

Issue Date: 05-Jul-2024

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Version 1

1. IDENTIFICATION

Product identifier

Product Name Trifluoromethane

Other means of identification

SDS # EF-004

Synonyms Fluoroform; Trifluoromethane; Carbon trifluoride; Methyl trifluoride; Arcton 1; Fluoryl; Freon 23; Freon F-23; Genetron 23; Propellant 23; Refrigerant 23; R23.

UN/ID No UN1984

Recommended use of the chemical and restrictions on use

Recommended Use For industrial use.

Details of the supplier of the safety data sheet

Supplier Address

EFC Gases & Advanced Materials
3266 Bergey Road
Hatfield, PA 19440
Email: efcsafety@efcgases.com

Emergency telephone number

Company Phone Number 215-443-9600
Emergency Telephone INFOTRAC 1-352-323-3500 (International)
1-800-535-5053 (North America)

2. HAZARDS IDENTIFICATION

Appearance Colorless gas

Physical state Gas

Odor Odorless

Classification

Specific target organ toxicity (single exposure)	Category 3
Gases under pressure	Compressed gas

Signal Word

Warning

Hazard statements

May cause respiratory irritation
Contains gas under pressure; may explode if heated



Precautionary Statements - Prevention

Avoid breathing dust/fume/gas/mist/vapors/spray
Use only outdoors or in a well-ventilated area

Precautionary Statements - Response

IF INHALED: Remove person to fresh air and keep comfortable for breathing
Call a POISON CENTER or doctor if you feel unwell

Precautionary Statements - Storage

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

Precautionary Statements - Disposal

Dispose of contents/container to an approved waste disposal plant

3. COMPOSITION/INFORMATION ON INGREDIENTS

Synonyms Fluoroform; Trifluoromethane; Carbon trifluoride; Methyl trifluoride; Arcton 1; Fluoryl; Freon 23; Freon F-23; Genetron 23; Propellant 23; Refrigerant 23; R23.
Chemical Family Halogenated, aliphatic.
Formula C-H-F₃

Chemical name	CAS No	Weight-%
Trifluoromethane	75-46-7	80-100

If Chemical Name/CAS No is "proprietary" and/or Weight-% is listed as a range, the specific chemical identity and/or percentage of composition has been withheld as a trade secret.

4. FIRST AID MEASURES**Description of first aid measures**

Eye Contact Flush eyes with plenty of water for at least 15 minutes. Then 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.

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.

Ingestion If a large amount is swallowed, get medical attention.

Most important symptoms and effects, both acute and delayed

Symptoms May cause drowsiness or dizziness. Frostbite, suffocation, central nervous system depression.

Indication of any immediate medical attention and special treatment needed

Notes to Physician Treat symptomatically.

5. FIRE-FIGHTING MEASURES

Suitable Extinguishing Media

Carbon dioxide (CO₂). Dry chemical. Water spray (fog).

Large Fire Use foam or water spray.

Unsuitable Extinguishing Media None known.

Specific Hazards Arising from the Chemical

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

Protective equipment and precautions for firefighters

As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear. 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.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures

Personal Precautions Use personal protective equipment as required.

Environmental precautions

Environmental precautions Avoid release to the environment. See Section 12 for additional Ecological Information.

Methods and material for containment and cleaning up

Methods for Containment Keep unnecessary people away, isolate hazard area and deny entry. Stay upwind and keep out of low areas.

Methods for Clean-Up Stop leak if possible without personal risk.

7. HANDLING AND STORAGE

Precautions for safe handling

Advice on Safe Handling Wash thoroughly after handling.

Conditions for safe storage, including any incompatibilities

Storage Conditions Store and handle in accordance with all current regulations and standards. Avoid heat, flames, sparks and other sources of ignition. Protect from physical damage. Avoid shock or friction. Store in a well-ventilated area. Store in a cool, dry place. Protect from sunlight. Store outside or in a detached building. Keep container tightly closed. Keep locked up. Subject to storage regulations: U.S. OSHA 29 CFR 1910.101. Keep separated from incompatible substances.

Incompatible Materials Metals.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Exposure Guidelines

Chemical name	ACGIH TLV	OSHA PEL	NIOSH IDLH
Trifluoromethane 75-46-7	TWA: 2.5 mg/m ³ F	TWA: 2.5 mg/m ³ F (vacated) TWA: 2.5 mg/m ³	IDLH: 250 mg/m ³ F

Appropriate engineering controls

Engineering Controls

Provide local exhaust ventilation system. Ensure compliance with applicable exposure limits. Ensure that eyewash stations and safety showers are close to the workstation location.

Individual protection measures, such as personal protective equipment

Eye/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. Refer to 29 CFR 1910.133 for eye and face protection regulations.

Skin and Body Protection

For the gas: Protective clothing is not required. For the liquid: Wear appropriate protective, cold insulating clothing. Wear insulated gloves. Refer to 29 CFR 1910.138 for appropriate skin and body protection.

Respiratory Protection

Refer to 29 CFR 1910.134 for respiratory protection requirements.

General Hygiene Considerations Handle in accordance with good industrial hygiene and safety practice.

