

# BENZENESULFONYL CHLORIDE

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## CAUTIONARY RESPONSE INFORMATION

Common Synonyms	Liquid Benzene sulfonyl chloride Benzenesulfonyl chloride Benzene sulfonechloride Benzene sulfonyl (acid) chloride	Colorless Sinks in water and slowly decomposes. Melting point is 58.1°F.	Pungent
<b>AVOID CONTACT WITH LIQUID AND VAPOR. KEEP PEOPLE AWAY.</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.			
Fire	Combustible. Poisonous gases are produced in fires or when heated. Containers may explode in fire. Wear positive pressure breathing apparatus and special protective clothing. Extinguish small fires: dry chemical, CO <sub>2</sub> , water spray or foam; large fires: with water spray, fog or foam. Move containers from fire area if you can do it without risk.		
<b>Exposure</b> <b>VAPOR</b> May be fatal if inhaled. Irritating to eyes, skin and mucous membranes. Move victim to fresh air. If breathing has stopped, give artificial respiration. If breathing is difficult, give oxygen. <b>LIQUID</b> Will burn skin and eyes. May be fatal 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. Wash skin with soap and water. Remove and isolate contaminated clothing and shoes at the site. Maintain normal body temperature and keep victim quiet. Hold victim for observation for delayed effects. IF SWALLOWED and victim is UNCONSCIOUS OR HAVING CONVULSIONS, do nothing except keep victim warm.			
Water Pollution	<b>HARMFUL TO AQUATIC LIFE IN VERY LOW CONCENTRATIONS.</b> 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> Stop discharge Collection Systems: Pump; Dredge Do not burn	<b>2. CHEMICAL DESIGNATIONS</b> 2.1 CG Compatibility Group: 0; Unassigned 2.2 Formula: C <sub>6</sub> H <sub>5</sub> SO <sub>2</sub> Cl 2.3 IMO/UN Designation: 8/2225 2.4 DOT ID No.: 2225 2.5 CAS Registry No.: 98-09-9 2.6 NAERG Guide No.: 156 2.7 Standard Industrial Trade Classification: 51549
<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> May be fatal if inhaled, swallowed or absorbed through skin. Contact may cause skin and eye burns. Irritating to eyes, skin and mucous membranes. INGESTION: May cause abdominal spasm and vomiting. 3.3 <b>Treatment of Exposure: INHALATION:</b> Move victim 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. Wash skin with soap and water. Remove and isolate contaminated clothing and shoes at the site. Maintain normal body temperature and keep victim quiet. Keep victim under observation for delayed effects. INGESTION: If unconscious or having convulsions, do nothing except keep victim warm. 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 2; LD <sub>50</sub> = 1.96 g/kg (rat) 3.8 <b>Toxicity by Inhalation:</b> Currently not available. 3.9 <b>Chronic Toxicity:</b> Currently not available 3.10 <b>Vapor (Gas) Irritant Characteristics:</b> Causes irritation of eyes, skin and mucous membranes. 3.11 <b>Liquid or Solid Characteristics:</b> May cause burns to skin and eyes. 3.12 <b>Odor Threshold:</b> Currently not available 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 A EGL:</b> Not listed	
<b>4. FIRE HAZARDS</b>	

