**Section 1 - PRODUCT AND COMPANY IDENTIFICATION**

**Product Identifier:** FLUOROFORM

**Manufacturer Information**
MATHESON TRI-GAS, INC.
150 Allen Road, Suite 302
Basking Ridge, NJ 07920

**General Information:** 1-800-416-2505
**Emergency #:** 1-800-424-9300 (CHEMTREC)
**Outside the US:** 703-527-3887 (Call collect)

**Chemical Family**
halogenated, aliphatic

**Synonyms**
MTG MSDS 42; TRIFLUOROMETHANE; CARBON TRIFLUORIDE; METHYL TRIFLUORIDE; ARCTON 1;
FLUORYL; FREON 23; FREON F-23; GENETRON 23; PROPELLANT 23; REFRIGERANT 23, R23; UN 1984;
CHF3; RTECS: PB6900000

**Section 2 - HAZARDS IDENTIFICATION**

**EMERGENCY OVERVIEW**
- **Color:** colorless
- **Physical Form:** gas
- **Odor:** odorless
- **Health Hazards:** central nervous system depression
- **Physical Hazards:** Containers may rupture or explode if exposed to heat.

**POTENTIAL HEALTH EFFECTS**

**Inhalation**
- **Short Term:** mild irritation, nausea, vomiting, difficulty breathing, irregular heartbeat, headache, drowsiness, dizziness, disorientation, loss of coordination, unconsciousness
- **Long Term:** no information on significant adverse effects

**Skin**
- **Short Term:** blisters, frostbite
- **Long Term:** no information is available

**Eye**
- **Short Term:** frostbite, blurred vision
- **Long Term:** no information is available

**Ingestion**
- **Short Term:** ingestion of a gas is unlikely
- **Long Term:** ingestion of a gas is unlikely

**Section 3 - COMPOSITION / INFORMATION ON INGREDIENTS**

<table>
<thead>
<tr>
<th>CAS</th>
<th>Component</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>75-46-7</td>
<td>FLUOROFORM</td>
<td>100</td>
</tr>
</tbody>
</table>
**Section 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**
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.

**Eyes**
Contact with liquid: 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 Physicians**
For inhalation, consider oxygen.

**Section 5 - FIRE FIGHTING MEASURES**

See Section 9 for Flammability Properties

**NFPA Ratings:** Health: 2 Fire: 0 Reactivity: 0

**Hazard Scale:**
0 = Minimal  1 = Slight  2 =MODERATE  3 = Serious  4 = Severe

**Flammable Properties**
Negligible fire hazard. Containers may rupture or explode if exposed to heat.

**Extinguishing Media**
carbon dioxide, regular dry chemical
Large fires: Use regular foam or flood with fine water spray.

**Fire Fighting Measures**
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. Withdraw immediately in case of rising sound from venting safety device or any discoloration of tanks due to fire. For tank, railcar or tank truck, evacuation radius: 800 meters (1/2 mile). Use extinguishing agents appropriate for surrounding fire. Cool containers with water spray until well after the fire is out. Apply water from a protected location or from a safe distance. Do not get water directly on material. Reduce vapors with water spray. Avoid inhalation of material or combustion by-products. Stay upwind and keep out of low areas. Consider downwind evacuation if material is leaking.

**Section 6 - ACCIDENTAL RELEASE MEASURES**

**Occupational spill/release**
Stop leak if possible without personal risk. Keep unnecessary people away, isolate hazard area and deny entry. Stay upwind and keep out of low areas.
**Section 7 - HANDLING AND STORAGE**

**Storage Procedures**

**Section 8 - EXPOSURE CONTROLS / PERSONAL PROTECTION**

**Component Analysis**
FLUOROFORM (75-46-7)
ACGIH: 2.5 mg/m3 TWA (as F, related to Fluorides)
OSHA (final): 2.5 mg/m3 TWA (as F); 2.5 mg/m3 TWA (dust, related to Fluorides)
OSHA (vacated): 2.5 mg/m3 TWA (related to Fluorides)

**Component Biological Limit Values**
FLUOROFORM (75-46-7)
ACGIH: 2 mg/L Medium: urine Time: prior to shift Parameter: Fluoride (background, nonspecific); 3 mg/L Medium: urine Time: end of shift Parameter: Fluoride (background, nonspecific, related to Fluorides)

**Ventilation**
Provide local exhaust ventilation system. Ensure compliance with applicable exposure limits.

**PERSONAL PROTECTIVE EQUIPMENT**

**Eyes/Face**
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.

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

**Glove Recommendations**
Wear insulated gloves.

**Protective Materials**
neoprene

**Respiratory Protection**
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.

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.

