



MATERIAL SAFETY DATA SHEET

1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

MATHESON TRI-GAS, INC.
959 ROUTE 46 EAST
PARSIPPANY, NEW JERSEY 07054-0624

EMERGENCY CONTACT:
CHEMTREC 1-800-424-9300
INFORMATION CONTACT:
973-257-1100

SUBSTANCE: SULFUR DIOXIDE

TRADE NAMES/SYNONYMS:

MTG MSDS 80; SULFUROUS ACID ANHYDRIDE; SULFUROUS OXIDE; SULPHUR DIOXIDE;
SULFUROUS ANHYDRIDE; FERMENTICIDE LIQUID; SULFUR DIOXIDE(SO₂); SULFUR OXIDE;
SULFUR OXIDE(SO₂); STCC 4904290; UN 1079; O₂S; MAT22290; RTECS WS4550000

CHEMICAL FAMILY: inorganic, gas

CREATION DATE: Jan 24 1989

REVISION DATE: Jun 16 2005

2. COMPOSITION, INFORMATION ON INGREDIENTS

COMPONENT: SULFUR DIOXIDE

CAS NUMBER: 7446-09-5

PERCENTAGE: 100.0

3. HAZARDS IDENTIFICATION

NFPA RATINGS (SCALE 0-4): HEALTH=3 FIRE=0 REACTIVITY=0

EMERGENCY OVERVIEW:

COLOR: colorless

PHYSICAL FORM: gas

ODOR: irritating odor

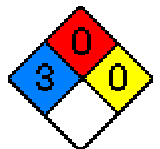
MAJOR HEALTH HAZARDS: respiratory tract burns, skin burns, eye burns, allergic reactions

PHYSICAL HAZARDS: Containers may rupture or explode if exposed to heat.

POTENTIAL HEALTH EFFECTS:

INHALATION:

SHORT TERM EXPOSURE: allergic reactions, burns



LONG TERM EXPOSURE: allergic reactions, burns

SKIN CONTACT:

SHORT TERM EXPOSURE: burns

LONG TERM EXPOSURE: burns

EYE CONTACT:

SHORT TERM EXPOSURE: burns

LONG TERM EXPOSURE: burns

INGESTION:

SHORT TERM EXPOSURE: ingestion of harmful amounts is unlikely

LONG TERM EXPOSURE: ingestion of harmful amounts is unlikely

4. FIRST AID MEASURES

INHALATION: If adverse effects occur, remove to uncontaminated area. Give artificial respiration if not breathing. If breathing is difficult, oxygen should be administered by qualified personnel. Get immediate medical attention.

SKIN CONTACT: Wash skin with soap and water for at least 15 minutes while removing contaminated clothing and shoes. Get immediate medical attention. Thoroughly clean and dry contaminated clothing and shoes before reuse. Destroy contaminated shoes.

EYE CONTACT: Immediately flush eyes with plenty of water for at least 15 minutes. Then get immediate medical attention.

INGESTION: If a large amount is swallowed, get medical attention.

NOTE TO PHYSICIAN: For inhalation, consider oxygen.

5. FIRE FIGHTING MEASURES

FIRE AND EXPLOSION HAZARDS: Negligible fire hazard.

EXTINGUISHING MEDIA: carbon dioxide, regular dry chemical

Large fires: Use regular foam or flood with fine water spray.

FIRE FIGHTING: Move container from fire area if it can be done without risk. Cool containers with water spray until well after the fire is out. Stay away from the ends of tanks. Keep unnecessary people away, isolate hazard area and deny entry.

6. ACCIDENTAL RELEASE MEASURES

OCCUPATIONAL RELEASE:

Stop leak if possible without personal risk. Reduce vapors with water spray. Do not get water directly on material. Keep unnecessary people away, isolate hazard area and deny entry. Stay upwind and keep out of low areas. Ventilate closed spaces before entering. Evacuation radius: 150 feet. Notify Local Emergency Planning Committee and State Emergency Response Commission for release greater than or equal to RQ (U.S. SARA Section 304). If release occurs in the U.S. and is reportable under CERCLA Section 103, notify the National Response Center at (800)424-8802 (USA) or (202)426-2675 (USA).

