



MATHESON

ask...The Gas Professionals™

Safety Data Sheet

Material Name TETRAFLUOROMETHANE

SDS ID: MAT23000

Section 1 - IDENTIFICATION

Product Identifier: TETRAFLUOROMETHANE

Trade Names/Synonyms

MTG MSDS 40; CARBON TETRAFLUORIDE; CARBON FLUORIDE (CF₄); CARBON FLUORIDE; FC 14; PERFLUOROMETHANE; R 14; R 14 (REFRIGERANT); FREON 14; TETRAFLUOROCARBON; UN 1982; CF₄

Chemical Family

halogenated, aliphatic

Recommended Use

Industrial and Specialty Gas Applications

Restrictions on Use

None known.

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)

Section 2 - HAZARDS IDENTIFICATION

Classification in accordance with 29 CFR 1910.1200

Gases Under Pressure - Liquified Gas

Specific Target Organ Toxicity - Single Exposure, Category 3 (respiratory system and central nervous system)

GHS LABEL ELEMENTS

Symbol(s)



Signal Word

WARNING

Hazard Statement(s)

Contains gas under pressure; may explode if heated.

May cause drowsiness and dizziness

May cause respiratory irritation

Precautionary Statement(s)

Prevention

Avoid breathing gas. Use only outdoors or in a well-ventilated area.

Response

IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing. Call a POISON CENTER or doctor/physician if you feel unwell.

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Storage

Protect from sunlight. Store in a well-ventilated place. Keep container tightly closed. Store locked up.

Disposal

Dispose of in accordance with applicable regulations.

Hazard(s) Not Otherwise Classified

May cause frostbite upon sudden release of liquefied gas. May cause asphyxia.

Section 3 - COMPOSITION / INFORMATION ON INGREDIENTS

CAS	Component	Percent
75-73-0	TETRAFLUOROMETHANE	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

Description of Necessary 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

Wash eyes immediately with large amounts of water, occasionally lifting upper and lower lids, until no evidence of chemical remains. Get medical attention immediately.

Ingestion

If swallowed, get medical attention.

Most Important Symptoms/Effects

Acute

frostbite, suffocation, respiratory tract irritation, central nervous system depression

Delayed

No information on significant adverse effects.

Indication of Immediate Medical Attention and Special Treatment

For inhalation, consider oxygen.

Section 5 - FIRE FIGHTING MEASURES

Suitable Extinguishing Media

carbon dioxide, regular dry chemical
Large fires: Use water spray, fog or regular foam.

Specific Hazards Arising from the Chemical

Negligible fire hazard.

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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.

Special Protective Equipment and Precautions for Firefighters

Wear full protective fire fighting gear including self contained breathing apparatus (SCBA) for protection against possible exposure.

Section 6 - ACCIDENTAL RELEASE MEASURES

Personal Precautions, Protective Equipment and Emergency Procedures

Wear personal protective clothing and equipment, see Section 8. Avoid release to the environment.

Methods and Materials for Containment and Cleaning Up

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. Do not touch or walk through spilled material. Do not direct water at spill or source of leak. Use water spray to reduce vapors or divert vapor cloud drift. Avoid allowing water runoff to contact spilled material. Prevent entry into waterways, sewers, basements, or confined areas. Allow substance to evaporate. Ventilate the area.

Section 7 - HANDLING AND STORAGE

Precautions for Safe Handling

Avoid breathing gas. Use only outdoors or in a well-ventilated area.

Conditions for Safe Storage, including any Incompatibilities

Store and handle in accordance with all current regulations and standards. Protect from sunlight. Store in a well-ventilated place. Store locked up. Keep container tightly closed. Subject to storage regulations: U.S. OSHA 29 CFR 1910.101.

Incompatibilities metals

Section 8 - EXPOSURE CONTROLS / PERSONAL PROTECTION

Component Exposure Limits

TETRAFLUOROMETHANE (75-73-0)

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

TETRAFLUOROMETHANE (75-73-0)

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)

Appropriate Engineering Controls

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

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Individual Protection Measures, such as Personal Protective Equipment

Eyes/Face 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.

Skin Protection

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

Glove Recommendations

Wear insulated gloves.

Respiratory Protection

The following respirators and maximum use concentrations are drawn from NIOSH and/or OSHA. Any powered, air-purifying respirator with a full facepiece and organic vapor and acid gas cartridge(s). Any chemical cartridge respirator with a full facepiece and organic vapor and acid gas cartridge(s).

