

# MATERIAL SAFETY DATA SHEET

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## 1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

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**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: CARBONYL SULFIDE**

**TRADE NAMES/SYNONYMS:**

MTG MSDS 21; CARBON OXYSULFIDE; CARBON OXIDE SULFIDE; OXYCARBON SULFIDE; UN 2204; COS; MAT04330; RTECS FG6400000

**CHEMICAL FAMILY:** inorganic, gas

**CREATION DATE:** Jan 24 1989

**REVISION DATE:** Dec 11 2008

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## 2. COMPOSITION, INFORMATION ON INGREDIENTS

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**COMPONENT:** CARBONYL SULFIDE

**CAS NUMBER:** 463-58-1

**PERCENTAGE:** 100.0

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## 3. HAZARDS IDENTIFICATION

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**NFPA RATINGS (SCALE 0-4):** HEALTH=2 FIRE=4 REACTIVITY=1



**EMERGENCY OVERVIEW:**

**COLOR:** colorless

**PHYSICAL FORM:** gas

**ODOR:** distinct odor

**MAJOR HEALTH HAZARDS:** harmful if inhaled, respiratory tract irritation, skin irritation, eye irritation, central nervous system depression

**PHYSICAL HAZARDS:** Flammable gas. May cause flash fire. May react on contact with water.

**POTENTIAL HEALTH EFFECTS:**

**INHALATION:**

**SHORT TERM EXPOSURE:** irritation, nausea, headache, symptoms of drunkenness, convulsions, coma

**LONG TERM EXPOSURE:** lung congestion

**SKIN CONTACT:**

**SHORT TERM EXPOSURE:** irritation, nausea, headache, symptoms of drunkenness

**LONG TERM EXPOSURE:** same as effects reported in short term exposure

**EYE CONTACT:**

**SHORT TERM EXPOSURE:** irritation, blisters, tearing

**LONG TERM EXPOSURE:** same as effects reported in short term exposure

**INGESTION:**

**SHORT TERM EXPOSURE:** frostbite

**LONG TERM EXPOSURE:** no information is available

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## 4. FIRST AID MEASURES

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**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 medical attention, if needed. Thoroughly clean and dry contaminated clothing and shoes before reuse.

**EYE CONTACT:** 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.

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## 5. FIRE FIGHTING MEASURES

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**FIRE AND EXPLOSION HAZARDS:** Severe fire hazard. Moderate explosion hazard. Gas/air mixtures are explosive. The gas is heavier than air. Vapors or gases may ignite at distant ignition sources and flash back.

**EXTINGUISHING MEDIA:** Let burn unless leak can be stopped immediately. 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. For fires in cargo or storage area: Cool containers with water from unmanned hose holder or monitor nozzles until well after fire is out. If this is impossible then take the following precautions: Keep unnecessary people away, isolate hazard area and deny entry. Let the fire burn. Withdraw immediately in case of rising sound from venting safety device or any discoloration of tanks due to fire. For tank, rail car or tank truck: Evacuation radius: 800 meters (1/2 mile). Do not attempt to extinguish fire unless flow of material can be stopped first. Flood with fine water spray.

Cool containers with water spray until well after the fire is out. Apply water from a protected location or from a safe distance. Avoid inhalation of material or combustion by-products. Stay upwind and keep out of low areas. Evacuate if fire gets out of control or containers are directly exposed to fire. Evacuation radius: 500 meters (1/3 mile). Consider downwind evacuation if material is leaking. Stop flow of gas.

**LOWER FLAMMABLE LIMIT:** 12%

**UPPER FLAMMABLE LIMIT:** 29%

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## 6. ACCIDENTAL RELEASE MEASURES

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### **OCCUPATIONAL RELEASE:**

Avoid heat, flames, sparks and other sources of ignition. Stop leak if possible without personal risk. Reduce vapors with water spray. Keep unnecessary people away, isolate hazard area and deny entry. Remove sources of ignition. Ventilate closed spaces before entering. 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).

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## 7. HANDLING AND STORAGE

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**STORAGE:** Store and handle in accordance with all current regulations and standards.

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## 8. EXPOSURE CONTROLS, PERSONAL PROTECTION

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### **EXPOSURE LIMITS:**

#### **CARBONYL SULFIDE:**

No occupational exposure limits established.

**VENTILATION:** Provide local exhaust or process enclosure ventilation system. Ventilation equipment should be explosion-resistant if explosive concentrations of material are present. 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:** Wear appropriate chemical resistant clothing.

**GLOVES:** Wear appropriate chemical resistant gloves.

**RESPIRATOR:** Under conditions of frequent use or heavy exposure, respiratory protection may be needed. Respiratory protection is ranked in order from minimum to maximum. Consider warning properties before use.