7. HANDLING AND STORAGE

STORAGE: Store and handle in accordance with all current regulations and standards. Protect from physical damage. Store outside or in a detached building. Store in a well-ventilated area. Keep separated from incompatible substances. Notify State Emergency Response Commission for storage or use at amounts greater than or equal to the TPQ (U.S. EPA SARA Section 302). SARA Section 303 requires facilities storing a material with a TPQ to participate in local emergency response planning (U.S. EPA 40 CFR 355.30).

8. EXPOSURE CONTROLS, PERSONAL PROTECTION

EXPOSURE LIMITS:

SULFUR DIOXIDE:

- 2 ppm (5 mg/m³) OSHA TWA (vacated by 58 FR 35338, June 30, 1993)
- 5 ppm (13 mg/m³) OSHA STEL (vacated by 58 FR 35338, June 30, 1993)
- 5 ppm (13 mg/m³) OSHA TWA
- 2 ppm ACGIH TWA
- 5 ppm ACGIH STEL
- 2 ppm (5 mg/m³) NIOSH recommended TWA 10 hour(s)
- 5 ppm (13 mg/m³) NIOSH recommended STEL

VENTILATION: Provide local exhaust or process enclosure ventilation system. Ensure compliance with applicable exposure limits.

EYE PROTECTION: Wear splash resistant safety goggles with a faceshield. Provide an emergency eye wash fountain and quick drench shower in the immediate work area.

CLOTHING: For the gas: Wear appropriate chemical resistant clothing. For the liquid: Wear appropriate protective, cold insulating clothing.

GLOVES: Wear insulated gloves.

RESPIRATOR: The following respirators and maximum use concentrations are drawn from NIOSH and/or OSHA.

20 ppm

- Any chemical cartridge respirator with cartridge(s) providing protection against this substance.
- Any supplied-air respirator.



50 ppm

Any supplied-air respirator operated in a continuous-flow mode.

Any powered, air-purifying respirator with cartridge(s) providing protection against this substance.

100 ppm

Any chemical cartridge respirator with a full facepiece and cartridge(s) providing protection against this substance.

Any air-purifying respirator with a full facepiece and a canister providing protection against this substance.

Any powered, air-purifying respirator with a tight-fitting facepiece and cartridge(s) providing protection against this substance.

Any supplied-air respirator with a tight-fitting facepiece that is operated in a continuous-flow mode.

Any self-contained breathing apparatus with a full facepiece.

Any supplied-air respirator with a full facepiece.

Escape -

Any air-purifying respirator with a full facepiece and a canister providing protection against this substance.

Any appropriate escape-type, self-contained breathing apparatus.

For Unknown Concentrations or Immediately Dangerous to Life or Health -

Any supplied-air respirator with full facepiece and operated in a pressure-demand or other positive-pressure mode in combination with a separate escape supply.

Any self-contained breathing apparatus with a full facepiece.

9. PHYSICAL AND CHEMICAL PROPERTIES

PHYSICAL STATE: gas

COLOR: colorless

ODOR: irritating odor

MOLECULAR WEIGHT: 64.06

MOLECULAR FORMULA: S-O₂

BOILING POINT: 14 F (-10 C)

FREEZING POINT: -99 F (-73 C)

VAPOR PRESSURE: 2432 mmHg @ 20 C

VAPOR DENSITY (air=1): 2.26

SPECIFIC GRAVITY (water=1): 1.462 @ -10 C

WATER SOLUBILITY: 22.8% @ 0 C

PH: acidic in solution

VOLATILITY: Not applicable

ODOR THRESHOLD: 3-5 ppm

EVAPORATION RATE: >1 (butyl acetate=1)

COEFFICIENT OF WATER/OIL DISTRIBUTION: Not applicable

SOLVENT SOLUBILITY:

Soluble: alcohol, acetic acid, sulfuric acid, ether, chloroform, benzene, sulfuryl chloride, nitrobenzenes, toluene, acetone

10. STABILITY AND REACTIVITY

REACTIVITY: Stable at normal temperatures and pressure.

CONDITIONS TO AVOID: Minimize contact with material. Containers may rupture or explode if exposed to heat.

