

SULFUR MONOCHLORIDE

SFM

CAUTIONARY RESPONSE INFORMATION

| | | | |
|---|---|---------------|-----------------------|
| Common Synonyms | Oily liquid | Yellow to red | Irritating sharp odor |
| Mixes and reacts with water. Poisonous vapor is produced. | | | |
| <p>Evacuate. Keep people away. Avoid contact with liquid and vapor. Wear goggles, self-contained breathing apparatus, and rubber overclothing (including gloves). Call fire department. Notify local health and pollution control agencies. Protect water intakes.</p> | | | |
| Fire | Combustible. Wear goggles, self-contained breathing apparatus, and rubber overclothing (including gloves). Extinguish with dry chemical, or carbon dioxide. Cool exposed containers with water. Water reacts violently with compound. | | |
| Exposure | CALL FOR MEDICAL AID. VAPOR Irritating to eyes. Poisonous if inhaled. Move to fresh air. If breathing has stopped, give artificial respiration. If breathing is difficult, give oxygen. LIQUID Will burn skin and eyes. Poisonous 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 | Dangerous to aquatic life in high 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

Dilute and disperse dissolved material
 Stop discharge
 Chemical and Physical Treatment:
 Neutralize
 Do not add water to undissolved material
 Pump or dredge contaminated sediment

2. CHEMICAL DESIGNATIONS

2.1 **CG Compatibility Group:** Not listed.
 2.2 **Formula:** S₂Cl₂
 2.3 **IMO/UN Designation:** 8.0/1828
 2.4 **DOT ID No.:** 1828
 2.5 **CAS Registry No.:** 12771-08-3
 2.6 **NAERG Guide No.:** 137
 2.7 **Standard Industrial Trade Classification:** 52241

3. HEALTH HAZARDS

- 3.1 **Personal Protective Equipment:** Chemical safety goggles and/or face shield; canister-type gas mask (light concentrations) or self-contained breathing apparatus (heavy concentrations); chemically resistant shoes or boots, apron, and long-sleeve gloves.
- 3.2 **Symptoms Following Exposure:** Vapors irritate eyes and respiratory system; pulmonary edema may result. Liquid burns and damages eyes. Unless removed at once, it burns the skin. Ingestion causes severe damage to mouth and stomach.
- 3.3 **Treatment of Exposure:** INHALATION: remove to fresh air; use artificial respiration and oxygen if required; call a doctor. INGESTION: give water; do NOT induce vomiting; call a doctor. EYES: flush with water for at least 15 min.; obtain medical attention at once. SKIN: flush with water; remove contaminated clothing under shower.
- 3.4 **TLV-TWA:** Not listed.
 3.5 **TLV-STEL:** Not listed.
 3.6 **TLV-Ceiling:** 1 ppm
 3.7 **Toxicity by Ingestion:** Currently not available
 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 and is very injurious to the eyes.
 3.12 **Odor Threshold:** Currently not available
 3.13 **IDLH Value:** 5 ppm
 3.14 **OSHA PEL-TWA:** 1 ppm
 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:** 266°F O.C. 245°F C.C.
 4.2 **Flammable Limits in Air:** Currently not available
 4.3 **Fire Extinguishing Agents:** Dry chemical, carbon dioxide, water spray
 4.4 **Fire Extinguishing Agents Not to Be Used:** Water reacts violently with compound.
 4.5 **Special Hazards of Combustion Products:** Toxic and corrosive fumes are evolved when heated.
 4.6 **Behavior in Fire:** Not pertinent
 4.7 **Auto Ignition Temperature:** 453°F
 4.8 **Electrical Hazards:** Not pertinent
 4.9 **Burning Rate:** Currently not available
 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

5. CHEMICAL REACTIVITY

- 5.1 **Reactivity with Water:** Reacts violently with water to produce heat and hydrogen chloride fumes. The solution is strongly acid.
 5.2 **Reactivity with Common Materials:** The liquid dissolves rubber and plastics. After reaction with water, the strong acid formed attacks metals, generating flammable hydrogen gas.
 5.3 **Stability During Transport:** Stable
 5.4 **Neutralizing Agents for Acids and Caustics:** After reaction with water, the acid formed can be neutralized with lime or soda ash.
 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:** None
 6.5 **GESAMP Hazard Profile:** Not listed

7. SHIPPING INFORMATION

- 7.1 **Grades of Purity:** Commercial material may contain 0-5% free sulfur.
 7.2 **Storage Temperature:** Ambient
 7.3 **Inert Atmosphere:** No requirement
 7.4 **Venting:** Pressure-vacuum
 7.5 **IMO Pollution Category:** Currently not available
 7.6 **Ship Type:** Currently not available
 7.7 **Barge Hull Type:** Currently not available

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:**
- | Category | Classification |
|---------------------------|----------------|
| Health Hazard (Blue)..... | 2 |
| Flammability (Red)..... | 1 |
| Instability (Yellow)..... | 1 |
- 8.6 **EPA Reportable Quantity:** 1000 pounds
 8.7 **EPA Pollution Category:** C
 8.8 **RCRA Waste Number:** Not listed
 8.9 **EPA FWPCA List:** Yes

