

# Material Safety Data Sheet

Material Name: FM-200® (HFC-227ea) and Kiddex® Mixture (5%) (a.k.a. HFC227-BC)

ID: KA011

## \*\*\* Section 1 - Chemical Product and Company Identification \*\*\*

**Chemical Name:** Heptafluoropropane and Kiddex in a pressurized container

**Product Use:** Extinguishing Fires

**Synonyms:** HFC227-BC, HFC-227ea, FM-200, heptafluoropropane

### Manufacturer Information

Kidde Aerospace  
4200 Airport Drive, NW  
Wilson, NC 27896

Phone: 252-237-7004

Emergency # 1-800-451-8346; 760-602-8700 (3E Company)

## \*\*\* Section 2 - Composition / Information on Ingredients \*\*\*

CAS #	Component	Percent
431-89-0	Heptafluoropropane	95.2
144-55-8	Sodium bicarbonate	4.6
7631-86-9	Silica, amorphous	0.2

### Component Information/Information on Non-Hazardous Components

This product is considered to be hazardous under 29 CFR 1910.1200 (Hazard Communication). This is a controlled product under the criteria specified in the Canadian Workplace Hazardous Materials Information System (WHMIS).

## \*\*\* Section 3 - Hazards Identification \*\*\*

### Emergency Overview

Warning. Asphyxiant. Inhalation of vapors of this product may affect the cardiovascular and central nervous system and may cause death. Skin or eye contact with the liquid will cause frostbite. 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. Inhalation of the vapors of the product causes central nervous system depression and affects the cardiovascular system. Symptoms include nausea, vomiting, irregular heartbeat, symptoms of drunkenness, disorientation, bluish skin color, suffocation, convulsions and possibly death.

**HMIS Ratings: Health: 1 Fire: 0 Physical Hazard: 1**

Hazard Scale: 0 = Minimal 1 = Slight 2 = Moderate 3 = Serious 4 = Severe \* = Chronic hazard

## \*\*\* Section 4 - First Aid Measures \*\*\*

### 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

Get medical attention. 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.

### First Aid: Ingestion

If large amount is swallowed, get medical attention.

### First Aid: Inhalation

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

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### First Aid: Notes to Physician

Do not give epinephrine or similar drugs for treatment of overexposure. This material may make the heart more susceptible to arrhythmias.

### \*\*\* Section 5 - Fire Fighting Measures \*\*\*

Flash Point: Not applicable

Upper Flammable Limit (UFL): Not applicable

Auto Ignition: 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

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

#### 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.

NFPA Ratings: Health: 1 Fire: 0 Reactivity: 1

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

### \*\*\* Section 6 - Accidental Release Measures \*\*\*

#### Containment Procedures

Do not breathe in vapors. Stop the flow of material, if this is without risk. Move the cylinder to a safe and open area if the 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 spill until clean-up has been completed. Evacuate the area promptly and keep upwind of the spilled material. Isolate the spill area to prevent people from entering.

#### Special Procedures

Regulations vary. Consult local authorities before disposal.

### \*\*\* 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. Subject to storage regulations: 29 CFR 1910.101. Keep from away incompatible substances. Protect cylinders from physical damage.

### \*\*\* Section 8 - Exposure Controls / Personal Protection \*\*\*

#### A: Component Exposure Limits

Silica, amorphous (7631-86-9)

NIOSH: 6 mg/m3 TWA

#### Engineering Controls

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

#### PERSONAL PROTECTIVE EQUIPMENT

##### 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.

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### Personal Protective Equipment: Respiratory

If airborne concentrations are above the applicable exposure limits, use NIOSH approved respiratory protection. 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 \*\*\*

<b>Appearance:</b> Clear, colorless	<b>Odor:</b> Odorless
<b>Physical State:</b> Gas	<b>pH:</b> Not available
<b>Vapor Pressure:</b> 58.8 psia @ 70°F (21°C) (Based on Heptafluoropropane)	<b>Vapor Density:</b> 6.04 (Air = 1) (Based on Heptafluoropropane)
<b>Boiling Point:</b> 2.5°F (-16.4°C) (Based on Heptafluoropropane)	<b>Melting Point:</b> Not available
<b>Solubility (H2O):</b> 260 mg/L (Based on Heptafluoropropane)	<b>Specific Gravity:</b> 1.46 (liquid) (Based on Heptafluoropropane)
<b>Freezing Point:</b> -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

##### A: General Product Information

Asphyxiant. The vapors of this product reduce oxygen available for breathing and are heavier than air. Inhalation of the vapors of the product causes central nervous system depression and affects the cardiovascular system. Symptoms include nausea, vomiting, irregular heartbeat, symptoms of drunkenness, disorientation, bluish skin color, suffocation, convulsions and possibly death. Skin or eye contact with the liquid will cause frostbite.

