

1,1,2-TRICHLOROETHANE

TCM

CAUTIONARY RESPONSE INFORMATION				4. FIRE HAZARDS	7. SHIPPING INFORMATION										
Common Synonyms Ethane, 1,1,2-trichloro-beta-trichloroethane Vinyl trichloride	Liquid	Colorless	Sweet, chloroform like odor Sinks in water.	<p>4.1 Flash Point: None.</p> <p>4.2 Flammable Limits in Air: 8.4% - 13.3%</p> <p>4.3 Fire Extinguishing Agents: Small fires: dry chemical or CO₂. Large fires: water spray, fog or foam.</p> <p>4.4 Fire Extinguishing Agents Not to Be Used: Not pertinent</p> <p>4.5 Special Hazards of Combustion Products: Toxic gases including hydrogen chloride and very small amounts of phosgene and chlorine are produced.</p> <p>4.6 Behavior in Fire: Forms a flammable vapor-air mixture at 109°F and higher.</p> <p>4.7 Auto Ignition Temperature: Not pertinent</p> <p>4.8 Electrical Hazards: Currently not available</p> <p>4.9 Burning Rate: Currently not available</p> <p>4.10 Adiabatic Flame Temperature: Currently not available</p> <p>4.11 Stoichiometric Air to Fuel Ratio: 9.5 (calc.)</p> <p>4.12 Flame Temperature: Currently not available</p> <p>4.13 Combustion Molar Ratio (Reactant to Product): 5.0 (calc.)</p> <p>4.14 Minimum Oxygen Concentration for Combustion (MOCC): Not listed</p>	<p>7.1 Grades of Purity: Technical grade; stabilized; 95%</p> <p>7.2 Storage Temperature: Currently not available</p> <p>7.3 Inert Atmosphere: Currently not available</p> <p>7.4 Venting: Currently not available</p> <p>7.5 IMO Pollution Category: C</p> <p>7.6 Ship Type: 3</p> <p>7.7 Barge Hull Type: 3</p>										
KEEP PEOPLE AWAY. AVOID CONTACT WITH LIQUID AND VAPOR. Wear self-contained positive pressure breathing apparatus and full protective clothing. Shut off ignition sources and call fire department. Evacuate area in case of large discharge. Stay upwind and use water spray to "knock down" vapor. Notify local health and pollution control agencies. Protect water intakes.				<p>8. HAZARD CLASSIFICATIONS</p> <p>8.1 49 CFR Category: Not listed</p> <p>8.2 49 CFR Class: Not pertinent</p> <p>8.3 49 CFR Package Group: Not listed</p> <p>8.4 Marine Pollutant: No</p> <p>8.5 NFPA Hazard Classification:</p> <table> <thead> <tr> <th>Category</th> <th>Classification</th> </tr> </thead> <tbody> <tr> <td>Health Hazard (Blue)</td> <td>3</td> </tr> <tr> <td>Flammability (Red)</td> <td>1</td> </tr> <tr> <td>Instability (Yellow)</td> <td>0</td> </tr> </tbody> </table> <p>8.6 EPA Reportable Quantity: 100 pounds</p> <p>8.7 EPA Pollution Category: B</p> <p>8.8 RCRA Waste Number: U227</p> <p>8.9 EPA FWPCA List: Not listed</p>		Category	Classification	Health Hazard (Blue)	3	Flammability (Red)	1	Instability (Yellow)	0		
Category	Classification														
Health Hazard (Blue)	3														
Flammability (Red)	1														
Instability (Yellow)	0														
