

O-CHLOROTOLUENE

CTO

CAUTIONARY RESPONSE INFORMATION

Common Synonyms Benzene, 1-chloro-2-methyl 2-Chloro-1-methylbenzene 2-Chlorotoluene 1-Methyl-2-chlorobenzene o-Tolyl chloride		Liquid	Colorless	Aromatic
Sinks in water.				
Keep people away. Avoid contact with liquid and vapor. Avoid inhalation. Wear self-contained positive pressure breathing apparatus and full protective clothing. Shut off ignition sources. Call fire department. Notify local health and pollution control agencies. Protect water intakes.				
Fire	COMBUSTIBLE. Poisonous gases may be produced in fire. Containers may explode in fire. Flash back along vapor trail may occur. Vapor may explode if ignited in enclosed area. Wear self-contained positive pressure breathing apparatus and full protective clothing. Extinguish small fires: dry chemical, CO ₂ , water spray or foam; large fires: water spray, fog or foam. Cool exposed containers with water from the side until well after fire is out.			
Exposure	CALL FOR MEDICAL AID. VAPOR May be harmful if inhaled or absorbed through the skin. Irritating to eyes, skin, nose and throat. Move to fresh air. If breathing has stopped, give artificial respiration. If breathing is difficult, give oxygen. LIQUID Irritating to skin and eyes. Harmful if swallowed or absorbed through the skin. IF IN EYES OR ON SKIN, flush with running water for at least 15 min.; hold eyelids open if necessary. IF SWALLOWED and victim is CONSCIOUS, have victim drink water or milk. DO NOT INDUCE VOMITING. IF SWALLOWED and victim is UNCONSCIOUS OR HAVING CONVULSIONS, do nothing except keep victim warm. Remove and isolate contaminated clothing and shoes at the site.			
Water Pollution	Effects of low concentration 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
 Contain undissolved material
 Dilute and disperse dissolved material
 Collection Systems: Pump; Dredge

2. CHEMICAL DESIGNATIONS

2.1 CG Compatibility Group: 36; Halogenated hydrocarbons
 2.2 Formula: CH₃CH₂Cl
 2.3 IMO/UN Designation: 3.3/2238
 2.4 DOT ID No.: 2238
 2.5 CAS Registry No.: 95-49-8
 2.6 NAERG Guide No.: 130
 2.7 Standard Industrial Trade Classification: 51139

3. HEALTH HAZARDS

3.1 **Personal Protective Equipment:** Wear self-contained positive pressure breathing apparatus and full protective clothing.
 3.2 **Symptoms Following Exposure:** Inhalation of vapor may cause respiratory irritation. Prolonged and repeated vapor exposures may produce systemic toxic effects.
 3.3 **Treatment of Exposure:** INHALATION: Move to fresh air. If breathing has stopped, 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. INGESTION: If victim is conscious, have victim drink water or milk. DO NOT INDUCE VOMITING. If victim is unconscious or having convulsions, do nothing except keep victim warm.
 3.4 TLV-TWA: 50 ppm
 3.5 TLV-STEL: Not listed.
 3.6 TLV-Ceiling: Not listed.
 3.7 **Toxicity by Ingestion:** Grade 2; LD₅₀ = .5 to 5 g/kg
 3.8 **Toxicity by Inhalation:** Currently not available.
 3.9 **Chronic Toxicity:** Prolonged and repeated vapor exposure may produce systemic effects.
 3.10 **Vapor (Gas) Irritant Characteristics:** Vapors are moderately irritating such that personnel will not usually tolerate moderate or high concentrations.
 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: Not listed.
 3.14 OSHA PEL-TWA: Not listed.
 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:** 126°F O.C. 117°F C.C.
 4.2 **Flammable Limits in Air:** 1.36% (LFL) calculated
 4.3 **Fire Extinguishing Agents:** Small fires: dry chemical, CO₂, 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 toxic chlorine fumes.
 4.6 **Behavior in Fire:** Container may explode in heat of fire. Vapor may travel to a source of ignition and flashback. Vapor explosion hazard indoors, outdoors or in sewer. Toxic chlorine fumes may be produced.
 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:** 40.5 (calc.)
 4.12 **Flame Temperature:** Currently not available
 4.13 **Combustion Molar Ratio (Reactant to Product):** 11.0 (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:** Reacts with oxidizing agents.
 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:** Currently not available
 6.5 **GESAMP Hazard Profile:**
 Bioaccumulation: T
 Damage to living resources: 3
 Human Oral hazard: 1
 Human Contact hazard: 1
 Reduction of amenities: X

7. SHIPPING INFORMATION

7.1 **Grades of Purity:** 98%
 7.2 **Storage Temperature:** Ambient
 7.3 **Inert Atmosphere:** Not listed
 7.4 **Venting:** Not pertinent
 7.5 **IMO Pollution Category:** A
 7.6 **Ship Type:** 3
 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:** III
 8.4 **Marine Pollutant:** Yes
 8.5 **NFPA Hazard Classification:**

Category	Classification
Health Hazard (Blue).....	2
Flammability (Red).....	2
Instability (Yellow).....	0

8.6 **EPA Reportable Quantity:** Not listed.
 8.7 **EPA Pollution Category:** Not listed.
 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:** Liquid
 9.2 **Molecular Weight:** 126.59
 9.3 **Boiling Point at 1 atm:** 318.6°F = 159.2°C = 432.4°K
 9.4 **Freezing Point:** -31.2°F = -35.1°C = 238.1°K
 9.5 **Critical Temperature:** 719°F = 382°C = 655°K (est.)
 9.6 **Critical Pressure:** 567 psia = 38.6 atm = 3.91 MN/m² (est.)
 9.7 **Specific Gravity:** 1.0825 at 20°C
 9.8 **Liquid Surface Tension:** 33440 dynes/cm = 0.03344 N/m at 20°C
 9.9 **Liquid Water Interfacial Tension:** Currently not available
 9.10 **Vapor (Gas) Specific Gravity:** 4.4
 9.11 **Ratio of Specific Heats of Vapor (Gas):** Currently not available
 9.12 **Latent Heat of Vaporization:** 146 Btu/lb = 81.2 cal/g = 3.4x10⁵ J/kg
 9.13 **Heat of Combustion:** Currently not available
 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

O-CHLOROTOLUENE

CTO

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	67.570		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 I L E	50 75 100 125 150 175 200 225 250 275 300	0.019 0.075 0.196 0.413 0.759 1.270 1.985 2.942 4.183 5.753 7.694	25 50 75 100 125 150 175 200 225 275 300	0.07027 0.00046 0.00164 0.00403 0.00808 0.01427 0.02309 0.03502 0.05058 0.09462 0.12414		C U R R E N T L Y N O T A V A I L A B L E