
1. IDENTIFICATION

Product Name	FE-13 (Fire Extinguishing Agent with Expellant)
Other Names	Trifluoromethane
Recommended use of the chemical and restrictions on use	
Identified uses	Fire Extinguishing Agent
Restrictions on use	Consult applicable fire protection codes
Company Identification	Kidde-Fenwal, LLC 400 Main Street Ashland, MA 01721 USA
Customer Information Number	(508) 881-2000
Emergency Telephone Number	
Chemtrec Number	(800) 424-9300 (703) 527-3887 (International)
Issue Date	July 9, 2024
Supersedes Date	October 1, 2015

Safety Data Sheet prepared in accordance with OSHA's Hazard Communication Standard (29 CFR 1910.1200) and the Globally Harmonized System of Classification and Labelling of Chemicals (GHS)

2. HAZARD IDENTIFICATION

Hazard Classification

Gas under pressure – liquefied gas
Simple Asphyxiant

Label Elements

Hazard Symbols



Signal Word: Warning

Hazard Statements

Contents under pressure; may explode if heated.
May displace oxygen and cause rapid suffocation.

Precautionary Statements**Prevention**

Do not enter confined space unless adequately ventilated.
In case of inadequate ventilation wear respiratory protection.

2. HAZARD IDENTIFICATION

Response

None

Storage

Keep container tightly closed.

Protect from sunlight and store in well-ventilated place.

Disposal

None

Other Hazards

Direct contact with the cold gas or liquid can cause freezing of exposed tissues. Avoid direct inhalation of undiluted gas. Can cause suffocation by reducing oxygen available for breathing. Breathing very high concentrations can cause dizziness, shortness of breath, unconsciousness or asphyxiation.

Specific Concentration Limits

The values listed below represent the percentages of ingredients of unknown toxicity.

Acute oral toxicity 0%

Acute dermal toxicity 0%

Acute inhalation toxicity 0%

Acute aquatic toxicity 0%

3. COMPOSITION/INFORMATION ON INGREDIENTS

Synonyms: HFC-23, R23, Fluoroform

This product is a substance.

Component

Trifluoromethane

CAS Number

75-46-7

Concentration

>99.9%

Note: The expellant is nitrogen.

4. FIRST- AID MEASURES

Description of necessary first-aid measures**Eyes**

Immediately flood the eye with plenty of warm water for at least 15 minutes, holding the eye open. Obtain medical attention if soreness or redness persists.

Skin

Flush with water. Obtain medical attention if frostbite or blistering occurs or redness persists.

Ingestion

Ingestion is not considered a potential route of exposure.

Inhalation

Remove from exposure. If there is difficulty in breathing, give oxygen. Obtain medical attention immediately.

Most important symptoms/effects, acute and delayed

Aside from the information found under Description of necessary first aid measures (above) and Indication of immediate medical attention and special treatment needed, no additional symptoms and effects are anticipated.

4. FIRST- AID MEASURES

Indication of immediate medical attention and special treatment needed**Notes to Physicians**

In case of frostbite, place the frostbitten part in warm water. If warm water is not available or impractical to use, wrap the affected parts gently in blankets. **DO NOT USE HOT WATER.**

The use of epinephrine or similar compounds can increase susceptibility to heart irregularities caused by excessive exposure to these types of compounds.

5. FIRE - FIGHTING MEASURES

Suitable Extinguishing Media

FE-13 is used as an extinguishing agent and therefore is not a problem when trying to control a blaze. Use extinguishing agent appropriate to other materials involved. Keep containers and surroundings cool with water spray as containers may rupture or burst in the heat of a fire.

Specific hazards arising from the chemical

Containers may explode in heat of fire.

Special Protective Actions for Fire-Fighters

Wear full protective clothing and self-contained breathing apparatus as appropriate for specific fire conditions.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures

Remove leaking cylinder to a safe place. Ventilate the area. Leaks inside confined spaces may cause suffocation as oxygen is displaced and should not be entered without a self-contained breathing apparatus.

