

Extinguishing Agent UL/FM

Agent Details and MSDS


General Details:

- ❖ SFFECO Prime 227 Fire Extinguishing Systems fight fires using HFC-227ea.
- ❖ HFC-227ea is suitable for Class A, B, C fires and it is superior to water and dry chemical fire extinguishing agents.
- ❖ It is active on fire with complete extinguishment capability designed to fully discharge within seconds.
- ❖ This extinguishing agent is particularly suitable for the protection of spaces with electronic and electrical equipment and offers an economical fire protection solution especially for small and medium-sized rooms. The system can be used even if people are present in the premises.
- ❖ The HFC-227ea extinguishing agent reduces the heat of the fire and thus stops the combustion reaction. It is very efficient yet unaggressive at the same time.

Chemical Details:

- ❖ Product Name:
HFC-227ea
- ❖ Chemical Name:
1,1,1,2,3,3,3-Heptafluoropropane
- ❖ Synonym:
2H-Heptafluoropropane; HFC-227ea;
R-227; MH227 ; FM-200™; FE-227™
- ❖ Product Use:
Fire extinguishing agent

Hazard Identification:

OSHA/HCS status	This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200)
Classification of the substance or mixture	Gases under pressure - Liquefied gas
GHS label elements	
Hazard pictograms	
Signal word	Warning
Hazard statements	H280: Contains gas under pressure; may explode if heated P210: Keep away from heat/sparks/open flame. - No smoking P233: Keep container tightly closed in a cool/well-ventilated place
Precautionary statements	P260: Do not breathe dust/fumes/gas/vapours/spray P273: Avoid release to the environment P280: Wear protective gloves/protective clothing/eye protection/face protection P403: Use and store only in a well-ventilated area May cause frostbite May displace oxygen and cause rapid suffocation
Other Hazard	Overheating and over pressurizing may cause gas release or violent cylinder bursting In addition to any other important health or physical hazards, this product may displace oxygen and cause rapid suffocation

Composition/Information on Ingredients:

Ingredient name	CAS No.	%(weight)
1,1,1,2,3,3,3 -heptafluoropropane	431-89-0	≥99.90

First Aid Measures:

Inhalation	Remove to fresh air Oxygen or artificial respiration if needed If unconscious, place in recovery position and get medical attention immediately
Skin	Flush exposed skin with lukewarm water (not hot), or use other means to warm skin slowly Remove contaminated clothing and shoes Get medical attention if frostbitten by liquid or if irritation persists
Eyes	Immediately flush with large amounts of water for at least 15 minutes Get medical attention if irritation occurs
Ingestion	As this product is a gas, refer to the inhalation section
Note to physician	Immediate medical attention is not required When symptoms persist or in all cases of doubt seek medical advice

Fire Fighting Measures:

Extinguishing media	Heptafluoropropane is a fire extinguishing media. Use media appropriate for surrounding material
Special hazards arising from the substance or mixture	Thermal decomposition can lead to release of irritating or toxic gases/vapors: carbon oxides, halogenated compounds Contains gas under pressure. In a fire or if heated, a pressure increase will occur and the container may burst or explode
Special protective equipment for firefighters	Wear self-contained breathing apparatus with a full face-piece operated in positive pressure mode and chemical-protective clothing. Prevent fire extinguishing water from contaminating surface water or the ground water system

Accidental Release Measures:

Personal precautions, protective equipment and emergency procedures	Refer to SECTION 8 for personal protective equipment. Prevention of skin and eye contact. Ensure adequate ventilation. Remove all sources of ignition. Shut off gas supply if this can be done safely. Isolate area until gas has dispersed
Environmental precautions	Do not discharge into drains/surface waters/groundwater
Methods and material for containment and cleaning up	Evacuate area. Keep upwind. Stop leak if without risk. Ventilate area especially low places remove open flames and heating elements. Disperse gas with floor level forced air

Handling and Storage:

Handling	Do not puncture or incinerate container. Use equipment rated for cylinder pressure. Close valve after each use and when empty. Protect cylinders from physical damage; do not drag, roll, slide, or drop. Use a suitable hand truck for cylinder movement
Storage	Keep container tightly closed and in a cool, well-ventilated place. Keep out of direct sunlight. Keep away from heat and ignition sources
Packing material	Steel drum

Exposure Controls/Personal Production:

Control parameters:	
Occupational exposure limit values	Not established
DNEL (Derived No Effect Level) for workers and the general population	Not established
PNEC (Predicted No Effect Concentration) values	Not established
Exposure controls:	
Appropriate engineering controls	Use only with adequate ventilation. Use process enclosures, local exhaust ventilation or other engineering controls to keep worker exposure to airborne contaminants below any recommended or statutory limits
Personal protective equipment Respiratory Protection	In case of inadequate ventilation wear respiratory protection
Skin Protection	Wear protective gloves/clothing to prevent contact
Eye Protection	Safety glasses/chemical splash goggles
Environmental exposure controls	Do not empty into drains

