



Safety Data Sheet

Material Name: Trifluoromethane

Section 1 - IDENTIFICATION

Manufacturer Information

Electronic Fluorocarbons, LLC
3266 Bergey Road
Hatfield PA 19440

General Information: 215-443-9600

Emergency #: 1-800-535-5053 (Infotrac)

Outside the US: 1-352-323-3500 (Call collect)

Product Identifier: Halocarbon 23

Trade Names/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

Product Use

industrial

Restrictions on Use

None known.

Section 2 - HAZARDS IDENTIFICATION

GHS Classification

Gas under pressure, Compressed gas

Specific Target Organ Toxicity - Single Exposure, Category 3 (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

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.

Storage

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

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Disposal

Dispose of in accordance with applications with applicable regulations.

Other Hazards which do not Result in Classification

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

Section 3 - COMPOSITION / INFORMATION ON INGREDIENTS

CAS#	Component	Percent
75-46-7	HALOCARBON 23	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

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.

Symptoms: Immediate

central nervous system depression, frostbite, suffocation

Symptoms: Delayed

No information on significant adverse effects.

Section 5 - FIRE FIGHTING MEASURES

See Section 9 for Flammability Properties

Specific Hazards Arising from the Chemical

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.

Unsuitable Extinguishing Media

None known.

Protective Equipment and Precautions for Firefighters

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

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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.

Section 6 - ACCIDENTAL RELEASE MEASURES

Personal Precautions

Wear personal protective clothing and equipment, see Section 8.

Environmental Precautions

Avoid release to the environment.

Methods for Containment

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

Cleanup Methods

Stop leak if possible without personal risk.

Section 7 - HANDLING AND STORAGE

Handling Procedures

Wash thoroughly after handling.

Storage Procedures

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

Incompatibilities metals

Section 8 - EXPOSURE CONTROLS / PERSONAL PROTECTION

Component Exposure Limits

HALOCARBON 23 (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

HALOCARBON 23 (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)

Engineering Controls

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.

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Protective Clothing

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

Glove Recommendations

For the gas: Protective gloves are not required, but recommended. For the liquid: 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

Physical State: Gas	Appearance: Colorless gas
Color: colorless	Physical Form: gas
Odor: odorless	Odor Threshold: Not available
pH: Not available	Melting/Freezing Point: -160 °C
Boiling Point: -84.4 °C	Flash Point: not flammable
Decomposition: >260 °C	Evaporation Rate: Not available
LEL: Not available	UEL: Not available
Vapor Pressure: 33592 mmHg @ 21 °C	Henry's Law Constant: 0.0952
Vapor Density (air = 1): 2.417 @25 °C	Density: 2.86 kg/m3
Specific Gravity (water=1): 1.52 @ -100 °C (liquid)	Water Solubility: 0.1 % @ 25 °C
KOW: 0.64	Log KOW: Not available
Coeff. Water/Oil Dist: Not available	KOC: 53 (estimated)
Auto Ignition: Not available	Viscosity: 0.0144 cP @25 °C
Volatility: 100 %	Molecular Weight: 70.01
Molecular Formula: C-H-F3	

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.

Possibility of Hazardous Reactions

Will not polymerize.

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Incompatible Materials

metals

Decomposition Products

halogenated compounds, hydrogen fluoride, oxides of carbon

* * *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 the following endpoints:

HALOCARBON 23 (75-46-7)

Inhalation: >200000 ppm/2 hour Inhalation Guinea pig LC50
>663000 ppm/4 hour Inhalation Rat LC50

Immediate Effects

central nervous system depression, frostbite, suffocation

Delayed Effects

No information on significant adverse effects.

Irritation/Corrosivity Data

No animal testing data available for skin or eyes.

RTECS Irritation

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

Target Organs

HALOCARBON 23 (75-46-7)

central nervous system

Respiratory Sensitizer

No data available.

Dermal Sensitizer

No data available.

Carcinogenicity

Component Carcinogenicity

HALOCARBON 23 (75-46-7)

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

Reproductive Effects Data

No data available.

Tumorigenic Data

No data available.

Specific Target Organ Toxicity - Single Exposure

central nervous system

Specific Target Organ Toxicity - Repeated Exposure

No data available.

Aspiration Hazard

Not applicable.

Medical Conditions Aggravated by Exposure

None known.

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Additional Data

Stimulants such as epinephrine may induce ventricular fibrillation.

Section 12 - ECOLOGICAL INFORMATION

Component Analysis - Aquatic Toxicity

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

Persistence and Degradability

No data available.

Bioaccumulative Potential

No data available.

Mobility in Environmental Media

No data available.

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

IMDG Information

Shipping Name: Trifluoromethane

UN #: UN1984 **Hazard Class:** 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

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
HALOCARBON 23 (related to: Fluorides)	75-46-7	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
HALOCARBON 23	75-46-7	Yes	DSL	EIN	Yes	Yes	Yes	Yes	Yes	Yes

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* * *Section 16 - OTHER INFORMATION* * *
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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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