SDS (Safety Data Sheet)

SECTION 1. IDENTIFICATION

Product identifier:	HFC-227ea (Fire extinguishing agent)
Trade Name/Synonym:	Heptafluoropropane FM-200
Product Use:	Fire extinguishing agent
Manufacturer/Supplier:	Continental FluoroChem, Inc. 244 Fifth Avenue, 2nd Floor New York, New York, 10001 1-800-353-0877

SECTION 2. HAZARDS IDENTIFICATION

OSHA/HCS status:	This material is considered hazardous by OSHA Hazard Communication Standard (29 CFR 1910.1200)
Classification of substance or mixture:	Gases under Pressure
GHS label elements:	
Hazard Pictograms:	
Signal word:	Warning
Hazard statements:	H280: Contains gas under pressure; may explode if heated P210: Keep away from heat/spark/open flame. – No smoking P233: Keep container tightly closed in a cool/well-ventilated place P260: Do not breathe dust/fumes/gas/vapors/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
Other Hazards:	May cause frostbite May displace oxygen and cause rapid suffocation Overheating and over pressurizing may cause gas release or violent cylinder bursting

SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

Component	CAS-No.	Concentration
1,1,1,2,3,3,3-Heptafluoropropane	431-89-0	100%

SECTION 4. FIRST AID MEASURES

Skin contact:	In case of contact, immediately flush skin with plenty of water for at least 15 minutes. Take off all contaminated clothing immediately. Consult a physician. Wash contaminated clothing before re-use. Treat for frostbite if necessary by gently warming affected area.
Eye contact:	In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Consult a physician if necessary.
Inhalation:	Move to fresh air, lie down. Keep patient warm and at rest. Artificial respiration and/or oxygen may be necessary. Consult a physician.
Ingestion:	Is not considered a potential route of exposure.
General advice:	Never give anything by mouth to an unconscious person. When symptoms persist or in all cases of doubt seek medical advice.
Notes to physician:	Because of possible disturbances of cardiac rhythm, catecholamine drugs, such as epinephrine, that may be used in situations of emergency life support should be used with special caution.

SECTION 5. FIREFIGHTING MEASURES

Fire and Explosion Hazard:	The product is not flammable. Hazardous decomposition products: Hydrogen fluoride, Carbonyl fluoride
Suitable extinguishing media:	This material is a fire extinguishing agent.
Notes to fire-fighters:	Wear full protective clothing, including helmet, self-contained breathing apparatus, protective clothing, and face mask. Use water to cool fire-exposed containers.

SECTION 6. ACCIDENTAL RELEASE MEASURES

NOTE:	Review FIRE FIGHTING MEASURES and HANDLING (PERSONNEL) sections before proceeding with clean-up. Use appropriate PERSONAL PROTECTIVE EQUIPMENT during clean-up.
Safeguards (Personnel):	Evacuate personnel, thoroughly ventilate area, and use self-contained breathing apparatus. Keep upwind of leak – evacuate until gas has dispersed.
Spill Cleanup:	Ventilate area using forced ventilation, especially low or enclosed places where heavy vapors might collect.

SECTION 7. HANDLING AND STORAGE

Handling (Personnel):	Do not breathe gas. Avoid contact with skin, eyes and clothing. For personal protection see section 8. Wash hands thoroughly after handling. Wash clothing after use. Decomposition will occur when product comes in contact with open flame or electrical heating elements. Handle in accordance with good industrial hygiene and safety practice.
Storage:	Valve protection caps and valve outlet threaded plugs must remain in place unless container is secured with valve outlet piped to use point. Do not drag, slide or roll cylinders. Never attempt to lift cylinder by its cap. Cylinders should be stored upright and firmly secured to prevent falling or being knocked over. Keep at temperature not exceeding 130°F (54°C). Keep container tightly closed in a dry and well-ventilated place. Store in original container. Protect from contamination. Avoid area where salt or other corrosive materials are present.
Storage temperature:	32°F (0°C) to 130°F (< 54°C)

SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Engineering controls:	Keep container tightly closed.
Personal protective equipment	
Respiratory protection:	Wear NIOSH approved respiratory protection as appropriate.
Hand protection:	Additional protection: Impervious gloves
Eye protection:	Safety glasses with side-shields, additionally wear a face shield where the possibility exists for face contact due to splashing, spraying or airborne contact with this material.
Skin and body protection:	Where there is potential for skin contact, have available and wear as appropriate, impervious gloves, apron, pants, jacket, hood and boots.
Protective measures:	Self-contained breathing apparatus (SCBA) is required if a large release occurs.
Exposure Guidelines	
Exposure Limit Values	Not Established.

