



**MATHESON  
TRI-GAS**

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# 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: METHYL VINYL KETONE**

**TRADE NAMES/SYNONYMS:**

3-BUTEN-2-ONE; 2-BUTENONE; 3-OXOBUTENE; VINYL METHYL KETONE; METHYLENE ACETONE; ACETYL ETHYLENE; DELTA-OXO-ALPHA-BUTYLENE; 1-BUTEN-3-ONE; BUTENONE; METHYL-VINYL-CETONE; METHYL VINYL KETONE; STCC 4907260; UN 1251; C4H6O; MAT14770; RTECS EM9800000

**CHEMICAL FAMILY:** ketones, 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:** METHYL VINYL KETONE

**CAS NUMBER:** 78-94-4

**PERCENTAGE:** 100.0

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## 3. HAZARDS IDENTIFICATION

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**NFPA RATINGS (SCALE 0-4):** HEALTH=4 FIRE=3 REACTIVITY=2



**EMERGENCY OVERVIEW:**

**COLOR:** colorless to yellow

**PHYSICAL FORM:** liquid

**ODOR:** irritating odor

**MAJOR HEALTH HAZARDS:** potentially fatal if inhaled or swallowed, respiratory tract burns, skin burns, eye burns, mucous membrane burns, central nervous system depression

**PHYSICAL HAZARDS:** Flammable liquid and vapor. Vapor may cause flash fire. May polymerize. Containers may rupture or explode.

**POTENTIAL HEALTH EFFECTS:**

**INHALATION:**

**SHORT TERM EXPOSURE:** irritation (possibly severe), nausea, vomiting, difficulty breathing, headache, symptoms of drunkenness, fainting, bluish skin color, lung congestion, coma, death

**LONG TERM EXPOSURE:** digestive disorders

**SKIN CONTACT:**

**SHORT TERM EXPOSURE:** irritation (possibly severe), nausea, vomiting, difficulty breathing, headache, symptoms of drunkenness, fainting, coma

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

**EYE CONTACT:**

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

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

**INGESTION:**

**SHORT TERM EXPOSURE:** burns, death

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

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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 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 swallowed, drink plenty of water, do NOT induce vomiting. Get immediate medical attention.

**NOTE TO PHYSICIAN:** For inhalation, consider oxygen. For ingestion, consider gastric lavage.

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## 5. FIRE FIGHTING MEASURES

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

**EXTINGUISHING MEDIA:** alcohol-resistant foam, carbon dioxide, regular dry chemical, water

Large fires: Use alcohol-resistant foam or flood with fine water spray.

**FIRE FIGHTING:** Move container from fire area if it can be done without risk. Dike for later disposal. Do

not scatter spilled material with high-pressure water streams. Cool containers with water spray until well after the fire is out. Stay away from the ends of tanks. 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). Water may be ineffective.

**FLASH POINT:** 19 F (-7 C) (CC)

**LOWER FLAMMABLE LIMIT:** 2.1%

**UPPER FLAMMABLE LIMIT:** 15.6%

**AUTOIGNITION:** 916 F (491 C)

**FLAMMABILITY CLASS (OSHA):** IB

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## 6. ACCIDENTAL RELEASE MEASURES

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### **OCCUPATIONAL RELEASE:**

Avoid heat, flames, sparks and other sources of ignition. Do not touch spilled material. Stop leak if possible without personal risk. Reduce vapors with water spray. Small spills: Absorb with sand or other non-combustible material. Collect spilled material in appropriate container for disposal. Large spills: Dike for later disposal. Remove sources of ignition. Keep unnecessary people away, isolate hazard area and deny entry. 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. Subject to storage regulations: U.S. OSHA 29 CFR 1910.106. Grounding and bonding required. Keep separated from incompatible substances. Store in a tightly closed container. Containers must have overpressure release device. Avoid heat, flames, sparks and other sources of ignition. Keep separated from incompatible substances. Monitor inhibitor content. Avoid exposure to low temperatures or freezing. Protect from physical damage. Store outside or in a detached building. Inside storage: Store with flammable liquids. Quarterly maintenance of ventilation systems is required. 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).