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: colorless gas
Color: colorless	Physical Form: gas
Odor: odorless	Odor Threshold: Not available
pH: Not available	Melting/Freezing Point: -183.6 °C
Boiling Point: -128 °C	Flash Point: Non-flammable
Decomposition: Not available	Evaporation Rate: Not available
LEL: Not available	UEL: Not available
Vapor Pressure: 799 mmHg @ -127 °C	Henry's Law Constant: 5.15 atm-cu m/mole @25°C
Vapor Density (air = 1): 3.05	Density: 3.034 g/cu cm @ 25 °C
Specific Gravity (water=1): 1.89 @ -183 °C	Water Solubility: 0.0015 % @ 25 °C
Log KOW: 1.18	KOC: 44 (estimated)
Auto Ignition: Not available	Viscosity: 0.170 cP @-60 °C
Molecular Weight: 88.01	Molecular Formula: C-F4

Other Property Information

No additional information is available.

Solvent Solubility

Soluble: benzene, chloroform

Section 10 - STABILITY AND REACTIVITY

Reactivity

No reactivity hazard is expected.

Chemical Stability

Stable at normal temperatures and pressure.

Possibility of Hazardous Reactions

Will not polymerize.

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Conditions to Avoid

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

Incompatible Materials

metals

Decomposition Products

halogenated compounds

* * *Section 11 - TOXICOLOGICAL INFORMATION* * *

Acute and Chronic Toxicity

Component Analysis - LD50/LC50

The components of this material have been reviewed in various sources and no selected endpoints have been identified.

RTECS Acute Toxicity (selected)

The components of this material have been reviewed and RTECS publishes no data as of the date on this document.

Information on Likely Routes of Exposure

Inhalation

nausea, vomiting, drowsiness, dizziness, headache, loss of coordination, disorientation, suffocation

Ingestion

No information on significant adverse effects.

Skin Contact

irritation, frostbite

Eye Contact

frostbite

Immediate Effects

frostbite, suffocation, respiratory tract irritation, central nervous system depression

Delayed Effects

No information on significant adverse effects.

Medical Conditions Aggravated by Exposure

No data available.

Irritation/Corrosivity Data

respiratory tract irritation

RTECS Irritation

The components of this material have been reviewed and RTECS publishes no data as of the date on this document.

Respiratory Sensitization

No data available.

Dermal Sensitization

No data available.

Carcinogenicity

Component Carcinogenicity

TETRAFLUOROMETHANE (75-73-0)

ACGIH: A4 - Not Classifiable as a Human Carcinogen (related to Fluorides)

Mutagenic Data

No data available.

Reproductive Effects Data

No data available.

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Tumorigenic Data

No data available.

Specific Target Organ Toxicity - Single Exposure

respiratory tract, central nervous system

Specific Target Organ Toxicity - Repeated Exposure

No information on significant adverse effects.

Aspiration Hazard

Not applicable.

Section 12 - ECOLOGICAL INFORMATION

Component Analysis - Aquatic Toxicity

No LOEL ecotoxicity data are available for this product's components.

Persistence and Degradability

This material is believed to persist in the environment.

Bioaccumulative Potential

Bioconcentration potential in aquatic organisms is low based on BCF value of 3 (estimated).

Mobility

Expected to have high mobility in soil.

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: Tetrafluoromethane

UN/NA #: UN1982 **Hazard Class:** 2.2

Required Label(s): 2.2

IMDG Information

Shipping Name: Tetrafluoromethane

UN #: UN1982 **Hazard Class:** 2.2

Required Label(s): 2.2

Section 15 - REGULATORY INFORMATION

Component Analysis

U.S. Federal Regulations

None of this products 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 Hazardous Categories

Acute Health: Yes **Chronic Health:** No **Fire:** No **Pressure:** Yes **Reactive:** No

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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
TETRAFLUOROMETHANE (related to: Fluorides)	75-73-0	Yes ¹	No	Yes ¹	Yes	Yes ¹

Not regulated under California Proposition 65

Component Analysis - Inventory

Component	CAS	US	CA	EU	AU	PH	JP	KR	CN	NZ
TETRAFLUOROMETHANE	75-73-0	Yes	DSL	EIN	Yes	Yes	Yes	Yes	Yes	Yes

Section 16 - OTHER INFORMATION

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

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

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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