Physical and Chemical Properties:

Parameter	Value
Appearance	Liquefied gas
Color	colorless
Odour	inodorous
pH	Not available
Melting point	Not available
Boiling point	-16.36 °C

Physical and Chemical Properties (Continuous):

Flash point	Not available
Evaporation rate	Not available
Flammability (solid, gas)	Not flammable
Upper/lower flammability or explosive limits	Not available
Vapour pressure	457.7 Kpa (25°C)
Specific gravity (H ₂ O=1)	1.388 g/cm ³
Solubility(ies)	Not available
Partition coefficient: n-octanol/ water	log Kow = 2.11
Auto-ignition temperature	Not available
Viscosity	0.226 mPa.s (25°C)
Explosive properties	Not available
Oxidising properties	Not available

Stability and Reactivity:

Reactivity	Stable under recommended storage and handling conditions. (See handling and storage Section)
Chemical stability	Stable under normal conditions of use
Possibility of hazardous reactions	No known hazardous reactions
Conditions to avoid	Keep away from heat and ignition sources. Protect from sunlight
Incompatible materials	Strong oxidizing materials
Hazardous decomposition products	Thermal decomposition can lead to release of irritating or toxic gases/vapors: carbon oxides, halogenated compounds

Toxicological Information:

Ingredient name	LD50 Oral	LD50 Dermal	LC50 Inhalation
1,1,1,2,3,3,3 - heptafluoropropane	Not data available	Not data available	788,698 ppm/4h (rat).

- ❖ Skin corrosion/irritation: (No information available)
- ❖ Serious eye damage/irritation: (No information available)
- ❖ Respiratory or skin sensitization: (No information available)
- ❖ Germ cell mutagenicity: (No information available)
- ❖ Reproductive toxicity: (No information available)
- ❖ STOT-single exposure: (No information available)
- ❖ STOT-repeated exposure: (No information available)
- ❖ Aspiration hazard: (No information available)
- ❖ Carcinogenicity: (Not listed as a carcinogen by NTP, IARC, or OSHA)

Ecological Information:






Toxicity (Ecotoxicity Fish, LC 50)	Not available
Degradability	Atmospheric lifetime is approximately 34.2 years
Bioaccumulation/ Accumulation	Bioaccumulation is not expected (Log Kow < 3)
Mobility in Environmental Media	Not available
Other adverse effects	Ozone Depletion Potential (CFC 11 = 1.0): 0.00 Global Warming Potential (CO2 = 1.0): 3,220

Disposal Considerations:

Waste Disposal Method

Disposal must be made according to local and national regulations. Empty containers should be taken for local recycling, recovery or waste disposal.

Transport Information:

Item	DOT	TDG	Mexico	IMDG	IATA / ICAO
UN-Number	3296	3296	3296	3296	3296
UN proper shipping name	Heptafluoropropane				
Hazard class	2.2				
Packaging Group					
Label					

Special precautions for user

Avoid transportation in vehicles where the load space is not separated from the driver's compartment. Ensure valves are closed and not leaking Always transport in closed containers that are upright and secure. Ensure that persons transporting the product know what to do in the event of an accident

Regulatory Information:

Safety, health and environmental regulations/legislation specific for the substance or mixture

Listed in international inventories:

Ingredient name	TSCA	DSL	NDSL	ELINCS	ENCS	CHINA	KECL	PICCS	AICS
1,1,1,2,3,3,3 - heptafluoro propane	YES	YES	YES	YES	YES	YES	YES	YES	YES

Other regulations

US. EPA Emergency Planning and Community Right-To-Know Act (EPCRA) SARA Title III Section 302 Extremely Hazardous Substance (40 CFR 355, Appendix A)

- not regulated.

US. EPA Emergency Planning and Community Right-To-Know Act (EPCRA) SARA Title III Section 313 Toxic Chemicals (40 CFR 372.65) - Supplier Notification Required

- not regulated.

US. EPA CERCLA Hazardous Substances (40 CFR 302)

- not regulated.

US. New Jersey Worker and Community Right-to-Know Act (New Jersey Statute Annotated Section 34:5A-5)

- not regulated.

US. Pennsylvania Worker and Community Right-to-Know Law (34 Pa. Code Chap. 301-323)

- not regulated.

US. California Safe Drinking Water & Toxic Enforcement Act (Proposition 65)

- not regulated.

Other Information:

In accordance with good practices of personal cleanliness and hygiene handle with the care and avoid unnecessary contact with this product.

This information is being supplied to you under OSHA Hazard Communication Standard 29 CFR 1910.1200 and is offered in good faith as typical values and not as a product specification. The information contained herein is based on the data available to us and is believed to be true and accurate.

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