Environmental Precautions

None

Methods and materials for containment and cleaning up

None

7. HANDLING AND STORAGE

Precautions for safe handling

Wear appropriate protective clothing. Prevent skin and eye contact.

Conditions for safe storage

Pressurized containers should be properly stored and secured to prevent falling or being knocked over. Do not drag, slide or pressurized containers. Do not drop pressurized containers or permit them to strike against each other. Never apply flame or localized heat directly to any part of the pressurized or plastic container. Store pressurized and plastic containers away from high heat sources. Storage area should be: - cool - dry - well ventilated - under cover - out of direct sunlight

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Control parameters

Exposure limits are listed below, if they exist.

Trifluoromethane

Manufacturer's Acceptable Exposure Limit: 1000ppm, 8 and 12hr TWA

Appropriate engineering controls

Use with adequate ventilation (natural or mechanical), especially in a confined space.

Individual protection measures**Respiratory Protection**

Not normally required. In oxygen deficient atmospheres, use a self contained breathing apparatus, as an air purifying respirator will not provide protection.

Skin Protection

Gloves

Eye/Face Protection

Chemical goggles or safety glasses with side shields.

Body Protection

Normal work wear.

9. PHYSICAL AND CHEMICAL PROPERTIES

Agent – FE-13**Appearance**

Physical State	Liquefied gas under pressure
Color	Colorless
Odor	Slight ether-like
Odor Threshold	No data available
pH	Not applicable
Liquid Density	1.42g/cm ³ @ -82 °C
Boiling Range/Point (°C/F)	-82.0°C/-115.6 °F
Melting Point (°C/F)	No data available
Flash Point (PMCC) (°C/F)	Not flammable
Vapor Pressure	46,986 hPa at 25 °C
Evaporation Rate (BuAc=1)	Not applicable
Solubility in Water	1.0 g/l at 25 °C at 1,013 hPa
Vapor Density (Air = 1)	No data available
VOC (%)	100
Partition coefficient (n-octanol/water)	No data available
Viscosity	Not applicable
Auto-ignition Temperature	No data available
Decomposition Temperature	No data available
Upper explosive limit	No data available
Lower explosive limit	No data available
Flammability (solid, gas)	Not flammable

9. PHYSICAL AND CHEMICAL PROPERTIES

Expellant - Nitrogen

Appearance

Physical State	Compressed gas
Color	Colorless
Odor	None
Odor Threshold	No data available
pH	Not applicable
Specific Gravity	No data available
Gas Density	0.075 lb/ft ³ @70°F as vapor
Boiling Range/Point (°C/F)	-196°C/-321 °F
Melting Point (°C/F)	-210°C/-346 °F
Flash Point (PMCC) (°C/F)	Not flammable
Vapor Pressure	No data available
Evaporation Rate (BuAc=1)	No data available
Solubility in Water	0.2 g/l
Vapor Density (Air = 1)	0.97
VOC (g/l)	Not applicable
VOC (%)	Not applicable
Partition coefficient (n-octanol/water)	No data available
Viscosity	Not applicable
Auto-ignition Temperature	No data available
Decomposition Temperature	No data available
Upper explosive limit	Not explosive
Lower explosive limit	Not explosive
Flammability (solid, gas)	Not flammable

10. STABILITY AND REACTIVITY

Reactivity

Containers may rupture or explode if exposed to heat.

Chemical Stability

Stable under normal conditions.

Possibility of hazardous reactions

Hazardous polymerization will not occur.

Conditions to Avoid

Extremely high temperatures - flames

Incompatible Materials

Alkali metals - alkaline earth metals - powdered metals - powdered metal salts

Hazardous Decomposition Products

Oxides of carbon - hydrogen fluoride - carbonyl fluoride

11. TOXICOLOGICAL INFORMATION

Acute ToxicityFE-13

Simple asphyxiant.

4 hour LC50(rat) >663,000 ppm

Nitrogen

Simple asphyxiant

Specific Target Organ Toxicity (STOT) – single exposureFE-13: Cardiac sensitization threshold limit >172,414 mg/m³

Exposure to FE-13 gas at high concentrations can cause suffocation by reducing oxygen available for breathing. Breathing very high concentrations can cause dizziness, shortness of breath, unconsciousness or asphyxiation.