##### B: Component Analysis - LD50/LC50

###### Sodium bicarbonate (144-55-8)

Oral LD50 Rat: 4220 mg/kg; Oral LD50 Mouse: 3360 mg/kg

#### Carcinogenicity

##### A: General Product Information

No carcinogenicity data available for this product.

##### B: Component Carcinogenicity

###### Silica, amorphous (7631-86-9)

IARC: Monograph 68, 1997 (Group 3 (not classifiable))

#### Chronic Toxicity

No information available for the product.

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## \*\*\* Section 12 - Ecological Information \*\*\*

### Ecotoxicity

#### A: General Product Information

No information available for the product.

#### B: Component Analysis - Ecotoxicity - Aquatic Toxicity

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

### Environmental Fate

No information available for the product.

## \*\*\* Section 13 - Disposal Considerations \*\*\*

### US EPA Waste Number & Descriptions

#### A: General Product Information

Wastes must be tested using methods described in 40 CFR Part 261 to determine if it meets applicable definitions of hazardous wastes.

#### B: Component Waste Numbers

No EPA Waste Numbers are applicable for this product's components.

### Disposal Instructions

Dispose of waste material according to Local, State, Federal, and Provincial Environmental Regulations.

## \*\*\* Section 14 - Transportation Information \*\*\*

### US DOT Information

Shipping Name: Fire Extinguishers

UN/NA #: UN1044 Hazard Class: 2.2

Required Label(s): NONFLAMMABLE GAS

### TDG Information

Shipping Name: Fire extinguishers

UN/NA #: UN1044 Hazard Class: 2.2

## \*\*\* Section 15 - Regulatory Information \*\*\*

### US Federal Regulations

#### A: General Product Information

Components of this product are listed on the U.S. EPA TSCA Inventory and the Canadian DSL/NDSL Inventories.

#### B: Component Analysis

None of this products components are listed under SARA Section 302 (40 CFR 355 Appendix A), SARA Section 313 (40 CFR 372.65), or CERCLA (40 CFR 302.4).

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

### State Regulations

#### A: General Product Information

Other state regulations may apply. Check individual state requirements.

#### B: Component Analysis - State

The following components appear on one or more of the following state hazardous substances lists:

Component	CAS	CA	MA	MN	NJ	PA	RI
Silica, amorphous	7631-86-9	Yes	Yes	Yes	Yes	Yes	No

### Canadian WHMIS Information

#### A: General Product Information

This product has been classified in accordance with the Canadian Controlled Products Regulations (CPR) and this MSDS contains all of the information required by the CPR.

#### B: Component Analysis - WHMIS IDL

No components are listed in the WHMIS IDL.

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WHMIS Classification: Class A: Compressed Gas

### Additional Regulatory Information

#### A: General Product Information

No additional information available.

#### B: Component Analysis - Inventory

Component	CAS #	TSCA	CAN	EEC
Heptafluoropropane	431-89-0	Yes	NDSL	EINECS
Sodium bicarbonate	144-55-8	Yes	DSL	EINECS
Silica, amorphous	7631-86-9	Yes	DSL	EINECS

### \*\*\* Section 16 - Other Information \*\*\*

#### Other Information

The information herein is presented in good faith and believed to be accurate as of the effective date given. However, no warranty, expressed or implied, is given. It is the buyer's responsibility to ensure that its activities comply with Federal, State or provincial, and local laws.

#### MSDS History

MSDS History New MSDS, 9/23/2004, Revision 2.0000 1/04/2013

#### Key/Legend

ACGIH = American Conference of Governmental Industrial Hygienists; CAS = Chemical Abstracts Service; CERCLA = Comprehensive Environmental Response, Compensation, and Liability Act; CFR = Code of Federal Regulations; CPR = Controlled Products Regulations; DOT = Department of Transportation; DSL = Domestic Substances List; EINECS = European Inventory of Existing Commercial Chemical Substances; EPA = Environmental Protection Agency; IARC = International Agency for Research on Cancer; IATA = International Air Transport Association; mg/Kg = milligrams per Kilogram; mg/L = milligrams per Liter; mg/m<sup>3</sup> = milligrams per Cubic Meter; MSHA = Mine Safety and Health Administration; NA = Not Applicable or Not Available; NIOSH = National Institute for Occupational Safety and Health; NJTSR = New Jersey Trade Secret Registry; NTP = National Toxicology Program; OSHA = Occupational Safety and Health Administration; SARA = Superfund Amendments and Reauthorization Act; TDG = Transport Dangerous Goods; TSCA = Toxic Substances Control Act; WHMIS = Workplace Hazardous Materials Information System.

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This is the end of MSDS # KA011