

1,2,4-TRICHLOROBENZENE

TCB

CAUTIONARY RESPONSE INFORMATION

Common Synonyms Benzene, 1,2,4-trichloro- unsym-Trichlorobenzene 1,2,4-Trichlorobenzol	Liquid or solid	Colorless	Sharp chlorobenzene odor
KEEP PEOPLE AWAY. AVOID CONTACT WITH LIQUID AND VAPOR. Wear self-contained positive breathing apparatus and full protective clothing. Shut off ignition sources and call fire department. Notify local health and pollution control agencies. Protect water intakes.			
Fire	Combustible. POISONOUS GASES MAY BE PRODUCED IN FIRE. 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.		
Exposure	CALL FOR MEDICAL AID. VAPOR May be irritating to eyes, skin and respiratory tract. Move to fresh air. If breathing has stopped, give artificial respiration. If breathing is difficult, give oxygen. LIQUID May irritate skin and eyes. Poisonous if swallowed. IF IN EYES OR ON SKIN, flush with running 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 or milk and induce vomiting. If swallowed and victim is UNCONSCIOUS OR HAVING CONVULSIONS, do nothing except keep victim warm.		
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.		

1. CORRECTIVE RESPONSE ACTIONS

Stop discharge
Contain
Collection Systems: Pump; Dredge

2. CHEMICAL DESIGNATIONS

- 2.1 **CG Compatibility Group:** 36; Halogenated hydrocarbon
2.2 **Formula:** C₆H₃Cl₃
2.3 **IMO/UN Designation:** 6.1/2321
2.4 **DOT ID No.:** 2321
2.5 **CAS Registry No.:** 120-82-1
2.6 **NAERG Guide No.:** 153
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:** Exposures to high concentrations via inhalation are potentially hazardous to the lungs, kidneys and liver. Prolonged or repeated exposures or short exposure to high concentrations via inhalation are potentially hazardous to the lungs, kidneys and liver. Prolonged or repeated exposure to the eyes is likely to result in moderate pain and transient irritation. Prolonged or repeated contact with the skin may result in moderate irritation and possible systemic effects. Ingestion: May cause kidney and liver damage.
3.3 **Treatment of Exposure:** INHALATION: If breathing has stopped, give artificial respiration. If breathing is difficult, give oxygen. EYES OR SKIN: Flush with running water for at least 15 minutes; hold eyelids open if necessary. Wash skin with soap and water. Remove and isolate contaminated clothing and shoes at the site. INGESTION: If victim is conscious, have victim drink water or milk and have induce vomiting by touching a finger to the back of his throat.
3.4 **TLV-TWA:** Not listed.
3.5 **TLV-STEL:** Not listed.
3.6 **TLV-Ceiling:** 5 ppm
3.7 **Toxicity by Ingestion:** Grade 3; LD₅₀ = 300 mg/Kg (mouse)
3.8 **Toxicity by Inhalation:** Currently not available.
3.9 **Chronic Toxicity:** May cause lung, liver, and/or kidney damage. Causes teratogenic effects in the rat.
3.10 **Vapor (Gas) Irritant Characteristics:** Vapors cause moderate irritation. Personnel may find high concentrations unpleasant. The affect is temporary.
3.11 **Liquid or Solid Characteristics:** Causes smarting of the skin and first-degree burns on short exposure; may cause second-degree burns on long exposure.
3.12 **Odor Threshold:** 3 ppm
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:** 230°F O.C. 210°F C.C.
4.2 **Flammable Limits in Air:** Currently not available
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 hydrogen chloride and phosgene.
4.6 **Behavior in Fire:** Decomposes to form hydrogen chloride and phosgene.
4.7 **Auto Ignition Temperature:** 1,060°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:** 28.6 (calc.)
4.12 **Flame Temperature:** Currently not available
4.13 **Combustion Molar Ratio (Reactant to Product):** 9.0 (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:** Not pertinent
5.6 **Inhibitor of Polymerization:** Not pertinent

6. WATER POLLUTION

- 6.1 **Aquatic Toxicity:**
1.5 ppm/1 hr/rainbow trout/LC₅₀/fresh water
0.45 ppm/96 hr/mysid shrimp/LC₅₀/salt water
6.2 **Waterfowl Toxicity:** Currently not available
6.3 **Biological Oxygen Demand (BOD):**
78%(theor), 20 days; 100%(theor), 20 days; 50%(theor), 20 days
6.4 **Food Chain Concentration Potential:**
Low potential
6.5 **GESAMP Hazard Profile:**
Bioaccumulation: Z
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:** Purified (99%); Technical: 75% 1,2,4-Trichlorobenzene and 25% 1,2,3-Trichlorobenzene
7.2 **Storage Temperature:** Ambient
7.3 **Inert Atmosphere:** Currently not available
7.4 **Venting:** Not pertinent
7.5 **IMO Pollution Category:** B
7.6 **Ship Type:** 2
7.7 **Barge Hull Type:** 3

8. HAZARD CLASSIFICATIONS

- 8.1 **49 CFR Category:** Keep Away From Food
8.2 **49 CFR Class:** 6.1
8.3 **49 CFR Package Group:** III
8.4 **Marine Pollutant:** No
8.5 **NFPA Hazard Classification:**

Category	Classification
Health Hazard (Blue).....	2
Flammability (Red).....	1
Instability (Yellow).....	0

8.6 **EPA Reportable Quantity:** 100 pounds
8.7 **EPA Pollution Category:** B
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:** Solid
9.2 **Molecular Weight:** 181.5
9.3 **Boiling Point at 1 atm:** 415°F = 213°C = 486°K
9.4 **Freezing Point:** 61.7°F = 16.5°C = 289.5°K
9.5 **Critical Temperature:** Currently not available
9.6 **Critical Pressure:** Currently not available
9.7 **Specific Gravity:** 1.454 at 20°C (liquid)
9.8 **Liquid Surface Tension:** Currently not available
9.9 **Liquid Water Interfacial Tension:** Currently not available
9.10 **Vapor (Gas) Specific Gravity:** 6.25
9.11 **Ratio of Specific Heats of Vapor (Gas):** Currently not available
9.12 **Latent Heat of Vaporization:** 113 Btu/lb = 62.9 cal/g = 2.64 X 10⁵ 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

1,2,4-TRICHLOROBENZENE

TCB

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
	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		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 I T Y	100	0.014	100	0.00043		C U R R E N T L Y
		125	0.040	125	0.00117		
		150	0.095	150	0.00264		
		175	0.200	175	0.00523		
		200	0.375	200	0.00946		
		225	0.658	225	0.01597		
		250	1.087	250	0.02551		
		275	1.712	275	0.03896		
		300	2.593	300	0.05735		
		325	3.797	325	0.08185		
		350	5.406	350	0.11378		N O T
		375	7.511	375	0.15459		
		400	10.216	400	0.20594		A V A I L A B L E