INCOMPATIBILITIES: combustible materials, metals, bases, oxidizing materials, halogens, metal carbide, metal oxides, peroxides, reducing agents

HAZARDOUS DECOMPOSITION:

Thermal decomposition products: oxides of sulfur

POLYMERIZATION: Will not polymerize.

11. TOXICOLOGICAL INFORMATION

SULFUR DIOXIDE:

IRRITATION DATA:

6 ppm/32 day(s) eyes-rabbit mild

TOXICITY DATA:

2168 mg/m³ inhalation-rat LC50

CARCINOGEN STATUS: IARC: Human Inadequate Evidence, Animal Limited Evidence, Group 3; ACGIH: A4 -Not Classifiable as a Human Carcinogen

LOCAL EFFECTS:

Corrosive: inhalation, skin, eye

ACUTE TOXICITY LEVEL:

Toxic: inhalation

TARGET ORGANS: immune system (sensitizer)

MEDICAL CONDITIONS AGGRAVATED BY EXPOSURE: respiratory disorders

TUMORIGENIC DATA: Available.

MUTAGENIC DATA: Available.

REPRODUCTIVE EFFECTS DATA: Available.

12. ECOLOGICAL INFORMATION

ECOTOXICITY DATA:

FISH TOXICITY: 3000 ug/L 0.667-0.833 hour(s) (Avoidance) Atlantic menhaden (*Brevoortia tyrannus*)

ALGAL TOXICITY: 500 ug/L 6 day(s) (Cellular) Green algae (*Rhizoclonium hieroglyphicum*)

PHYTOTOXICITY: >=150 ug/L NR hour(s) (Biochemical) Duckweed (*Lemna minor*)

13. DISPOSAL CONSIDERATIONS

Dispose in accordance with all applicable regulations.

14. TRANSPORT INFORMATION

U.S. DOT 49 CFR 172.101:

PROPER SHIPPING NAME: Sulfur dioxide

ID NUMBER: UN1079

HAZARD CLASS OR DIVISION: 2.3

LABELING REQUIREMENTS: 2.3; 8

QUANTITY LIMITATIONS:

PASSENGER AIRCRAFT OR RAILCAR: Forbidden

CARGO AIRCRAFT ONLY: Forbidden

ADDITIONAL SHIPPING DESCRIPTION: Toxic-Inhalation Hazard Zone C



CANADIAN TRANSPORTATION OF DANGEROUS GOODS:

SHIPPING NAME: Sulphur dioxide

UN NUMBER: UN1079

CLASS: 2.3; 8

15. REGULATORY INFORMATION

U.S. REGULATIONS:

CERCLA SECTIONS 102a/103 HAZARDOUS SUBSTANCES (40 CFR 302.4): Not regulated.

SARA TITLE III SECTION 302 EXTREMELY HAZARDOUS SUBSTANCES (40 CFR 355.30):

SULFUR DIOXIDE: 500 LBS TPQ

SARA TITLE III SECTION 304 EXTREMELY HAZARDOUS SUBSTANCES (40 CFR 355.40):

SULFUR DIOXIDE: 500 LBS RQ

SARA TITLE III SARA SECTIONS 311/312 HAZARDOUS CATEGORIES (40 CFR 370.21):

ACUTE: Yes

CHRONIC: Yes

FIRE: No

REACTIVE: No

SUDDEN RELEASE: Yes

SARA TITLE III SECTION 313 (40 CFR 372.65): Not regulated.

OSHA PROCESS SAFETY (29CFR1910.119):

SULFUR DIOXIDE: 1000 LBS TQ

STATE REGULATIONS:

California Proposition 65: Not regulated.

CANADIAN REGULATIONS:
WHMIS CLASSIFICATION: AD1

NATIONAL INVENTORY STATUS:
U.S. INVENTORY (TSCA): Listed on inventory.

TSCA 12(b) EXPORT NOTIFICATION: Not listed.

CANADA INVENTORY (DSL/NDSL): Not determined.

16. OTHER INFORMATION

MSDS SUMMARY OF CHANGES

14. TRANSPORT INFORMATION

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