



THATCHER COMPANY MATERIAL SAFETY DATA SHEET
PRODUCT: SULFUR DIOXIDE
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MSDS Date: December 18, 2007
Emergency Contact: 1-800-424-9300

SECTION I

PRODUCT NAME: Sulfur Dioxide
SYNONYMS: Sulfurous (Acid) Anhydride, Sulfurous Oxide, Sulphur Dioxide
FORMULA: SO₂
DOT SHIPPING INFORMATION: Sulfur Dioxide, Liquified, 2.3, UN 1079;
Hazard Zone C; Poison - Inhalation Hazard

SECTION II - HAZARDOUS INGREDIENTS

This material contains no ingredients which are known by Thatcher Company to be hazardous unless listed below.

HAZARDOUS MATERIAL	CAS NUMBER	WT %	EXPOSURE LIMITS IN AIR
Sulfur Dioxide	7446-09-5	-----	PEL = 5.0 ppm (TWA) TLV = 2.0 ppm (TWA) = 5.0 ppm (STEL)

The specific identity of some ingredients may be withheld for confidential business purposes. However, all known potential health effects from exposure to these ingredients are being addressed.

SECTION III - PHYSICAL DATA

BOILING POINT (F): -10 EC (14 F) @ 760 mm Hg **SPECIFIC GRAVITY (at 0 EC):** 1.436
VAPOR PRESSURE (mm Hg): (at 20 EC) 2475 **% VOLATILE, BY VOLUME:** 100%
VAPOR DENSITY (air = 1): 2.926 g/L (760) **EVAPORATION RATE:** abt 40 g/m²/s @ 21 EC
SOLUBILITY IN WATER: 11.9 % by wt @ 15 EC
APPEARANCE AND ODOR: Colorless gas or liquid. Strong pungent odor.

SECTION IV - FIRE AND EXPLOSION DATA

FLASH POINT: Nonflammable
FLAMMABLE LIMITS: Lel: N/A Uel: N/A
EXTINGUISHING MEDIA: Use appropriate media to extinguish source of fire.

SPECIAL FIRE-FIGHTING PROCEDURES:

Remove Sulfur Dioxide containers from fire zone if possible. Apply water to cool containers unless there is



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a sulfur dioxide leak. In presence of SO₂, use self-contained breathing apparatus and full protective clothing. Gas tight suits required in extreme (> 1000 ppm) concentrations of SO₂ gas.

UNUSUAL FIRE AND EXPLOSION HAZARDS:

Cylinders and ton containers will vent through the fusible plug at 71° C (160° F). Tank cars and tank trucks are fitted with safety relief valves and will vent at 1,550 kPa (225 psig) or 944 kPa (137 psig) in a fire or when unduly high pressure is applied; e.g., excessive air padding. Sulfur dioxide is not explosive.

SECTION V - REACTIVITY DATA

STABILITY: Stable

HAZARDOUS POLYMERIZATION: Will not occur

CONDITIONS OR MATERIALS TO AVOID:

Avoid exposure to moisture and high temperatures. Moist gas corrodes most metals. Reacts with water. Reacts vigorously with strong alkalies and oxidizing agents.

HAZARDOUS DECOMPOSITION PRODUCTS:

Does not decompose, but will react with water or steam to produce corrosive products.

SECTION VI - HEALTH HAZARD DATA

NFPA HAZARDOUS RATING: Health = 2 Flammability = 0 Reactivity = 0

Carcinogenic Listing:

NTP: No ingredients listed in this section.

IARC MONOGRAPHS: No ingredients listed in this section.

OSHA 29 CFR 1910: No ingredients listed in this section.

ENTRY ROUTES & EFFECTS OF OVEREXPOSURE:

Contact: Liquid Sulfur Dioxide can cause frost bite and skin burns. SO₂ converts to sulfurous acid in moist environments which may cause skin irritations. Corneal burns, opacification and blindness may result if liquid SO₂ is splashed in the eyes. Sulfur dioxide can penetrate the intact cornea and cause iritis.

Inhalation: Acute exposure may result in dryness and irritation of the nose and throat, choking, sneezing, coughing and broncho-spasm. Severe exposure may cause death through systemic acidosis, pulmonary edema or from respiratory arrest. Prolonged or repeated exposure may cause impaired lung function, bronchitis, hacking cough, nasal irritation and discharge, increased fatigue, alteration in the senses of taste and smell, and longer duration of common colds. Dental caries, loss of fillings, gum disorders and the rapid and painless destruction of teeth may result from overexposure.

