

Safety Data Sheet

Material Name: TRIFLUOROMETHANE

SDS ID: 00232591

*** Section 1 - PRODUCT AND COMPANY IDENTIFICATION ***

Material Name: TRIFLUOROMETHANE

Manufacturer Information

POLAR CRYOGENICS

2734 SE Raymond

Portland , OR 97202

General Information: (800) 426-0689

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

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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 ***

| CAS | Component | Percent |
|---------|------------------|---------|
| 75-46-7 | TRIFLUOROMETHANE | 100 |

Component Related Regulatory Information

This product may be regulated, have exposure limits or other information identified as the following: Fluorides.

*** 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.

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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, rail car 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.

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*** Section 7 - HANDLING AND STORAGE ***

Storage Procedures

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

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

Component Analysis

TRIFLUOROMETHANE (75-46-7)

ACGIH: 2.5 mg/m³ TWA (as F)

OSHA (final): 2.5 mg/m³ TWA (as F)

OSHA (vacated): 2.5 mg/m³ TWA

Component Biological Limit Values

TRIFLUOROMETHANE (75-46-7)

ACGIH: Fluorides in urine: 3 mg/g creatinine, prior to shift (B,Ns); Fluorides in urine: 10 mg/g creatinine, end of shift (B,Ns)

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.

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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 ***

| | | | |
|--------------------------------|------------------------|------------------------------------|-------------------------|
| Physical State: | Gas | Appearance: | Not available |
| Color: | colorless | Physical Form: | gas |
| Odor: | odorless | Odor Threshold: | Not available |
| Melting/Freezing Point: | -160 °C | Boiling Point: | -84.4 °C |
| Decomposition: | >260 °C | Vapor Pressure: | 33592 mmHg @ 21 °C |
| Henry's Law Constant: | 0.0952 | Vapor Density (air = 1): | 2.417 @ 25 °C |
| Density: | 2.86 kg/m ³ | Specific Gravity (water=1): | 1.52 @ -100 °C (liquid) |
| Water Solubility: | 0.1 % @ 25 °C | KOW: | 0.64 |
| KOC: | 53 (estimated) | Viscosity: | 0.0144 cP @ 25 °C |
| Volatility: | 100 % | Molecular Weight: | 70.01 |
| Molecular Formula: | C-H-F ₃ | | |

Solvent Solubility

Soluble: alcohol, acetone, benzene, hydrocarbons, chlorinated solvents, ketones, esters, organic acids

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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

TRIFLUOROMETHANE (75-46-7)

ACGIH: A4 - Not Classifiable as a Human Carcinogen

Target Organs

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central nervous system.

Additional Data

Stimulants such as epinephrine may induce ventricular fibrillation.

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*** Section 12 - ECOLOGICAL INFORMATION ***

Component Analysis - Aquatic Toxicity

No LOLI 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 products components are listed under SARA Sections 302/304 (40 CFR 355 Appendix A), SARA Section 311/312 (40 CFR 370.21), 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

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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:

| Component | CAS | CA | MA | MN | NJ | PA | RI |
|--|---------|----|----|------------------|-----|----|------------------|
| TRIFLUOROMETHANE (related to: Fluorides) | 75-46-7 | No | No | Yes ¹ | Yes | No | Yes ¹ |

Not regulated under California Proposition 65

Component Analysis - Inventory

| Component | CAS | US | CA | EU | AU | PH | JP | KR | CN | NZ |
|------------------|---------|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| TRIFLUOROMETHANE | 75-46-7 | Yes | DSL | EIN | Yes | Yes | Yes | Yes | Yes | Yes |

*** 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

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Other Information

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