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: CYCLOPROPANE

TRADE NAMES/SYNONYMS:
MTG MSDS 25; TRIMETHYLENE; TRIMETHYLENE (CYCLIC); CYCLIC TRIMETHYLENE; STCC 4905713; UN 1027; C3H6; MAT06080; RTECS GZ0690000

CHEMICAL FAMILY: hydrocarbons, alicyclic

CREATION DATE: Jan 24 1989
REVISION DATE: Dec 11 2008

2. COMPOSITION, INFORMATION ON INGREDIENTS

COMPONENT: CYCLOPROPANE
CAS NUMBER: 75-19-4
PERCENTAGE: 100.0

3. HAZARDS IDENTIFICATION

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

EMERGENCY OVERVIEW:
COLOR: colorless
PHYSICAL FORM: liquefied gas
ODOR: faint odor, sweet odor
MAJOR HEALTH HAZARDS: central nervous system depression
PHYSICAL HAZARDS: Flammable gas. May cause flash fire. Dust/air mixtures may ignite or explode.

POTENTIAL HEALTH EFFECTS:
INHALATION:
SHORT TERM EXPOSURE: mild irritation, nausea, vomiting, irregular heartbeat, headache, drowsiness, symptoms of drunkenness, convulsions, coma
LONG TERM EXPOSURE: no information on significant adverse effects
SKIN CONTACT:
SHORT TERM EXPOSURE: frostbite
LONG TERM EXPOSURE: no information is available
EYE CONTACT:
SHORT TERM EXPOSURE: frostbite, blurred vision
LONG TERM EXPOSURE: no information is available
INGESTION:
SHORT TERM EXPOSURE: no information on significant adverse effects
LONG TERM EXPOSURE: no information on significant adverse effects

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: 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.

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: Severe fire hazard. Severe explosion hazard. The vapor is heavier than air. Vapors or gases may ignite at distant ignition sources and flash back. Dust/air mixtures may ignite or explode. Electrostatic discharges may be generated by flow or agitation resulting in ignition or explosion.

EXTINGUISHING MEDIA: carbon dioxide, regular dry chemical

Large fires: 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: Stop leak if possible without personal risk. Let burn unless leak can be stopped immediately. For smaller tanks or cylinders, extinguish and isolate from
other flammables. Evacuation radius: 800 meters (1/2 mile). Stop flow of gas.

**LOWER FLAMMABLE LIMIT:** 2.4%
**UPPER FLAMMABLE LIMIT:** 10.4%
**AUTOIGNITION:** 928 F (498 C)

6. ACCIDENTAL RELEASE MEASURES

**OCCUPATIONAL RELEASE:**

7. HANDLING AND STORAGE

**STORAGE:** Store and handle in accordance with all current regulations and standards. Subject to storage regulations: U.S. OSHA 29 CFR 1910.101. Grounding and bonding required. Keep separated from incompatible substances.

8. EXPOSURE CONTROLS, PERSONAL PROTECTION

**EXPOSURE LIMITS:**
**CYCLOPROPANE:**
No occupational exposure limits established.

**VENTILATION:** Provide local exhaust ventilation system. Ventilation equipment should be explosion-resistant if explosive concentrations of material are present. Ensure compliance with applicable exposure limits.

**EYE PROTECTION:** For the gas: Eye protection not required, but recommended. For the liquid: Wear splash resistant safety goggles. Contact lenses should not be worn. Provide an emergency eye wash fountain and quick drench shower in the immediate work area.

**CLOTHING:** For the gas: Protective clothing is not required. For the liquid: Wear appropriate protective, cold insulating clothing.

