

OLEUM

OLM

CAUTIONARY RESPONSE INFORMATION

Common Synonyms Fuming sulfuric acid	Oily liquid	Colorless to cloudy	Sharp, choking odor
Mixes and reacts with water producing heat. Irritating mist is produced.			
<p style="color: red; font-size: small;">Evacuate. Keep people away. AVOID CONTACT WITH LIQUID AND MIST. Wear chemical protective suit with self-contained breathing apparatus. Stay upwind and use water spray to "knock down" mist. Notify local health and pollution control agencies. Protect water intakes.</p>			
Fire	Not flammable. May cause fire on contact with combustibles. Flammable gas may be produced on contact with metals. Wear chemical protective suit with self-contained breathing apparatus. DO NOT USE WATER ON ADJACENT FIRES.		
Exposure	CALL FOR MEDICAL AID. MIST Irritating to eyes, nose and throat. If inhaled, will cause coughing or difficult breathing. Move to fresh air. If breathing has stopped, give artificial respiration (but NOT mouth to mouth). If breathing is difficult, give oxygen. LIQUID Will burn skin and eyes. Harmful if swallowed. Remove contaminated clothing and shoes. Flush affected areas with plenty of water. IF IN EYES, hold eyelids open and flush with plenty of water. IF SWALLOWED and victim is CONSCIOUS, have victim drink water or milk. DO NOT INDUCE VOMITING.		
Water Pollution	HARMFUL TO AQUATIC LIFE IN VERY LOW CONCENTRATIONS. Fouling to shoreline. May be dangerous if it enters water intakes. Notify local health and wildlife officials. Notify operators of nearby water intakes.		

