

# 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: PHOSGENE

#### TRADE NAMES/SYNONYMS:

MTG MSDS 73; CARBONYL CHLORIDE; CARBON OXYCHLORIDE; CARBON DICHLORIDE  
OXIDE; CARBON DICHLORIDE; CARBONIC ACID DICHLORIDE; CHLOROFORMYL CHLORIDE;  
RCRA P095; UN 1076; CCl<sub>2</sub>O; MAT18660; RTECS SY5600000

**CHEMICAL FAMILY:** acid halides, carboxylic, aliphatic

**CREATION DATE:** Jan 24 1989

**REVISION DATE:** Dec 11 2008

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## 2. COMPOSITION, INFORMATION ON INGREDIENTS

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**COMPONENT:** PHOSGENE  
**CAS NUMBER:** 75-44-5  
**PERCENTAGE:** 100.0

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## 3. HAZARDS IDENTIFICATION

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



#### EMERGENCY OVERVIEW:

**COLOR:** colorless

**PHYSICAL FORM:** gas

**ODOR:** hay-like odor, pungent odor

**MAJOR HEALTH HAZARDS:** potentially fatal if inhaled, respiratory tract burns, skin burns, eye burns

**PHYSICAL HAZARDS:** Containers may rupture or explode if exposed to heat. May react on contact with water.

#### POTENTIAL HEALTH EFFECTS:

**INHALATION:**

**SHORT TERM EXPOSURE:** irritation (possibly severe), lack of sense of smell, vomiting, chest pain, difficulty breathing, headache, dizziness, bluish skin color, lung congestion, lung damage, death

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

**SKIN CONTACT:**

**SHORT TERM EXPOSURE:** irritation (possibly severe)

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

**EYE CONTACT:**

**SHORT TERM EXPOSURE:** burns, tearing, eye damage

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

**INGESTION:**

**SHORT TERM EXPOSURE:** no information on significant adverse effects

**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:** If frostbite or freezing occur, immediately flush with plenty of lukewarm water (105-115 F; 41-46 C). DO NOT USE HOT WATER. If warm water is not available, gently wrap affected parts in blankets. Get immediate medical attention.

**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:** Negligible fire hazard.

**EXTINGUISHING MEDIA:** carbon dioxide, regular dry chemical

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

**FIRE FIGHTING:** Do not get water inside container. 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.

**FLASH POINT:** not flammable

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## 6. ACCIDENTAL RELEASE MEASURES

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### **AIR RELEASE:**

Reduce vapors with water spray. Stay upwind and keep out of low areas.

### **SOIL RELEASE:**

Trap spilled material at bottom in deep water pockets, excavated holding areas or within sand bag barriers. Dike for later disposal. Dilute slowly and cautiously with water. Add an alkaline material (lime, crushed limestone, sodium bicarbonate, or soda ash).

### **WATER RELEASE:**

Add an alkaline material (lime, crushed limestone, sodium bicarbonate, or soda ash).

### **OCCUPATIONAL RELEASE:**

Stop leak if possible without personal risk. Reduce vapors with water spray. Do not get water directly on material. Do not get water inside container. Keep unnecessary people away, isolate hazard area and deny entry. Small spills: Flood with water. Large spills: Dike for later disposal. 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).

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## 7. HANDLING AND STORAGE

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**STORAGE:** Store and handle in accordance with all current regulations and standards. 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). Protect from physical damage. Store outside or in a detached building. Store in a well-ventilated area. Keep separated from incompatible substances.

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## 8. EXPOSURE CONTROLS, PERSONAL PROTECTION

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### **EXPOSURE LIMITS:**

#### **PHOSGENE:**

0.1 ppm (0.4 mg/m<sup>3</sup>) OSHA TWA

0.1 ppm ACGIH TWA

0.1 ppm (0.4 mg/m<sup>3</sup>) NIOSH recommended TWA 10 hour(s)

0.2 ppm (0.8 mg/m<sup>3</sup>) NIOSH recommended ceiling 15 minute(s)

**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:** Wear appropriate chemical resistant clothing.

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

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

**1 ppm**

Any supplied-air respirator.

**2 ppm**

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.

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## 9. PHYSICAL AND CHEMICAL PROPERTIES

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**PHYSICAL STATE:** gas

**COLOR:** colorless

**ODOR:** hay-like odor, pungent odor

**MOLECULAR WEIGHT:** 98.91

**MOLECULAR FORMULA:** C-CL<sub>2</sub>-O

**BOILING POINT:** 46 F (8 C)

**FREEZING POINT:** -195 F (-126 C)

**VAPOR PRESSURE:** 1180 mmHg @ 20 C

**VAPOR DENSITY (air=1):** 3.4

**SPECIFIC GRAVITY (water=1):** 1.4

**WATER SOLUBILITY:** hydrolyzes

**PH:** Not applicable

**VOLATILITY:** Not applicable

**ODOR THRESHOLD:** 0.125 ppm

**EVAPORATION RATE:** Not applicable

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

**SOLVENT SOLUBILITY:**

**Soluble:** benzene, toluene, acetic acid, liquid hydrocarbons

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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:** Minimize contact with material. Avoid inhalation of material or combustion by-products. Containers may rupture or explode if exposed to heat.

**INCOMPATIBILITIES:** bases, metals, combustible materials, oxidizing materials

**HAZARDOUS DECOMPOSITION:**

Thermal decomposition products: miscellaneous decomposition products

**POLYMERIZATION:** Will not polymerize.

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## 11. TOXICOLOGICAL INFORMATION

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**PHOSGENE:**

**TOXICITY DATA:** 12.35 ppm/2 hour(s) inhalation-mouse LC50

**LOCAL EFFECTS:**

Corrosive: inhalation, skin, eye

**ACUTE TOXICITY LEVEL:**

Highly Toxic: inhalation

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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. Subject to disposal regulations: U.S. EPA 40 CFR 262. Hazardous Waste Number(s): P095.

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## 14. TRANSPORT INFORMATION

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

**PROPER SHIPPING NAME:** Phosgene

**ID NUMBER:** UN1076

**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 A

**CANADIAN TRANSPORTATION OF DANGEROUS GOODS:**

**SHIPPING NAME:** Phosgene  
**UN NUMBER:** UN1076  
**CLASS:** 2.3; 8

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**15. REGULATORY INFORMATION**

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**U.S. REGULATIONS:**

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

**PHOSGENE:** 10 LBS RQ

**SARA TITLE III SECTION 302 EXTREMELY HAZARDOUS SUBSTANCES (40 CFR 355 Subpart B):**

**PHOSGENE:** 10 LBS TPQ

**SARA TITLE III SECTION 304 EXTREMELY HAZARDOUS SUBSTANCES (40 CFR 355 Subpart C):**

**PHOSGENE:** 10 LBS RQ

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

**ACUTE:** Yes

**CHRONIC:** No

**FIRE:** No

**REACTIVE:** Yes

**SUDDEN RELEASE:** Yes

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

**PHOSGENE**

**OSHA PROCESS SAFETY (29 CFR 1910.119):**

**PHOSGENE:** 100 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.

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## 16. OTHER INFORMATION

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### MSDS SUMMARY OF CHANGES

7. HANDLING AND STORAGE

15. REGULATORY INFORMATION

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