<b>4. FIRE HAZARDS</b>	<b>7. SHIPPING INFORMATION</b>
4.1 <b>Flash Point:</b> >233.6°F, C.C 4.2 <b>Flammable Limits in Air:</b> Currently not available 4.3 <b>Fire Extinguishing Agents:</b> Small fires: dry chemical, CO <sub>2</sub> , water spray or foam; large fires: water spray, fog or foam. 4.4 <b>Fire Extinguishing Agents Not to Be Used:</b> Not pertinent 4.5 <b>Special Hazards of Combustion:</b> Products: May contain highly toxic and irritating hydrogen chloride and oxides of chlorine and sulfur. 4.6 <b>Behavior in Fire:</b> Cylinder may explode. Decomposes to produce highly toxic chlorine and sulfur compounds. Reacts with hot water to produce highly toxic and corrosive hydrochloric acid and benzenesulfonic acid. 4.7 <b>Auto Ignition Temperature:</b> Currently not available 4.8 <b>Electrical Hazards:</b> Currently not available 4.9 <b>Burning Rate:</b> Currently not available 4.10 <b>Adiabatic Flame Temperature:</b> Currently not available 4.11 <b>Stoichiometric Air to Fuel Ratio:</b> 33.3 (calc.) 4.12 <b>Flame Temperature:</b> Currently not available 4.13 <b>Combustion Molar Ratio (Reactant to Product):</b> 10.0 (calc.) 4.14 <b>Minimum Oxygen Concentration for Combustion (MOCC):</b> Not listed	7.1 <b>Grades of Purity:</b> 96%; 99% 7.2 <b>Storage Temperature:</b> Currently not available 7.3 <b>Inert Atmosphere:</b> Currently not available 7.4 <b>Venting:</b> Currently not available 7.5 <b>IMO Pollution Category:</b> D 7.6 <b>Ship Type:</b> 3 7.7 <b>Barge Hull Type:</b> Currently not available
<b>8. HAZARD CLASSIFICATIONS</b>	
8.1 49 CFR Category: Corrosive material 8.2 49 CFR Class: 8 8.3 49 CFR Package Group: III 8.4 Marine Pollutant: No 8.5 NFPA Hazard Classification: Not listed 8.6 EPA Reportable Quantity: 100 pounds 8.7 EPA Pollution Category: B 8.8 RCRA Waste Number: U020 8.9 EPA FWPCA List: Not listed	
<b>9. PHYSICAL &amp; CHEMICAL PROPERTIES</b>	
9.1 Physical State at 15°C and 1 atm: Liquid 9.2 Molecular Weight: 176.62 9.3 Boiling Point at 1 atm: 484.7°F = 251.5°C = 524.7°K 9.4 Freezing Point: 58.1°F = 14.5°C = 287.7°K 9.5 Critical Temperature: Currently not available 9.6 Critical Pressure: Currently not available 9.7 Specific Gravity: 1.3842 at 15°C 9.8 Liquid Surface Tension: Currently not available 9.9 Liquid Water Interfacial Tension: Currently not available 9.10 Vapor (Gas) Specific Gravity: 6.09 (est.) 9.11 Ratio of Specific Heats of Vapor (Gas): Currently not available 9.12 Latent Heat of Vaporization: Currently not available 9.13 Heat of Combustion: Currently not available 9.14 Heat of Decomposition: Currently not available 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	
<b>5. CHEMICAL REACTIVITY</b>	
5.1 <b>Reactivity with Water:</b> Decomposes in hot water to produce corrosive and toxic hydrochloric acid and benzenesulfonic acid. Rate of reaction decreases as temperature decreases. 5.2 <b>Reactivity with Common Materials:</b> Incompatible with strong oxidizers and bases. Corrosive to metals in the presence of water due to formation of hydrochloric acid and benzenesulfonic acid. 5.3 <b>Stability During Transport:</b> Stable 5.4 <b>Neutralizing Agents for Acids and Caustics:</b> Sodium bicarbonate 5.5 <b>Polymerization:</b> Not pertinent 5.6 <b>Inhibitor of Polymerization:</b> Not pertinent	
<b>6. WATER POLLUTION</b>	
6.1 <b>Aquatic Toxicity:</b> 3 mg/l 48 hr/ brown trout yearlings/ LC <sub>50</sub> / freshwater 6.2 <b>Waterfowl Toxicity:</b> Currently not available 6.3 <b>Biological Oxygen Demand (BOD):</b> Currently not available 6.4 <b>Food Chain Concentration Potential:</b> Currently not available 6.5 <b>GESAMP Hazard Profile:</b> Not listed	

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
59	86.500		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 E	175 200 225 250 275 300 325 350 375 400	0.039 0.084 0.165 0.302 0.523 0.863 1.367 2.094 3.115 4.515	175 200 225 250 275 300 325 350 375 400	0.00088 0.00175 0.00319 0.00547 0.00890 0.01388 0.02089 0.03051 0.04341 0.06037		C U R R E N T L Y  N O T  A V A I L A B L E