Any supplied-air respirator with a full facepiece that is operated in a pressure-demand or other positive-

pressure mode.

Any self-contained breathing apparatus that has a full facepiece and is operated in a pressure-demand or other positive-pressure mode.

**For Unknown Concentrations or Immediately Dangerous to Life or Health -**

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.

Any self-contained breathing apparatus that has a full facepiece and is operated in a pressure-demand or other positive-pressure mode.

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## 9. PHYSICAL AND CHEMICAL PROPERTIES

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**PHYSICAL STATE:** gas

**COLOR:** colorless

**ODOR:** distinct odor

**MOLECULAR FORMULA:** C-O-S

**BOILING POINT:** -58 F (-50 C)

**FREEZING POINT:** -218 F (-139 C)

**VAPOR PRESSURE:** Not available

**VAPOR DENSITY (air=1):** 2.1

**SPECIFIC GRAVITY (water=1):** 1.24 @ -87 C

**WATER SOLUBILITY:** soluble

**PH:** Not applicable

**VOLATILITY:** Not applicable

**ODOR THRESHOLD:** Not available

**EVAPORATION RATE:** Not applicable

**COEFFICIENT OF WATER/OIL DISTRIBUTION:** Not applicable

**SOLVENT SOLUBILITY:**

**Soluble:** alcohol

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## 10. STABILITY AND REACTIVITY

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**REACTIVITY:** Contact with water or moist air may form flammable and/or toxic gases or vapors.

**CONDITIONS TO AVOID:** Avoid heat, flames, sparks and other sources of ignition. Minimize contact with material. Avoid inhalation of material or combustion by-products. Keep out of water supplies and sewers.

**INCOMPATIBILITIES:** bases, oxidizing materials

**HAZARDOUS DECOMPOSITION:**

Thermal decomposition products: oxides of carbon, hydrogen sulfide

**POLYMERIZATION:** Will not polymerize.

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## 11. TOXICOLOGICAL INFORMATION

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**CARBONYL SULFIDE:**

**TOXICITY DATA:** 1070 ppm/4 hour(s) inhalation-rat LC50

**LOCAL EFFECTS:**

Irritant: inhalation, skin, eye

**ACUTE TOXICITY LEVEL:**

Toxic: inhalation

**TARGET ORGANS:** central nervous system

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## 12. ECOLOGICAL INFORMATION

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Not available

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## 13. DISPOSAL CONSIDERATIONS

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Dispose in accordance with all applicable regulations.

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## 14. TRANSPORT INFORMATION

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**U.S. DOT 49 CFR 172.101:**

**PROPER SHIPPING NAME:** Carbonyl sulfide

**ID NUMBER:** UN2204

**HAZARD CLASS OR DIVISION:** 2.3

**LABELING REQUIREMENTS:** 2.3; 2.1

**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:** Carbonyl sulphide

**UN NUMBER:** UN2204

**CLASS:** 2.3; 2.1

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## 15. REGULATORY INFORMATION

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**U.S. REGULATIONS:**

**CERCLA SECTIONS 102a/103 HAZARDOUS SUBSTANCES (40 CFR 302.4):**

**CARBONYL SULFIDE:** 100 LBS RQ

**SARA TITLE III SECTION 302 EXTREMELY HAZARDOUS SUBSTANCES (40 CFR 355 Subpart B):** Not regulated.

**SARA TITLE III SECTION 304 EXTREMELY HAZARDOUS SUBSTANCES (40 CFR 355 Subpart C):** Not regulated.

**SARA TITLE III SARA SECTIONS 311/312 HAZARDOUS CATEGORIES (40 CFR 370 Subparts B and C):**

ACUTE: Yes

CHRONIC: No

FIRE: Yes

REACTIVE: Yes

SUDDEN RELEASE: Yes

**SARA TITLE III SECTION 313 (40 CFR 372.65):  
CARBONYL SULFIDE**

**OSHA PROCESS SAFETY (29 CFR 1910.119):** Not regulated.

**STATE REGULATIONS:**

**California Proposition 65:** Not regulated.

**CANADIAN REGULATIONS:**

**WHMIS CLASSIFICATION:** ABD1

**NATIONAL INVENTORY STATUS:**

**U.S. INVENTORY (TSCA):** Listed on inventory.

**TSCA 12(b) EXPORT NOTIFICATION:** Not listed.

**CANADA INVENTORY (DSL/NDSL):** Not determined.

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**16. OTHER INFORMATION**

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**MSDS SUMMARY OF CHANGES**

**15. REGULATORY INFORMATION**

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