

Safety Data Sheet**Material Name: FM-200® (HFC-227ea) and Nitrogen (N2) Mixture******* Section 1: Chemical Product and Company Identification *******Chemical Name:** Heptafluoropropane in a pressurized container**Product Use:** Fire extinguishing agent, For professional users only.**Synonyms:** 1,1,1,2,3,3,3-Heptafluoropropane, HFC-227ea, FM-200®**Details of the supplier of the safety data sheet**

Kidde Products

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Emergency Telephone Number: 01494 480410***** Section 2: Composition / Information on Ingredients *****

CAS No.	EC-No.	Agent	% Percentage
431-89-0	207-079-2	Heptafluoropropane	34 to 79
7727-37-9	231-783-9	Nitrogen	Balance

A: Classification of the substance or mixture

Classification according to Regulation (EC) No. 1272/2008 [CLP]

Physical hazards - Gases under pressure: Liquefied gas - H280

Dangerous goods, Non Hazardous Substance

B: Component Analysis

No information is available.

C: Labelling Requirements**Warning**

H280 - Contains gas under pressure; may explode if heated.

Contains fluorinated greenhouse gases covered by the Kyoto Protocol – HFC227ea.

UN1956

***** Section 3: Hazards Identification *******Emergency Overview**

Warning. Asphyxiant. Inhalation of vapours of this product may affect the cardiovascular and central nervous system and may cause death. Pressurized container may explode when exposed to heat or flame.

Potential Health Effects: Eyes

Contact with the liquid of this product will cause frostbite to the eyes.

Potential Health Effects: Skin

Contact with the liquid of this product will cause frostbite to the skin.

Potential Health Effects: Ingestion

Not a likely route of entry.

Potential Health Effects: Inhalation

Asphyxiant. The vapors of this product reduce oxygen available for breathing and are heavier than air.

***** Section 4: First Aid Measures *******General:**

If unconscious place in recovery position and seek medical advice. Never give anything by mouth to an unconscious person. If breathing is irregular or stopped, administer artificial respiration. If symptoms persist, call a physician.

First Aid: Eyes

Immediately flush eyes with water for at least 15 minutes, while holding eyelids open. Seek medical attention at once.

First Aid: Skin

If frostbite or freezing occurs, immediately flush with plenty of lukewarm water (105-115°F; 41-46°C) for at least 15 minutes. Do not use hot water. Seek medical attention

First Aid: Ingestion

Not a likely route of entry

First Aid: Inhalation

Remove the affected person immediately to fresh air. Seek medical attention.

***** Section 5: Fire Fighting Measures *****

Flash Point: Not applicable **Method Used:** Not applicable

Upper Flammable Limit (UFL): Not applicable

Lower Flammable Limit (LFL): Not applicable

Auto Ignition: Not applicable

Flammability Classification: Not applicable

Rate of Burning: Not applicable

General Fire Hazards

Pressurized container: may explode when exposed to heat or flame. Product itself is not flammable.

Hazardous Combustion Products

Hydrogen halides, Carbon oxides, Fluorocarbons, Carbonyl halides

Extinguishing Media

Use methods for the surrounding fire. Do not mix with ABC type dry chemical extinguishing agents.

Fire Fighting Equipment/Instructions

Wear full protective clothing, including helmet, self-contained positive pressure or pressure demand breathing apparatus, protective clothing and face mask. Use water to cool fire-exposed containers and to protect personnel.

***** Section 6: Accidental Release Measures *******Containment Procedures**

Do not breathe in vapors. Move the cylinder to a safe and open area if a leak is irreparable.

Clean-Up Procedures

Evacuate the area promptly. Ventilate the contaminated area. Use appropriate respiratory equipment.

Evacuation Procedures

Persons not wearing appropriate protective equipment should be excluded from area of release until area has been declared safe by a competent person with monitoring equipment. Isolate the area to prevent people from entering.

***** Section 7: Handling and Storage *******Handling Procedures**

Do not breathe in vapors. Do not get into contact with the eyes or skin. Use with sufficient ventilation to keep employee exposure below recommended limits.

Storage Procedures

Store in accordance with all current regulations and standards. Protect cylinders from the elements and physical damage.

Specific Use

Fire extinguishing agent.

***** Section 8: Exposure Controls / Personal Protection *******Substance Exposure Limits**

NOAEL – 9% by volume – exposure limited to 5 minutes.

LOAEL – 10.5% - room not normally occupied.

Engineering Controls

Ventilation should effectively remove and prevent buildup of any vapours generated from the handling of this product.

Personal Protective Equipment: Eyes/Face

Wear chemical goggles.

Personal Protective Equipment: Skin

The use of polyvinyl chloride (PVC) or polyvinyl alcohol (PVA) gloves are recommended.

Personal Protective Equipment: Respiratory

When vapors are generated and ventilation is not sufficient to effectively remove them, appropriate approved respiratory protection must be provided. If a large spill occurs, the use of a self-contained breathing apparatus (SCBA) is required.

Personal Protective Equipment: General

Eye wash fountain and emergency showers are recommended. Use good industrial hygiene practices in handling this material.