**Section 9 - PHYSICAL AND CHEMICAL PROPERTIES**
Safety Data Sheet

Material Name: FLUOROFORM

Physical State: Gas
Color: colorless
Odor: odorless
pH: Not available
Boiling Point: -84.4 °C
Evaporation Rate: Not available
Henry's Law Constant: 0.0952
Density: 2.86 kg/m³
Water Solubility: 0.1 % @ 25 °C
Log KOW: Not available
Auto Ignition: Not available
Volutility: 100 %
Molecular Formula: C-H-F₃

Appearance: Not available
Physical Form: gas
Odor Threshold: Not available
Melting/Freezing Point: -160 °C
Decomposition: >260 °C
Vapor Pressure: 33592 mmHg @ 21 °C
Vapor Density (air = 1): 2.417 @25 °C
Specific Gravity (water=1): 1.52 @ -100 °C (liquid)
KOW: 0.64
KOC: 53 (estimated)
Viscosity: 0.0144 cP @25 °C
Molecular Weight: 70.01

Solvent Solubility
Soluble: alcohol, acetone, benzene, hydrocarbons, chlorinated solvents, ketones, esters, organic acids
Insoluble: glycols, glycerol, phenols

**Section 10 - STABILITY AND REACTIVITY**

Chemical Stability
Stable at normal temperatures and pressure.

Conditions to Avoid
Protect from physical damage and heat. Containers may rupture or explode if exposed to heat.

Materials to Avoid
metals

Decomposition Products
halogenated compounds, oxides of carbon, hydrogen fluoride

Possibility of Hazardous Reactions
Will not polymerize.

**Section 11 - TOXICOLOGICAL INFORMATION**

Component Analysis - LD₅₀/LC₅₀
The components of this material have been reviewed in various sources and no selected endpoints have been identified.

Component Carcinogenicity
FLUOROFORM (75-46-7)
ACGIH: A4 - Not Classifiable as a Human Carcinogen (related to Fluorides)

Target Organs
FLUOROFORM (75-46-7)
central nervous system

Additional Data
Stimulants such as epinephrine may induce ventricular fibrillation.

**Section 12 - ECOLOGICAL INFORMATION**

Component Analysis - Aquatic Toxicity
No LOEL ecotoxicity data are available for this product's components.
***Section 13 - DISPOSAL CONSIDERATIONS***

Disposal Methods
Dispose in accordance with all applicable regulations.

Component Waste Numbers
The U.S. EPA has not published waste numbers for this product's components.

***Section 14 - TRANSPORT INFORMATION***

US DOT Information
Shipping Name: Trifluoromethane
UN/NA #: UN1984 Hazard Class: 2.2
Required Label(s): 2.2

TDG Information
Shipping Name: Trifluoromethane
UN #: UN1984 Hazard Class: 2.2
Required Label(s): 2.2

***Section 15 - REGULATORY INFORMATION***

U.S. Federal Regulations
None of this product's components are listed under SARA Sections 302/304 (40 CFR 355 Appendix A), SARA Section 313 (40 CFR 372.65), CERCLA (40 CFR 302.4), TSCA 12(b), or require an OSHA process safety plan.

SARA 311/312
Acute Health: Yes Chronic Health: No Fire: No Pressure: Yes Reactive: No

U.S. State Regulations
The following components appear on one or more of the following state hazardous substances lists:

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<td>Yes¹</td>
<td>No</td>
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Not regulated under California Proposition 65

Component Analysis - Inventory

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**Section 16 - OTHER INFORMATION**

Key / Legend

ACGIH - American Conference of Governmental Industrial Hygienists; ADR - European Road Transport; AU - Australia; BOD - Biochemical Oxygen Demand; C - Celsius; CA - Canada; CAS - Chemical Abstracts Service; CERCLA - Comprehensive Environmental Response, Compensation, and Liability Act; CN - China; CPR - Controlled Products Regulations; DFG - Deutsche Forschungsgemeinschaft; DOT - Department of Transportation; DSL - Domestic Substances List; EEC - European Economic Community; EINECS - European Inventory of Existing Commercial Chemical Substances; EPA - Environmental Protection Agency; EU - European Union; F - Fahrenheit; IARC - International Agency for Research on Cancer; IATA - International Air Transport Association; ICAO - International Civil Aviation Organization; IDL - Ingredient Disclosure List; IDLH - Immediately Dangerous to Life and Health; IMDG - International Maritime Dangerous Goods; JP - Japan; Kow - Octanol/water partition coefficient; KR - Korea; LEL - Lower Explosive Limit; LOLI - List Of Lists™ - ChemADVISOR's Regulatory Database; MAK - Maximum Concentration Value in the Workplace; MEL - Maximum Exposure Limits; NFPA - National Fire Protection Agency; NIOSH - National Institute for Occupational Safety and Health; NJTSR - New Jersey Trade Secret Registry; NTP - National Toxicology Program; NZ - New Zealand; OSHA - Occupational Safety and Health Administration; PH - Philippines; RCRA - Resource Conservation and Recovery Act; RID - European Rail Transport; RTECS - Registry of Toxic Effects of Chemical Substances®; SARA - Superfund Amendments and Reauthorization Act; STEL - Short-term Exposure Limit; TDG - Transportation of Dangerous Goods; TSCA - Toxic Substances Control Act; TWA - Time Weighted Average; UEL - Upper Explosive Limit; US - United States

Other Information

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End of Sheet MAT09970