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

**Chemical Name:** Heptafluoropropane 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: 252-246-7004  
Emergency # 1-800-451-8346; 760-602-8700 (3E Company)

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

<table>
<thead>
<tr>
<th>CAS #</th>
<th>Component</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>431-89-0</td>
<td>Heptafluoropropane</td>
<td>95.2</td>
</tr>
<tr>
<td>144-55-8</td>
<td>Sodium bicarbonate</td>
<td>4.6</td>
</tr>
<tr>
<td>7631-86-9</td>
<td>Silica, amorphous</td>
<td>0.2</td>
</tr>
</tbody>
</table>

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

**A: General Product Information**  
This material has been evaluated using the criteria specified in European Union Directives 67/548/EEC, 99/45/EC and 2001/58/EC.

**B: Component Analysis**  
No information is available.

**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. 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 vapours of this product reduce oxygen available for breathing and are heavier than air. Inhalation of the vapours 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.

**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.
Safety Data Sheet

Material Name: FM-200® (HFC-227ea) and Kiddex® Mixture (a.k.a. HFC227-BC)  ID: KA011EU

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
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
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.

*** Section 6 - Accidental Release Measures ***

Containment Procedures
Do not breathe in vapours. 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. Protect cylinders from physical damage.

Specific Use
Fire extinguishing agent.

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

Substance Exposure Limits
Silica, amorphous (7631-86-9)

<table>
<thead>
<tr>
<th>Country</th>
<th>Limit Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Austria</td>
<td>4 mg/m3 MAK (inhalable fraction)</td>
</tr>
<tr>
<td>Germany</td>
<td>4 mg/m3 TWA (inhalable fraction)</td>
</tr>
<tr>
<td></td>
<td>4 mg/m3 MAK (inhalable fraction)</td>
</tr>
<tr>
<td>Ireland</td>
<td>6 mg/m3 TWA (total inhalable dust); 2.4 mg/m3 TWA (respirable dust)</td>
</tr>
<tr>
<td>United Kingdom</td>
<td>6 mg/m3 TWA (total inhalable dust); 2.4 mg/m3 TWA (respirable dust)</td>
</tr>
</tbody>
</table>

Engineering Controls
Ventilation should effectively remove and prevent buildup of any vapours 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.

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 ***

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Appearance</td>
<td>Clear, colorless</td>
<td>Odor</td>
<td>Odorless</td>
</tr>
<tr>
<td>Physical State</td>
<td>Gas</td>
<td>pH</td>
<td>Not available</td>
</tr>
<tr>
<td>Vapor Pressure</td>
<td>58.8 psia @ 70°F (21°C)</td>
<td>Vapor Density</td>
<td>6.04 (Air = 1) (Based on</td>
</tr>
<tr>
<td></td>
<td>(Based on Heptafluoropropane)</td>
<td></td>
<td>Heptafluoropropane)</td>
</tr>
<tr>
<td>Boiling Point</td>
<td>2.5°F (-16.4°C) (Based on</td>
<td>Melting Point</td>
<td>Not available</td>
</tr>
<tr>
<td></td>
<td>Heptafluoropropane)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Solubility (H2O)</td>
<td>260 mg/L (Based on Heptafluoropropane)</td>
<td>Specific Gravity</td>
<td>1.46 (liquid) (Based on</td>
</tr>
<tr>
<td></td>
<td>(Based on Heptafluoropropane)</td>
<td></td>
<td>Heptafluoropropane)</td>
</tr>
<tr>
<td>Freezing Point</td>
<td>-204°F (-131°C) (Based on</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Heptafluoropropane)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*** 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 dioxide 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: Substance Carcinogenicity
   Silica, amorphous (7631-86-9)
   IARC: Monograph 68, 1997 (Group 3 (not classifiable))

Chronic Toxicity
   No information available for the product.

*** 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.

Mobility
   No information available for the product.

Persistence & Degradation
   No information available for the product.

Bioaccumulation
   The bioaccumulative potential has not been determined.

Other Adverse Effects
   No information available for the product.

*** Section 13 - Disposal Considerations ***

Waste Disposal Instructions
   Dispose according to national, regional and local regulations.

*** Section 14 - Transportation Information ***

IATA Information
   Shipping Name: Compressed Gas, N.O.S., 2.2, UN1956 (Mixture of Heptafluoropropane, Kiddex [sodium bicarbonate], and Nitrogen)
   UN #: UN1956  Hazard Class: 2.2

ICAO Information
   Shipping Name: Compressed Gas, N.O.S., 2.2, UN1956 (Mixture of Heptafluoropropane, Kiddex [sodium bicarbonate], and Nitrogen)
   UN #: UN1956  Hazard Class: 2.2

IMDG Information
   Shipping Name: Compressed Gas, N.O.S., 2.2, UN1956 (Mixture of Heptafluoropropane, Kiddex [sodium bicarbonate], and Nitrogen)
   UN #: UN1956  Hazard Class: 2.2

ADR Information
   Shipping Name: Compressed Gas, N.O.S., 2.2, UN1956 (Mixture of Heptafluoropropane, Kiddex [sodium bicarbonate], and Nitrogen)
   UN #: UN1956  Hazard Class: 2

RID Information
   Shipping Name: Compressed Gas, N.O.S., 2.2, UN1956 (Mixture of Heptafluoropropane, Kiddex [sodium bicarbonate], and Nitrogen)
   UN #: UN1956  Hazard Class: 2
*** Section 15 - Regulatory Information ***

European Union Regulatory Information
A: General Product Information
Not classified.

S9 Keep container in a well-ventilated place.

A: Component Analysis - Inventory

<table>
<thead>
<tr>
<th>Component</th>
<th>CAS #</th>
<th>EEC</th>
<th>CAN</th>
<th>TSCA</th>
</tr>
</thead>
<tbody>
<tr>
<td>Heptafluoropropane</td>
<td>431-89-0</td>
<td>EINECS</td>
<td>NDSL</td>
<td>Yes</td>
</tr>
<tr>
<td>Sodium bicarbonate</td>
<td>144-55-8</td>
<td>EINECS</td>
<td>DSL</td>
<td>Yes</td>
</tr>
<tr>
<td>Silica, amorphous</td>
<td>7631-86-9</td>
<td>EINECS</td>
<td>DSL</td>
<td>Yes</td>
</tr>
</tbody>
</table>

B: Seveso II Directive - Qualifying Quantities
No information is available.

*** Section 16 - Other Information ***

Key/Legend
TSCA = Toxic Substance Control Act; ACGIH = American Conference of Governmental Industrial Hygienists; IARC = International Agency for Research on Cancer; NTP = National Toxicology Program; IATA = International Air Transport Association; IMO = International Maritime Organization; ADR/RID = European Agreement of Dangerous Goods by Road/Rail; DFG = Deutsche Forschungsgemeinschaft; MAC/MAK = Maximum Concentration Value in the Workplace; TWA = Time Weighted Average; STEL = Short-term Exposure Limit; EINECS = European Inventory of Existing Commercial Chemical Substances; EEC = European Economic Community; VLA/VLE = Work Exposure Threshold; OEL = Occupational Exposure Limit; NA = Not Applicable or Not Available.

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.

End of Sheet KA011EU