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## 8. EXPOSURE CONTROLS, PERSONAL PROTECTION

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### **EXPOSURE LIMITS:**

#### **METHYL VINYL KETONE:**

0.2 ppm ACGIH ceiling (skin) (sensitization)

**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:** 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:** liquid

**COLOR:** colorless to yellow

**ODOR:** irritating odor

**MOLECULAR WEIGHT:** 70.09

**MOLECULAR FORMULA:** C-H<sub>3</sub>-C-O-C-H-C-H<sub>2</sub>

**BOILING POINT:** 178 F (81 C)

**FREEZING POINT:** 19 F (-7 C)

**VAPOR PRESSURE:** 120 mmHg @ 34 C

**VAPOR DENSITY (air=1):** 2.4

**SPECIFIC GRAVITY (water=1):** 0.8636

**WATER SOLUBILITY:** soluble

**PH:** Not available

**VOLATILITY:** 100%

**ODOR THRESHOLD:** 0.5 mg/m<sup>3</sup>

**EVAPORATION RATE:** Not available

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

**SOLVENT SOLUBILITY:**

**Soluble:** alcohol, ether, acetone, benzene, acetic acid

**Slightly Soluble:** hydrocarbons

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## 10. STABILITY AND REACTIVITY

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**REACTIVITY:** May polymerize. Avoid contact with light or storage and use above room temperature. Closed containers may rupture violently.

**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, reducing agents, combustible materials

**HAZARDOUS DECOMPOSITION:**

Thermal decomposition products: oxides of carbon

**POLYMERIZATION:** May polymerize when heated. Polymerizes with evolution of heat. Avoid contact with light. Closed containers may rupture violently.

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## 11. TOXICOLOGICAL INFORMATION

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**METHYL VINYL KETONE:**

**IRRITATION DATA:** 1 percent skin-mouse severe; 1 percent skin-rat severe; 0.1 percent skin-mouse mild; 0.1 percent skin-rat mild

**TOXICITY DATA:** 14 mg/m<sup>3</sup> inhalation-rat LC<sub>50</sub>; 23100 ug/kg oral-rat LD<sub>50</sub>

**LOCAL EFFECTS:**

Corrosive: inhalation, skin, eye, ingestion

**ACUTE TOXICITY LEVEL:**

Highly Toxic: inhalation, ingestion

**TARGET ORGANS:** central nervous system

**MUTAGENIC DATA:** Available.

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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): D001. D003.

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## 14. TRANSPORT INFORMATION

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**U.S. DOT 49 CFR 172.101:**  
**PROPER SHIPPING NAME:** Methyl vinyl ketone, stabilized  
**ID NUMBER:** UN1251  
**HAZARD CLASS OR DIVISION:** 6.1  
**PACKING GROUP:** I  
**LABELING REQUIREMENTS:** 6.1; 3; 8  
**QUANTITY LIMITATIONS:**  
**PASSENGER AIRCRAFT OR RAILCAR:** Forbidden  
**CARGO AIRCRAFT ONLY:** Forbidden



**CANADIAN TRANSPORTATION OF DANGEROUS GOODS:**  
**SHIPPING NAME:** Methyl vinyl ketone, stabilized  
**UN NUMBER:** UN1251  
**CLASS:** 6.1; 3; 8  
**PACKING GROUP/CATEGORY:** I

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## 15. REGULATORY INFORMATION

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**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):**  
**METHYL VINYL KETONE:** 10 LBS TPQ

**SARA TITLE III SECTION 304 EXTREMELY HAZARDOUS SUBSTANCES (40 CFR 355 Subpart C):**  
**METHYL VINYL KETONE:** 10 LBS RQ

**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:** No

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

**OSHA PROCESS SAFETY (29 CFR 1910.119):**  
**METHYL VINYL KETONE:** 100 LBS TQ

**STATE REGULATIONS:**

**California Proposition 65:** Not regulated.

**CANADIAN REGULATIONS:**

**WHMIS CLASSIFICATION:** Not determined.

**NATIONAL INVENTORY STATUS:**

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

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

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

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**16. OTHER INFORMATION**

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