

# 2,2'-DICHLOROISOPROPYL ETHER

DCI

## CAUTIONARY RESPONSE INFORMATION

<b>Common Synonyms</b> Bis (2-Chloroisopropyl) ether Ether, bis(2-chloro-1-methylethyl)		Liquid Colorless  Sinks and mixes slowly with water.
<b>KEEP PEOPLE AWAY. AVOID CONTACT WITH LIQUID AND VAPOR.</b> Wear positive pressure breathing apparatus and special protective clothing. Shut off ignition sources and call fire department. Notify local health and pollution control agencies. Protect water intakes.		
<b>Fire</b>	Combustible. POISONOUS GASES MAY BE PRODUCED IN FIRE. Wear positive pressure breathing apparatus and special protective clothing. Extinguish small fires: dry chemical, CO <sub>2</sub> , waterspray, or foam; large fires: water spray, fog or foam.	
<b>Exposure</b>	CALL FOR MEDICAL AID.  VAPOR May be fatal if inhaled. Highly irritating to upper respiratory tract. Move to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen.  LIQUID Poisonous if swallowed or absorbed through skin. IF IN EYES OR ON SKIN, flush with running water for at least 15 min; hold eyelids open if necessary. Remove contaminated clothing and shoes at the site. IF SWALLOWED and victim is UNCONSCIOUS, have victim drink water or milk and induce vomiting. IF SWALLOWED and victim is UNCONSCIOUS OR HAVING CONVULSIONS, do nothing except keep victim warm.	
<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.	

<b>1. CORRECTIVE RESPONSE ACTIONS</b> Dilute and disperse Stop discharge Contain Collection Systems: Pump; Dredge	<b>2. CHEMICAL DESIGNATIONS</b> 2.1 <b>CG Compatibility Group:</b> 36; Halogenated hydrocarbons 2.2 <b>Formula:</b> (C <sub>3</sub> H <sub>7</sub> Cl) <sub>2</sub> O 2.3 <b>IMO/UN Designation:</b> 6.1/2490 2.4 <b>DOT ID No.:</b> 2490 2.5 <b>CAS Registry No.:</b> Currently not available 2.6 <b>NAERG Guide No.:</b> 153 2.7 <b>Standard Industrial Trade Classification:</b> 51616
<b>3. HEALTH HAZARDS</b>	
3.1 <b>Personal Protective Equipment:</b> Wear positive pressure breathing apparatus and special protective clothing.	
3.2 <b>Symptoms Following Exposure:</b> Highly irritating to the upper respiratory tract if inhaled. Contact with the liquid may cause irritation of the skin and eyes. May be fatal if inhaled, swallowed or absorbed through the skin.	
3.3 <b>Treatment of Exposure:</b> INHALATION: Move to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. EYES OR SKIN: Flush with running water for at least 15 min; hold eyelids open if necessary. Remove and isolate contaminated clothing and shoes at the site. Keep victim quiet and maintain normal body temperature. Effects may be delayed; keep victim under observation. INGESTION: If victim is conscious, induce vomiting by giving two glasses of water and have victim touch a finger to the back of the throat.	
3.4 <b>TLV-TWA:</b> Not listed.	
3.5 <b>TLV-STEL:</b> Not listed.	
3.6 <b>TLV-Ceiling:</b> Not listed.	
3.7 <b>Toxicity by Ingestion:</b> Grade 3; LD <sub>50</sub> = 240mg/kg (rat)	
3.8 <b>Toxicity by Inhalation:</b> Currently not available.	
3.9 <b>Chronic Toxicity:</b> May cause mutagenic effects and liver and kidney damage.	
3.10 <b>Vapor (Gas) Irritant Characteristics:</b> Vapor cause slight smarting of the eyes or respiratory system if present in high concentration. The effect is temporary.	
3.11 <b>Liquid or Solid Characteristics:</b> No appreciable hazard. Practically harmless to skin.	
3.12 <b>Odor Threshold:</b> 0.32 ppm (detection in water)	
3.13 <b>IDLH Value:</b> Not listed.	
3.14 <b>OSHA PEL-TWA:</b> Not listed.	
3.15 <b>OSHA PEL-STEL:</b> Not listed.	
3.16 <b>OSHA PEL-Ceiling:</b> Not listed.	
3.17 <b>EPA AEGL:</b> Not listed	