**GLOVES:** Wear insulated 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

<table>
<thead>
<tr>
<th><strong>PHYSICAL STATE:</strong></th>
<th>gas</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>COLOR:</strong></td>
<td>colorless</td>
</tr>
<tr>
<td><strong>PHYSICAL FORM:</strong></td>
<td>liquefied gas</td>
</tr>
<tr>
<td><strong>ODOR:</strong></td>
<td>faint odor, sweet odor</td>
</tr>
<tr>
<td><strong>TASTE:</strong></td>
<td>pungent taste</td>
</tr>
<tr>
<td><strong>MOLECULAR WEIGHT:</strong></td>
<td>42.08</td>
</tr>
<tr>
<td><strong>MOLECULAR FORMULA:</strong></td>
<td>C3-H6</td>
</tr>
<tr>
<td><strong>BOILING POINT:</strong></td>
<td>-27 F (-33 C)</td>
</tr>
<tr>
<td><strong>FREEZING POINT:</strong></td>
<td>-198 F (-128 C)</td>
</tr>
<tr>
<td><strong>VAPOR PRESSURE:</strong></td>
<td>3878.25 mmHg @ 21 C</td>
</tr>
<tr>
<td><strong>VAPOR DENSITY (air=1):</strong></td>
<td>1.45</td>
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<tr>
<td><strong>SPECIFIC GRAVITY (water=1):</strong></td>
<td>0.720 @ -79 C</td>
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<tr>
<td><strong>WATER SOLUBILITY:</strong></td>
<td>37% @ 15 C</td>
</tr>
<tr>
<td><strong>PH:</strong></td>
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</tr>
<tr>
<td><strong>VOLATILITY:</strong></td>
<td>Not applicable</td>
</tr>
<tr>
<td><strong>ODOR THRESHOLD:</strong></td>
<td>Not available</td>
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<tr>
<td><strong>EVAPORATION RATE:</strong></td>
<td>Not applicable</td>
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<tr>
<td><strong>VISCOSITY:</strong></td>
<td>0.00874 cP @ 20 C</td>
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<td><strong>COEFFICIENT OF WATER/OIL DISTRIBUTION:</strong></td>
<td>Not applicable</td>
</tr>
<tr>
<td><strong>SOLVENT SOLUBILITY:</strong></td>
<td>Soluble: alcohol, ether, benzene, petroleum ether, fixed oils</td>
</tr>
</tbody>
</table>

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### 10. STABILITY AND REACTIVITY

**REACTIVITY:** Stable at normal temperatures and pressure.

**CONDITIONS TO AVOID:** Avoid heat, flames, sparks and other sources of ignition. Minimize contact with material. Containers may rupture or explode if exposed to heat.

**INCOMPATIBILITIES:** oxidizing materials

**HAZARDOUS DECOMPOSITION:**
Thermal decomposition products: oxides of carbon
POLYMERIZATION: Will not polymerize.

11. TOXICOLOGICAL INFORMATION

CYCLOPROPANE:
CARCINOGEN STATUS: IARC: Human Inadequate Evidence, Group 3 (Anesthetics, volatile)
TARGET ORGANS: central nervous system
MUTAGENIC DATA: Available.
ADDITIONAL DATA: Interactions with drugs may occur. Stimulants such as epinephrine may induce ventricular fibrillation.

12. ECOLOGICAL INFORMATION

Not available

13. DISPOSAL CONSIDERATIONS

Dispose in accordance with all applicable regulations.

14. TRANSPORT INFORMATION

U.S. DOT 49 CFR 172.101:
PROPER SHIPPING NAME: Cyclopropane
ID NUMBER: UN1027
HAZARD CLASS OR DIVISION: 2.1
LABELING REQUIREMENTS: 2.1
QUANTITY LIMITATIONS:
PAASSENGER AIRCRAFT OR RAILCAR: Forbidden
CARGO AIRCRAFT ONLY: 150 kg

CANADIAN TRANSPORTATION OF DANGEROUS GOODS:
SHIPPING NAME: Cyclopropane
UN NUMBER: UN1027
CLASS: 2.1

15. REGULATORY INFORMATION

U.S. REGULATIONS:
CERCLA SECTIONS 102a/103 HAZARDOUS SUBSTANCES (40 CFR 302.4): 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: No
SUDDEN RELEASE: Yes


STATE REGULATIONS:
California Proposition 65: Not regulated.

CANADIAN REGULATIONS:
WHMIS CLASSIFICATION: AB

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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