9. PHYSICAL AND CHEMICAL PROPERTIES

Information on basic physical and chemical properties

Physical state	Gas	Odor	Odorless
Appearance	Colorless gas	Odor Threshold	Not determined
Color	Colorless		
<u>Property</u>	<u>Values</u>	<u>Remarks • Method</u>	
pH	No data available		
Melting point / freezing point	-160 °C / -256 °F		
Initial boiling point and boiling range	-84 °C / -120 °F		
Flash point	No data available		
Evaporation Rate	Not determined		
Flammability (Solid, Gas)	Not flammable		
Flammability Limit in Air			
Upper flammability or explosive limits	No data available		
Lower flammability or explosive limits	No data available		
Vapor Pressure	Not determined		
Vapor Density	2.417 @25°C		
Relative Density	1.52 @-100°C (liquid)		
Water Solubility	0.1% @25°C		
Solubility in other solvents	Not determined		
Partition Coefficient	Not determined		
Autoignition temperature	No data available		
Decomposition temperature	Not determined		
Kinematic viscosity	0.0144 cP @25°C		

<u>Property</u>	<u>Values</u>	<u>Remarks • Method</u>
Dynamic Viscosity	Not determined	
Explosive Properties	Not determined	
Oxidizing Properties	Not determined	
<u>Other information</u>		
Molecular weight	70.01	

10. STABILITY AND REACTIVITY

Reactivity

Not reactive under normal conditions.

Chemical stability

Stable under recommended storage conditions.

Possibility of hazardous reactions

None under normal processing.

Hazardous Polymerization

Hazardous polymerization does not occur.

Conditions to Avoid

Protect from physical damage and heat.

Incompatible materials

Metals.

Hazardous decomposition products

Halogenated compounds. Hydrogen fluoride. Oxides of carbon.

11. TOXICOLOGICAL INFORMATION

Information on likely routes of exposure

Product Information

Eye Contact

Avoid contact with eyes.

Skin Contact

Avoid contact with skin.

Inhalation

Do not inhale.

Ingestion

Do not ingest.

Component Information

Chemical name	Oral LD50	Dermal LD50	Inhalation LC50
Trifluoromethane 75-46-7	-	-	> 663000 ppm (Rat) 4 h

Symptoms related to the physical, chemical and toxicological characteristics

Symptoms

Please see section 4 of this SDS for symptoms.

Delayed and immediate effects as well as chronic effects from short and long-term exposure

Carcinogenicity

Based on the information provided, this product does not contain any carcinogens or potential carcinogens as listed by OSHA, IARC or NTP.

STOT - single exposure

May cause drowsiness or dizziness.

Numerical measures of toxicity

Not determined.

12. ECOLOGICAL INFORMATION**Ecotoxicity**

The product is not classified as environmentally hazardous. However, this does not exclude the possibility that large or frequent spills can have a harmful or damaging effect on the environment.

Persistence/Degradability

Not determined.

Bioaccumulation

There is no data for this product.

Mobility

Chemical name	Partition coefficient
Trifluoromethane 75-46-7	0.84

Other adverse effects

Not determined

13. DISPOSAL CONSIDERATIONS**Waste Treatment Methods****Disposal of Wastes**

Disposal should be in accordance with applicable regional, national and local laws and regulations.

Contaminated Packaging

Disposal should be in accordance with applicable regional, national and local laws and regulations.

14. TRANSPORT INFORMATION**Note**

Please see current shipping paper for most up to date shipping information, including exemptions and special circumstances.

DOT

UN/ID No	UN1984
Proper Shipping Name	Trifluoromethane
Transport hazard class(es)	2.2

IATA

UN number or ID number	UN1984
Proper Shipping Name	Trifluoromethane
Transport hazard class(es)	2.2

IMDG

UN number or ID number UN1984
 Proper Shipping Name Trifluoromethane
 Transport hazard class(es) 2.2

15. REGULATORY INFORMATION

International Inventories

Chemical name	TSCA	TSCA Inventory Status	DSL/NDSL	EINECS/ELI NCS	ENCS	IECSC	KECL	PICCS	AIC
Trifluoromethane	X	ACTIVE	X	X	X	X	X	X	X

Legend:

TSCA - United States Toxic Substances Control Act Section 8(b) Inventory
DSL/NDSL - Canadian Domestic Substances List/Non-Domestic Substances List
EINECS/ELINCS - European Inventory of Existing Chemical Substances/European List of Notified Chemical Substances
ENCS - Japan Existing and New Chemical Substances
IECSC - China Inventory of Existing Chemical Substances
KECL - Korean Existing and Evaluated Chemical Substances
PICCS - Philippines Inventory of Chemicals and Chemical Substances
AICS - Australian Inventory of Chemical Substances

US Federal Regulations**CERCLA**

This material, as supplied, does not contain any substances regulated as hazardous substances under the Comprehensive Environmental Response Compensation and Liability Act (CERCLA) (40 CFR 302) or the Superfund Amendments and Reauthorization Act (SARA) (40 CFR 355).

SARA 311/312 Hazard Categories

Acute health hazard	Yes
Chronic Health Hazard	No
Fire hazard	No
Sudden Release of Pressure Hazard	Yes
Reactive Hazard	No

SARA 313

Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 (SARA). This product does not contain any chemicals which are subject to the reporting requirements of the Act and Title 40 of the Code of Federal Regulations, Part 372

CWA (Clean Water Act)

Chemical name	CWA - Reportable Quantities	CWA - Toxic Pollutants	CWA - Priority Pollutants	CWA - Hazardous Substances
Trifluoromethane		X		

US State Regulations**California Proposition 65**

This product does not contain any Proposition 65 chemicals.

U.S. State Right-to-Know Regulations

Chemical name	New Jersey	Massachusetts	Pennsylvania
Trifluoromethane 75-46-7	X		X

16. OTHER INFORMATION

<u>NFPA</u>	Health hazards	Flammability	Instability	Special hazards
	2	0	0	-
<u>HMIS</u>	Health hazards	Flammability	Physical hazards	Personal Protection
	-	-	-	Not determined

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Revision Note: New format

Disclaimer

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.

End of Safety Data Sheet