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

Form:	Clear liquefied gas
Odor:	none
Boiling point:	-16.3 °C (2.7 °F)
Vapor Pressure:	4,547 hPa at 25 °C (77 °F)
Density:	1.388 g/cm3 at 25 °C (77 °F) (as liquid)

SECTION 10. STABILITY AND REACTIVITY

Stability:	Stable at normal temperatures and storage conditions.
Incompatibility:	Alkali metals Alkaline earth metals, powdered metals, powdered metal salts
Hazardous Decomposition Products:	Hydrogen fluoride, Carbonyl fluoride, Carbon monoxide, Carbon dioxide
Hazardous reactions:	Polymerization will not occur.

SECTION 11. TOXICOLOGICAL INFORMATION

Inhalation 4 h LC50:	> 788698 ppm, rat
Inhalation:	dog Cardiac sensitization
Dermal:	not applicable
Oral:	not applicable
Skin irritation:	No skin irritation, not tested on animals
	Not expected to cause skin irritation based on expert review of the properties of the substance.
Eye irritation:	No eye irritation, not tested on animals
	Not expected to cause eye irritation based on expert review of the properties of the substance.
Sensitization:	Does not cause skin sensitization, not tested on animals
	Not expected to cause sensitization based on expert review of the properties of the substance.
	Did not cause sensitization on laboratory animals. There are no reports of human respiratory sensitization.
Repeated dose toxicity:	Inhalation, rat, No toxicologically significant effects were found.
Carcinogenicity:	Overall weight of evidence indicates that the substance is not carcinogenic.
Mutagenicity:	Did not cause genetic damage in animals.
	Did not cause genetic damage in cultured mammalian cells.
	Did not cause genetic damage in cultured bacterial cells.
Reproductive toxicity:	Animal testing showed no reproductive toxicity.
	Information given is based on data obtained from similar substances.
Teratogenicity:	Animal testing showed no developmental toxicity.
Further information:	Cardiac sensitization threshold limit: 730190 mg/m3

SECTION 12. ECOLOGICAL INFORMATION

Aquatic Toxicity

96 h LC50:	Danio rerio (zebra fish) > 200 mg/l
	Information given is based on data obtained from similar substances.
96 h LC50:	Oncorhynchus mykiss (rainbow trout) > 81.8 mg/l
	Information given is based on data obtained from similar substances.
72 h EC50:	Pseudokirchneriella subcapitata > 114 mg/l
	Information given is based on data obtained from similar substances.
72 h EC50:	Pseudokirchneriella subcapitata > 118 mg/l
	Information given is based on data obtained from similar substances.
48 h EC50:	Daphnia magna (Water flea) > 200 mg/l
	Information given is based on data obtained from similar substances.
48 h EC50:	Daphnia magna (Water flea) > 97.9 mg/l
	Information given is based on data obtained from similar substances.

Environmental Fate

Biodegradability aerobic:	1 % OECD Test Guideline 301, not readily biodegradable.
Biodegradability aerobic:	5 % OECD Test Guideline 301, not readily biodegradable.

SECTION 13. DISPOSAL CONSIDERATIONS

Waste Disposal:	Can be used after re-conditioning. Recover by distillation or remove to a permitted waste disposal facility.
	Comply with applicable Federal, State/Provincial and Local Regulations.
Environmental Hazards:	Empty pressure vessels should be returned to the supplier.

SECTION 14. TRANSPORT INFORMATION

DOT	UN number:	3296
	Proper shipping name:	Heptafluoropropane
	Class:	2.2 (Non-Flammable Gas)
	Labelling No. :	2.2
IATA_C	UN number:	3296
	Proper shipping name:	Heptafluoropropane
	Class:	2.2 (Non-Flammable Gas)
	Labelling No. :	2.2
IMDG	UN number:	3296
	Proper shipping name:	Heptafluoropropane
	Class:	2.2 (Non-Flammable Gas)
	Labelling No. :	2.2

Or – If packaged as a charged Fire Extinguisher…

DOT	UN number:	1044
	Proper shipping name:	Fire Extinguishers
	Class:	2.2 (Non-Flammable Gas)
	Labelling No. :	2.2
IATA_C	UN number:	1044
	Proper shipping name:	Fire Extinguishers
	Class:	2.2 (Non-Flammable Gas)
	Labelling No. :	2.2
IMDG	UN number:	1044
	Proper shipping name:	Fire Extinguishers
	Class:	2.2 (Non-Flammable Gas)
	Labelling No. :	2.2

SECTION 15. REGULATORY INFORMATION

SARA 313 Regulated Chemical(s):	SARA 313: This material does not contain any chemical components with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313.
California Prop. 65:	Chemicals known to the State of California to cause cancer, birth defects or any other harm: none known

SECTION 16. OTHER INFORMATION

	HMIS
Health:	1
Flammability:	0
Reactivity/Physical hazard:	0
PPE:	Personal Protection rating to be supplied by user depending on use conditions.

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.

Revision: Janurary 6th, 2026