560	125	0.20960	280	0.191
		130	14.900	130	0.22830	300	0.194
		135	16.340	135	0.24820	320	0.197
		140	17.890	140	0.26960	340	0.200
						360	0.203
						380	0.205
						400	0.208
						420	0.211
						440	0.214