***** Section 9: Physical & Chemical Properties *****

Appearance: Clear, colorless

Odour: slight, ether-like

Physical State: Liquefied Gas

pH: Not available

Vapor Pressure: 58.8 psia (4Bar) @ 70°F (21°C) (Based on Heptafluoropropane)

Vapor Density: 6.04 (Air = 1) (Based on Heptafluoropropane)

Liquid Density: 1.4 - 1.5 g/cm³ at 25 °C (based on Heptafluoropropane)

Boiling Point: 2.5°F (-16.4°C) (Based on Heptafluoropropane)

Melting Point: Not available

Solubility (H₂O): 260 mg/L (Based on Heptafluoropropane)

Specific Gravity: 1.46 (liquid) (Based on Heptafluoropropane)

Freezing Point: -204°F (-131°C) (Based on Heptafluoropropane)

***** Section 10: Chemical Stability & Reactivity Information *******Chemical Stability**

Stable under normal temperature and pressure.

Chemical Stability: Conditions to Avoid

Protect container from heat and physical damage.

Incompatibility

Powdered metals (aluminum, zinc, beryllium, etc.), strong bases, acids, oxidizers and reducing agents. ABC type dry chemical extinguishing agents.

Hazardous Decomposition

Hydrofluoric acid, carbon monoxide, carbon dioxides and other various hydrocarbon fragments.

Hazardous Polymerization

Will not polymerize.

***** Section 11: Toxicological Information *******Acute and Chronic Toxicity:**

Acute toxicity: No known toxicological effects from this product.

Germ cell mutagenicity: No known effects from this product.

Carcinogenicity: No known effects from this product.

Toxic for reproduction: Fertility - No known effects from this product.

Toxic for reproduction: Unborn child - No known effects from this product.

Single exposure: No known effects from this product.

Repeated exposure: No known effects from this product.

Aspiration hazard: Not applicable for gases and gas mixtures.

Carcinogenicity: No carcinogenicity data available for this product.

Chronic Toxicity: No information available for the product.

General product Information: Asphyxiant. The vapors of this product reduce oxygen available for breathing and are heavier than air. Symptoms may include nausea, vomiting, irregular heartbeat, symptoms of drunkenness, disorientation, suffocation, convulsions and possibly death.

***** Section 12: Ecological Information *******Ecotoxicity:****General Product Information**

No information available for the product.

Mobility

No information available for the product.

Persistence & Degradation

No information available for the product.

Bioaccumulation

The bio accumulative potential has not been determined.

Other adverse effects

Effect on ozone layer: None.

Global warming potential [CO₂=1]: 3220

Effect on the global warming: Contains Fluorinated greenhouse gases covered by the Kyoto protocol.

***** Section 13: Disposal Considerations *******Waste Disposal Instructions**

Dispose according to national, regional and local regulations. Can be recycled in to use after re-conditioning.

To destroy this product should be incinerated at a high temperature chemical waste incinerator fitted with acid gas scrubbing system.

***** Section 14: Transportation Information *******14.1 UN Number: 1956****14.2 UN Proper shipping name :**

Transport by road / rail (ADR / RID): Compressed gas n.o.s., (heptafluoropropane and nitrogen mixture)

Transport by air (ICA-TI / IATA-DGR): Compressed gas n.o.s., (heptafluoropropane and nitrogen mixture)

Transport by sea (IMDG): Compressed gas n.o.s., (heptafluoropropane and nitrogen mixture)

14.3 Transport hazard class(es): Labelling

2.2: Non-flammable, non-toxic gases

**Transport by road / rail (ADR / RID)**

Class: 2

Classification code: 1A

Hazard Identification Number: 20

Tunnel Restriction: E – Passage forbidden through tunnels of category E

Transport by air (ICA-TI / IATA-DGR)

Class / Div. (Sub risk(S)): 2.2

Transport by sea (IMDG)

Class / Div. (Sub risk(s)): 2.2

Emergency Schedule (EmS) – Fire: F-C

Emergency Schedule (EmS) – Spillage: S-V

14.4 Packing group:

Transport by road / rail (ADR / RID): not assigned to a packing group

Transport by air (ICA-TI / IATA-DGR): not assigned to a packing group

Transport by sea (IMDG): not assigned to a packing group

14.5 Environmental hazards:

Transport by road / rail (ADR / RID): none

Transport by air (ICA-TI / IATA-DGR): none

Transport by sea (IMDG): none

14.6 Special precautions for user:

Packing instruction(s)

Transport by road / rail (ADR / RID): P200

Transport by air (ICA-TI / IATA-DGR):

Passenger and Cargo Aircraft: 200

Cargo Aircraft only: 200

Transport by sea (IMDG): P200

Special transport precautions:

Avoid transport on vehicles where the load space is not separated from the driver's compartment

Ensure vehicle driver is aware of the potential hazards of the load and knows what to do in the event of an accident or emergency

Before transporting product container:

Ensure there is adequate ventilation

Ensure that containers are firmly secured

Ensure cylinder valve is closed and not leaking

Ensure valve outlet cap nut or plug (where provided) is correctly fitted

Ensure valve protection device (where provided) is correctly fitted

14.7 Transport in Bulk according to Annex II of MARPOL and the IBC code:

Not applicable