Nitrogen: Exposure to nitrogen gas at high concentrations can cause suffocation by reducing oxygen available for breathing. Breathing very high concentrations can cause dizziness, shortness of breath, unconsciousness or asphyxiation.

Specific Target Organ Toxicity (STOT) – repeat exposure

No relevant studies identified.

Serious Eye damage/Irritation

No relevant studies identified.

Skin Corrosion/Irritation

No relevant studies identified.

Respiratory or Skin Sensitization

No relevant studies identified.

Carcinogenicity

Not considered carcinogenic by NTP, IARC, and OSHA.

Germ Cell Mutagenicity

FE-13: Did not cause genetic damage in testing on animals, cultured mammalian cells and cultured bacterial cells.

Reproductive Toxicity

FE-13: No developmental toxicity was observed in animal testing.

Aspiration Hazard

Not an aspiration hazard.

12. ECOLOGICAL INFORMATION

Ecotoxicity

Available data indicates this product is not expected to be ecotoxic.

Mobility in soil

No relevant studies identified.

Persistence/Degradability

No relevant studies identified.

12. ECOLOGICAL INFORMATION

Bioaccumulative Potential
No relevant studies identified.

Other adverse effects
No relevant studies identified.

13. DISPOSAL CONSIDERATIONS

Disposal Methods
Dispose of container in accordance with all applicable local and national regulations. Do not cut, puncture, or weld on or near to the container. If spilled, contents will vaporize to the atmosphere.

14. TRANSPORT INFORMATION

Safety Data Sheet information is intended to address a specific material and not various forms or states of containment.

DOT CFR 172.101 Data	Trifluoromethane, 2.2, UN1984
UN Proper Shipping Name	Trifluoromethane
UN Class	(2.2)
UN Number	UN1984
UN Packaging Group	Not Applicable
Classification for AIR Transportation (IATA)	Consult current IATA Regulations prior to shipping by air.
Classification for Water Transport IMDG	Consult current IMDG Regulations prior to shipping by water.

This section is believed to be accurate at the time of preparation. It is not intended to be a complete statement or summary of the applicable laws, rules, or hazardous material regulations, and is subject to change. Users have the responsibility to confirm compliance with all laws, rules, and hazardous material regulations in effect at the time of shipping.

15. REGULATORY INFORMATION

United States TSCA Inventory
All components of this product are in compliance with the inventory listing requirements of the US Toxic Substance Control Act (TSCA) Chemical Substance Inventory.

15. REGULATORY INFORMATION

Canada DSL Inventory
All ingredients in this product have been verified for inclusion on the Domestic Substance List (DSL).

SARA Title III Sect. 311/312 Categorization
Pressure Hazard

SARA Title III Sect. 313
This product does not contain any chemicals listed in Section 313 at or above de minimis concentrations.

16. OTHER INFORMATION

NFPA Ratings

NFPA Code for Health - 1
NFPA Code for Flammability - 0
NFPA Code for Reactivity - 1
NFPA Code for Special Hazards – None

HMIS Ratings

HMIS Code for Health - 1
HMIS Code for Flammability - 0
HMIS Code for Physical Hazard - 1
HMIS Code for Personal Protection - See Section 8
*Chronic

Legend

ACGIH: American Conference of Governmental Industrial Hygienists
CAS: Chemical Abstracts Service
IARC: International Agency for Research on Cancer
LCLo: Lethal concentration low
N/A: Denotes no applicable information found or available
NTP: National Toxicology Program
OSHA: Occupational Safety and Health Administration
PEL: Permissible Exposure Limit
SDS: Safety Data Sheet
STEL: Short Term Exposure Limit
TLV: Threshold Limit Value

Revision Date: July 9, 2024
Replaces: October 1, 2015
Changes made: Updated Company Name.

Information Source and References

This SDS is prepared by Kidde-Fenwal, LLC based on information provided by internal company references.

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