1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

MATHESON TRI-GAS, INC.  
150 Allen Road Suite 302  
Basking Ridge, New Jersey 07920  
Information: 1-800-416-2505  

Emergency Contact:  
CHEMTREC 1-800-424-9300  
Calls Originating Outside the US:  
703-527-3887 (Collect Calls Accepted)

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: Dec 11 2008

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 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
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 Part B).

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 air-purifying half-mask respirator equipped with cartridge(s) providing protection against the compound
of concern.
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 air-purifying respirator with a full facepiece and a canister providing protection against this substance.
Any air-purifying full-facepiece respirator (gas mask) with a chin-style, front-mounted or back-mounted canister providing protection against the compound of concern.
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.
Emergency or planned entry into unknown concentrations or IDLH conditions -
Any self-contained breathing apparatus that has a full facepiece and is operated in a pressure-demand or other positive-pressure mode.
Any supplied-air respirator with a full facepiece that is operated in a pressure-demand or other positive-pressure mode in combination with an auxiliary self-contained breathing apparatus operated in pressure-demand or other positive-pressure mode.

Escape -
Any air-purifying full-facepiece respirator (gas mask) with a chin-style, front-mounted or back-mounted canister providing protection against the compound of concern.
Any appropriate escape-type, self-contained breathing apparatus.

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:
PAASSENGER 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 Subpart B):
SULFUR DIOXIDE: 500 LBS TPQ

SARA TITLE III SECTION 304 EXTREMELY HAZARDOUS SUBSTANCES (40 CFR 355 Subpart C):
SULFUR DIOXIDE: 500 LBS RQ

SARA TITLE III SARA SECTIONS 311/312 HAZARDOUS CATEGORIES (40 CFR 370 Subparts B and C):
ACUTE: Yes
CHRONIC: Yes
FIRE: No
REACTIVE: No
SUDDEN RELEASE: Yes

OSHA PROCESS SAFETY (29 CFR 1910.119):
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

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