Fire POISONOUS GASES ARE PRODUCED IN FIRE. Container may explode in fire. Wear self-contained positive pressure breathing apparatus, impervious clothing and gloves. Extinguish fires with water spray, fog or foam, carbon dioxide, or dry chemical.				<p>9. PHYSICAL & CHEMICAL PROPERTIES</p> <p>9.1 Physical State at 15°C and 1 atm: Liquid</p> <p>9.2 Molecular Weight: 133.41</p> <p>9.3 Boiling Point at 1 atm: 236.6°F = 113.7°C = 386.9°K</p> <p>9.4 Freezing Point: -31/-34.1°F = -35/-36.7°C = 238.2/236.5°K</p> <p>9.5 Critical Temperature: Currently not available</p> <p>9.6 Critical Pressure: Currently not available</p> <p>9.7 Specific Gravity: 1.44 at 20°C (liquid)</p> <p>9.8 Liquid Surface Tension: 33.75 dynes/cm = 0.0338 N/m at 20°C</p> <p>9.9 Liquid Water Interfacial Tension: Currently not available</p> <p>9.10 Vapor (Gas) Specific Gravity: 4.6</p> <p>9.11 Ratio of Specific Heats of Vapor (Gas): Currently not available</p> <p>9.12 Latent Heat of Vaporization: Currently not available</p> <p>9.13 Heat of Combustion: Currently not available</p> <p>9.14 Heat of Decomposition: Not pertinent</p> <p>9.15 Heat of Solution: Not pertinent</p> <p>9.16 Heat of Polymerization: Not pertinent</p> <p>9.17 Heat of Fusion: Currently not available</p> <p>9.18 Limiting Value: Currently not available</p> <p>9.19 Reid Vapor Pressure: Currently not available</p>											
Exposure CALL FOR MEDICAL AID. VAPOR Irritating to eyes, nose, throat, lungs and skin; may cause defatting dermatitis. Highly toxic; death may result from respiratory failure. If inhaled, anesthetic or narcotic effect may occur. Move to fresh air. If breathing has stopped, give artificial respiration. If breathing is difficult, give oxygen. LIQUID Irritating to skin and eyes; severe irritant to gastrointestinal tract. Highly toxic. If swallowed, may cause liver or kidney damage and may increase myocardial irritability. May cause chemical pneumonia if aspirated into lungs. IF IN EYES OR ON SKIN, hold eyelids open and flush with water for at least 15 minutes; hold eyelids open if necessary. Remove and isolate contaminated clothing and shoes at the site. IF SWALLOWED, and victim is CONSCIOUS, have victim drink water and induce vomiting. IF SWALLOWED AND VICTIM UNCONSCIOUS OR HAVING CONVULSIONS, just keep victim warm.				<p>5. CHEMICAL REACTIVITY</p> <p>5.1 Reactivity with Water: No reaction</p> <p>5.2 Reactivity with Common Materials: Incompatible with oxidizing material or aluminum. Will attack some forms of plastics, rubber and coatings.</p> <p>5.3 Stability During Transport: Stable</p> <p>5.4 Neutralizing Agents for Acids and Caustics: Not pertinent</p> <p>5.5 Polymerization: Not pertinent</p> <p>5.6 Inhibitor of Polymerization: Not pertinent</p>											
Water Pollution HARMFUL TO AQUATIC LIFE IN VERY LOW CONCENTRATIONS. May be dangerous if it enters water intakes. Notify local health and wildlife officials. Notify operators of nearby water intakes.				<p>6. WATER POLLUTION</p> <p>6.1 Aquatic Toxicity: 18 mg/l/48 hr/daphnia magna/LC₅₀/fresh water.</p> <p>6.2 Waterfowl Toxicity: Currently not available</p> <p>6.3 Biological Oxygen Demand (BOD): Currently not available</p> <p>6.4 Food Chain Concentration Potential: Currently not available</p> <p>6.5 GESAMP Hazard Profile:</p> <table> <tr> <td>Bioaccumulation:</td> <td>0</td> </tr> <tr> <td>Damage to living resources:</td> <td>2</td> </tr> <tr> <td>Human Oral hazard:</td> <td>1</td> </tr> <tr> <td>Human Contact hazard:</td> <td>0</td> </tr> <tr> <td>Reduction of amenities:</td> <td>0</td> </tr> </table>		Bioaccumulation:	0	Damage to living resources:	2	Human Oral hazard:	1	Human Contact hazard:	0	Reduction of amenities:	0