9. PHYSICAL & CHEMICAL PROPERTIES

- 9.1 **Physical State at 15° C and 1 atm:** Liquid
 9.2 **Molecular Weight:** 135.03
 9.3 **Boiling Point at 1 atm:** 280°F = 138°C = 411°K
 9.4 **Freezing Point:** -112°F = -80°C = 193°K
 9.5 **Critical Temperature:** Not pertinent
 9.6 **Critical Pressure:** Not pertinent
 9.7 **Specific Gravity:** 1.68 at 20°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):** 1.129
 9.12 **Latent Heat of Vaporization:** 115 Btu/lb = 63.8 cal/g = 2.67 X 10⁵ J/kg
 9.13 **Heat of Combustion:** Not pertinent
 9.14 **Heat of Decomposition:** Not pertinent
 9.15 **Heat of Solution:** -502.2 Btu/lb = -279.0 cal/g = 11.67 X 10⁵ J/kg
 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

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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 |
| 35 | 106.599 | 35 | 0.220 | | N | | N |
| 40 | 106.299 | 40 | 0.220 | | O | | O |
| 45 | 106.000 | 45 | 0.220 | | T | | T |
| 50 | 105.700 | 50 | 0.220 | | | | |
| 55 | 105.500 | 55 | 0.220 | | P | | P |
| 60 | 105.200 | 60 | 0.220 | | E | | E |
| 65 | 104.900 | 65 | 0.220 | | R | | R |
| 70 | 104.599 | 70 | 0.220 | | T | | T |
| 75 | 104.400 | 75 | 0.220 | | I | | I |
| 80 | 104.099 | 80 | 0.220 | | N | | N |
| 85 | 103.799 | 85 | 0.220 | | E | | E |
| 90 | 103.500 | 90 | 0.220 | | N | | N |
| 95 | 103.200 | 95 | 0.220 | | T | | T |
| 100 | 103.000 | 100 | 0.220 | | | | |
| 105 | 102.700 | 105 | 0.220 | | | | |
| 110 | 102.400 | 110 | 0.220 | | | | |
| 115 | 102.099 | 115 | 0.220 | | | | |
| 120 | 101.900 | 120 | 0.220 | | | | |
| | | 125 | 0.220 | | | | |
| | | 130 | 0.220 | | | | |
| | | 135 | 0.220 | | | | |
| | | 140 | 0.220 | | | | |
| | | 145 | 0.220 | | | | |
| | | 150 | 0.220 | | | | |
| | | 155 | 0.220 | | | | |

| 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 |
| | R | 40 | 0.093 | 40 | 0.00235 | 0 | 0.125 |
| | E | 50 | 0.127 | 50 | 0.00313 | 20 | 0.126 |
| | A | 60 | 0.170 | 60 | 0.00411 | 40 | 0.127 |
| | C | 70 | 0.226 | 70 | 0.00536 | 60 | 0.128 |
| | T | 80 | 0.296 | 80 | 0.00690 | 80 | 0.129 |
| | S | 90 | 0.385 | 90 | 0.00882 | 100 | 0.130 |
| | | 100 | 0.496 | 100 | 0.01115 | 120 | 0.131 |
| | | 110 | 0.634 | 110 | 0.01399 | 140 | 0.132 |
| | | 120 | 0.802 | 120 | 0.01741 | 160 | 0.133 |
| | | 130 | 1.007 | 130 | 0.02149 | 180 | 0.133 |
| | | 140 | 1.256 | 140 | 0.02634 | 200 | 0.134 |
| | | 150 | 1.554 | 150 | 0.03206 | 220 | 0.135 |
| | | 160 | 1.910 | 160 | 0.03877 | 240 | 0.135 |
| | | 170 | 2.332 | 170 | 0.04658 | 260 | 0.136 |
| | | 180 | 2.829 | 180 | 0.05564 | 280 | 0.137 |
| | | 190 | 3.413 | 190 | 0.06608 | 300 | 0.137 |
| | | 200 | 4.093 | 200 | 0.07805 | 320 | 0.138 |
| | | 210 | 4.883 | 210 | 0.09171 | 340 | 0.138 |
| | | 220 | 5.794 | 220 | 0.10720 | 360 | 0.138 |
| | | 230 | 6.842 | 230 | 0.12480 | 380 | 0.139 |
| | | 240 | 8.040 | 240 | 0.14460 | 400 | 0.139 |
| | | 250 | 9.406 | 250 | 0.16670 | 420 | 0.139 |
| | | 260 | 10.960 | 260 | 0.19150 | 440 | 0.140 |
| | | 270 | 12.710 | 270 | 0.21910 | 460 | 0.140 |
| | | 280 | 14.680 | 280 | 0.24970 | 480 | 0.140 |
| | | | | | | 500 | 0.140 |