1. CORRECTIVE RESPONSE ACTIONS Dilute and disperse Stop discharge	2. CHEMICAL DESIGNATIONS 2.1 CG Compatibility Group: 0; Unassigned cargoes 2.2 Formula: SO ₃ -H ₂ SO ₄ 2.3 IMO/UN Designation: 8.0/1831 2.4 DOT ID No.: 1831 2.5 CAS Registry No.: 8014-95-7 2.6 NAERG Guide No.: 137 2.7 Standard Industrial Trade Classification: 52232
3. HEALTH HAZARDS 3.1 Personal Protective Equipment: Respirator approved for acid mists; rubber gloves; splashproof goggles; eyewash fountain and safety shower; rubber footwear; face shield. 3.2 Symptoms Following Exposure: Acid mist is irritating to eyes, nose and throat. Liquid causes severe burns of skin and eyes. 3.3 Treatment of Exposure: INGESTION: have victim drink water or milk; do NOT induce vomiting. EYES: flush with plenty of water for at least 15 min.; call a doctor. SKIN: flush with plenty of water. 3.4 TLV-TWA: 1 mg/m ³ 3.5 TLV-STEL: 3 mg/m ³ 3.6 TLV-Ceiling: Not listed. 3.7 Toxicity by Ingestion: Severe burns of mouth and stomach. 3.8 Toxicity by Inhalation: Currently not available. 3.9 Chronic Toxicity: None 3.10 Vapor (Gas) Irritant Characteristics: Vapors cause severe irritation of eye and throat and can cause eye and lung injury. They cannot be tolerated even at low concentrations. 3.11 Liquid or Solid Characteristics: Severe skin irritant. Causes second-and third-degree burns on short contact; very injurious to the eyes. 3.12 Odor Threshold: 1 mg/m ³ 3.13 IDLH Value: 15 mg/m ³ 3.14 OSHA PEL-TWA: 1 mg/m ³ 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: Not flammable 4.2 Flammable Limits in Air: Not flammable 4.3 Fire Extinguishing Agents: Not pertinent 4.4 Fire Extinguishing Agents Not to Be Used: Avoid use of water on adjacent fires. 4.5 Special Hazards of Combustion Products: Toxic and irritating vapors are generated. 4.6 Behavior in Fire: Not pertinent 4.7 Auto Ignition Temperature: Not flammable 4.8 Electrical Hazards: Not pertinent 4.9 Burning Rate: Not flammable 4.10 Adiabatic Flame Temperature: Currently not available 4.11 Stoichiometric Air to Fuel Ratio: Not pertinent. 4.12 Flame Temperature: Currently not available 4.13 Combustion Molar Ratio (Reactant to Product): Not pertinent. 4.14 Minimum Oxygen Concentration for Combustion (MOCC): Not listed	7. SHIPPING INFORMATION 7.1 Grades of Purity: 20% (104.5% sulfuric acid) to 65% (114.6% sulfuric acid) 7.2 Storage Temperature: Ambient 7.3 Inert Atmosphere: No requirement 7.4 Venting: Open 7.5 IMO Pollution Category: C 7.6 Ship Type: 2 7.7 Barge Hull Type: 3								
5. CHEMICAL REACTIVITY 5.1 Reactivity with Water: Vigorous reaction with water; spatters. 5.2 Reactivity with Common Materials: May react with cast iron with explosive violence. Attacks many metals, releasing flammable hydrogen gas. Capable of igniting finely divided combustible material on contact. Extremely hazardous in contact with many materials. 5.3 Stability During Transport: Normally stable 5.4 Neutralizing Agents for Acids and Caustics: Cautious dilution with water, with protection against violent spattering. Diluted acid may be neutralized with lime or soda ash. 5.5 Polymerization: Not pertinent 5.6 Inhibitor of Polymerization: Not pertinent	8. HAZARD CLASSIFICATIONS 8.1 49 CFR Category: Corrosive material 8.2 49 CFR Class: 8 8.3 49 CFR Package Group: I 8.4 Marine Pollutant: No 8.5 NFPA Hazard Classification: <table style="width: 100%; border: none;"> <tr> <td style="text-align: center;">Category</td> <td style="text-align: center;">Classification</td> </tr> <tr> <td style="text-align: center;">Health Hazard (Blue).....</td> <td style="text-align: center;">3</td> </tr> <tr> <td style="text-align: center;">Flammability (Red).....</td> <td style="text-align: center;">0</td> </tr> <tr> <td style="text-align: center;">Instability (Yellow).....</td> <td style="text-align: center;">2</td> </tr> </table> 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	Category	Classification	Health Hazard (Blue).....	3	Flammability (Red).....	0	Instability (Yellow).....	2
Category	Classification								
Health Hazard (Blue).....	3								
Flammability (Red).....	0								
Instability (Yellow).....	2								
6. WATER POLLUTION 6.1 Aquatic Toxicity: 24 ppm/24 hr/bluegill/lethal/fresh water 42 ppm/48 hr/prawn/LC50/salt water 6.2 Waterfowl Toxicity: Currently not available 6.3 Biological Oxygen Demand (BOD): None 6.4 Food Chain Concentration Potential: None 6.5 GESAMP Hazard Profile: Not listed	9. PHYSICAL & CHEMICAL PROPERTIES 9.1 Physical State at 15° C and 1 atm: Liquid 9.2 Molecular Weight: Not pertinent 9.3 Boiling Point at 1 atm: Decomposes 9.4 Freezing Point: Not pertinent 9.5 Critical Temperature: Not pertinent 9.6 Critical Pressure: Not pertinent 9.7 Specific Gravity: 1.91-1.97 at 15°C (liquid) 9.8 Liquid Surface Tension: Not pertinent 9.9 Liquid Water Interfacial Tension: Not pertinent 9.10 Vapor (Gas) Specific Gravity: Not pertinent 9.11 Ratio of Specific Heats of Vapor (Gas): Not pertinent 9.12 Latent Heat of Vaporization: Not pertinent 9.13 Heat of Combustion: Not pertinent 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: Low								
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	119.200	68	0.330		N O T P E R T I N E N T		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
	M I S C I B L E		N O T P E R T I N E N T		N O T P E R T I N E N T		N O T P E R T I N E N T