Bioaccumulation:	0														
Damage to living resources:	2														
Human Oral hazard:	1														
Human Contact hazard:	0														
Reduction of amenities:	0														
1. CORRECTIVE RESPONSE ACTIONS Stop discharge Contain Collection Systems: Pump; Dredge				<p>7. NOTES</p>											
2. CHEMICAL DESIGNATIONS 2.1 CG Compatibility Group: 36; Halogenated hydrocarbon 2.2 Formula: CHCl ₂ CH ₂ Cl 2.3 IMO/UN Designation: Currently not available 2.4 DOT ID No.: Not listed 2.5 CAS Registry No.: 79-00-5 2.6 NAERG Guide No.: Not listed. 2.7 Standard Industrial Trade Classification: 51134															
3. HEALTH HAZARDS <p>3.1 Personal Protective Equipment: Self-contained positive pressure breathing apparatus and full protective clothing.</p> <p>3.2 Symptoms Following Exposure: Inhalation causes irritation of the nose, throat, and lungs. High concentrations may cause death by respiratory failure. Highly toxic by ingestion; may cause liver or kidney damage or myocardial irritability. Causes severe irritation of the gastrointestinal tract. Vapor may produce superficial skin burns or defatting type dermatitis and may irritate the eyes.</p> <p>3.3 Treatment of Exposure: INHALATION: Move to fresh air; call emergency medical care. If breathing stops, give artificial respiration. If breathing is difficult, give oxygen. INGESTION: If victim is conscious get victim to induce vomiting by touching the back of the throat with his finger or by taking syrup of ipecac. If victim is unconscious or having convulsions, do nothing except keep victim warm. EYES OR SKIN: Flush with running water for at least 15 minutes; hold eyelids open if necessary. Clean skin with soap or mild detergent. Remove and isolate contaminated clothing and shoes at the site.</p> <p>3.4 TLV-TWA: 10 ppm (skin)</p> <p>3.5 TLV-STEL: Not listed.</p> <p>3.6 TLV-Ceiling: Not listed.</p> <p>3.7 Toxicity by Ingestion: Grade 2; LD₅₀ = 580 mg/kg (rat)</p> <p>3.8 Toxicity by Inhalation: Currently not available.</p> <p>3.9 Chronic Toxicity: Causes liver and kidney damage; may increase myocardial irritability. It is a central nervous system depressant. It is carcinogenic. May cause chemical pneumonia if aspirated into the lungs.</p> <p>3.10 Vapor (Gas) Irritant Characteristics: Vapors cause moderate irritation such that personnel will not tolerate moderate or high concentrations.</p> <p>3.11 Liquid or Solid Characteristics: Minimum hazard. If spilled on skin and allowed to remain, may cause smarting and reddening of the skin.</p> <p>3.12 Odor Threshold: Currently not available</p> <p>3.13 IDLH Value: 100 ppm (skin)</p> <p>3.14 OSHA PEL-TWA: 10 ppm (skin)</p> <p>3.15 OSHA PEL-STEL: Not listed.</p> <p>3.16 OSHA PEL-Ceiling: Not listed.</p> <p>3.17 EPA AEGL: Not listed</p>															

1,1,2-TRICHLOROETHANE

TCM

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	89.900		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
I N S O L U B L E		0 25 50 75 100 125 150 175 200	0.049 0.093 0.179 0.344 0.660 1.265 2.427 4.656 8.933	0 25 50 75 100 125 150 175 200	0.00130 0.00239 0.00439 0.00805 0.01478 0.02712 0.04976 0.09130 0.16753		C U R R E N T L Y N O T A V A I L A B L E