Ingestion: Causes severe burns to the mouth, throat and gastrointestinal system.

STATEMENT OF PRACTICAL TREATMENT:



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- Contact:** Flush exposed area thoroughly with water for at least 15 minutes. Start flushing while removing contaminated clothing. If irritation persists, repeat flushing. Obtain medical attention *immediately*. Treat frostbite by *immediately* immersing affected area in warm water until the skin has warmed up and turned pink. Obtain medical attention *immediately*. For eyes, immediately flush with cool water for at least 15 minutes and get *immediate* medical attention.
- Inhalation:** Move victim to fresh air. If breathing has stopped, begin artificial respiration. Give CPR if there is no breathing *and* no pulse. Obtain medical attention *immediately*.
- Ingestion:** Since material is a gas at room temperature, ingestion is unlikely to occur. If victim is alert and *not* convulsing, give several glasses of water or milk. **Do not** induce vomiting. If spontaneous vomiting occurs, have victim lean forward with head down and give more fluids. Do not give anything by mouth to an unconscious or convulsing person. Obtain medical attention *immediately*.

NOTE TO PHYSICIAN: No specific antidote is available. All treatments should be based on observed signs and symptoms of distress in the patient. Consideration should be given to the possibility that overexposure to materials other than this product may have occurred.

SECTION VII - SPECIAL PRECAUTIONS

HANDLING AND STORAGE PRECAUTIONS:

Only trained personnel using appropriate protective equipment should handle Sulfur dioxide. Avoid breathing gas. Do not get in eyes, on skin or on clothing. Store in a cool, dry area in properly designated pressure vessels. Keep away from heat sources. Segregate from combustible material.

STEPS TO BE TAKEN IF MATERIAL SPILLS OR LEAKS:

Move unprotected personnel upwind. If a SO₂ container is leaking, try to position it so that gas, rather than liquid, leaks. Using full protective equipment, apply emergency sealing device if possible. Cover leak area with tarpaulin or plastic sheet to limit spread of SO₂. Leaking SO₂ cylinder should *never* be immersed in water. Neutralize with dilute solutions of soda ash, caustic soda, hydrated lime or sodium bicarbonate. Maintain alkaline pH during neutralization. Alkaline solutions must be oxidized before disposal due to their oxygen demands.

WASTE DISPOSAL METHOD:

Alkaline solutions must be oxidized before disposal due to their oxygen demands. Dispose of waste material at an approved waste treatment /disposal facility, in accordance with local, state and federal regulations. Do not dispose of waste with normal garbage or to sewer systems.

SECTION VIII - SPECIAL PROTECTION INFORMATION

RESPIRATORY PROTECTION:

NIOSH/MSHA approved air-purifying respirator equipped with acid gas cartridges for concentrations up to 20 ppm. Air-supplied respirator for higher or unknown concentrations.



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VENTILATION:

Local exhaust ventilation preferred. SO₂ should be collected and neutralized in a suitable scrubbing system.

EYE PROTECTION: Tight fitting chemical goggles and face shield.

SKIN PROTECTION: Heavy-weight coveralls, safety boots and insulated impervious gloves.

OTHER PROTECTIVE EQUIPMENT:

Impervious gas-tight overall body protection depending on exposure. Safety showers and eyewash stations should be readily available in an area not likely to be affected by a release of Sulfur dioxide, and near storage and handling areas. Insulated gloves should be worn if liquid contact is anticipated.

ACGIH = American Conference of Governmental Industrial Hygienists

CL = Ceiling Level

IARC = International Agency for Research on Cancer: Monographs

OSHA = Occupational Safety and Health Administration

N/A = Not Applicable

NTP = National Toxicology Program: Annual Report on Carcinogens

PEL = Permissible Exposure Level (OSHA)

TLV = Threshold Limit Value (ACGIH)

TWA = Time Weighted Average over 8 Hours

STEL = Short Term Exposure Limit (ACGIH)

ND = Not Determined

This information is, to the best of our knowledge, accurate but may not be complete. THATCHER COMPANY furnishes this information in good faith, but without warranty, representation or guarantee of its accuracy, completeness, or reliability.