## 4. FIRE HAZARDS

- 4.1 **Flash Point:** 185°F. O.C.; 170°F.C.C.
- 4.2 **Flammable Limits in Air:** Currently not available
- 4.3 **Fire Extinguishing Agents:** Small fires: dry chemical, CO<sub>2</sub>, water spray or foam; Large fires: water spray, fog or foam.
- 4.4 **Fire Extinguishing Agents Not to Be Used:** Not pertinent
- 4.5 **Special Hazards of Combustion Products:** May contain highly toxic hydrochloric acid and phosgene gas.
- 4.6 **Behavior in Fire:** Generates highly toxic and irritating gases.
- 4.7 **Auto Ignition Temperature:** Currently not available
- 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:** 38.1 (calc.)
- 4.12 **Flame Temperature:** Data not available
- 4.13 **Combustion Molar Ratio (Reactant to Product):** 13.0 (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:** Oxidizing materials
- 5.3 **Stability During Transport:** Avoid high heat and oxidizing materials. Subject to peroxide formation if not handled properly.
- 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:** Currently not available
- 6.5 **GESAMP Hazard Profile:** Not listed

## 7. SHIPPING INFORMATION

- 7.1 **Grades of Purity:** 95% (mixed isomers)
- 7.2 **Storage Temperature:** Ambient
- 7.3 **Inert Atmosphere:** Currently not available
- 7.4 **Venting:** Currently not available
- 7.5 **IMO Pollution Category:** C
- 7.6 **Ship Type:** 2
- 7.7 **Barge Hull Type:** Currently not available

## 8. HAZARD CLASSIFICATIONS

- 8.1 **49 CFR Category:** Poison
- 8.2 **49 CFR Class:** 6.1
- 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)   | 2              |
| Instability (Yellow) | 0              |
- 8.6 **EPA Reportable Quantity:** 1000 pounds
- 8.7 **EPA Pollution Category:** C
- 8.8 **RCRA Waste Number:** U027
- 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:** 171.07
- 9.3 **Boiling Point at 1 atm:** 369°F = 187.3°C = 460.5°K
- 9.4 **Freezing Point:** -142.2 to -151.24°F = -96.8 to -101.8°C = 176.4 to 171.4°K
- 9.5 **Critical Temperature:** 723°F = 384°C = 657°K (est.)
- 9.6 **Critical Pressure:** 413 psia = 28.1 atm = 2.85 MN/m<sup>2</sup> (est.)
- 9.7 **Specific Gravity:** 1.1122 at 20°C
- 9.8 **Liquid Surface Tension:** Currently not available
- 9.9 **Liquid Water Interfacial Tension:** Currently not available
- 9.10 **Vapor (Gas) Specific Gravity:** 5.9
- 9.11 **Ratio of Specific Heats of Vapor (Gas):** Currently not available
- 9.12 **Latent Heat of Vaporization:** 19.8 Btu/lb = 11.0 cal/g = 4.60X10<sup>4</sup> J/kg
- 9.13 **Heat of Combustion:** Currently not available
- 9.14 **Heat of Decomposition:** Not pertinent
- 9.15 **Heat of Solution:** Currently not available
- 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
68	69.420		C U R R E N T L Y  N O T  A V A I L A B L E		C U R R E N T L Y  N O T  A V A I L A B L E		C U R R E N T L Y  N O T  A V A I 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	0.170	100	0.030	100	0.00087		C U R R E N T L Y
		125	0.084	125	0.00230		
		150	0.197	150	0.00510		
		175	0.404	175	0.01000		
		200	0.753	200	0.01793		
		225	1.306	225	0.03000		
		250	2.136	250	0.04754		
		275	3.332	275	0.07210		
		300	5.002	300	0.10546		
		325	7.269	325	0.14962		
		350	10.274	350	0.20685		N O T  A V A I L A B L E