

Safety Data Sheet

According to Federal Register / Vol. 89, No. 98 / Monday, May 20, 2024 / Rules and Regulations (According to HCS-2024 APPENDIX D TO §1910.1200)
Issue date: 6/17/2024 Revision date: 6/17/2024 Version: 24.06

SECTION 1: Identification

1.1. Product identifier used on the label

Product form : Substance
Trade name : Super 227
Chemical name : 1,1,1,2,3,3,3-Heptafluoropropane
CAS-No. : 431-89-0
Other means of identification : No information available.

1.2. Recommended use and restrictions on use

Recommended use : Fire extinguishing agent.
Restrictions on use : No information available

1.3. Supplier

Supplier

Hangzhou Kec Fire Chemical Co., Ltd.
2107-1-1, Xihu International Building, 391 Wener Road, Hangzhou, Zhejiang, China.
310012
T +86-571-86803376
info@kecfire.com

1.4. Emergency telephone number

Emergency number : +86-571-86803376

SECTION 2: Hazard(s) identification

2.1. Classification of the substance or mixture

GHS US classification

Gases under pressure Liquefied gas Contains gas under pressure; may explode if heated

2.2. GHS Label elements, including precautionary statements

GHS US labeling

Hazard pictograms (GHS US) :



Signal word (GHS US) : Warning
Hazard statements (GHS US) : Contains gas under pressure; may explode if heated
Precautionary statements (GHS US) : Protect from sunlight. Store in a well-ventilated place.

2.3. Hazards classified under paragraph (d)(1)(ii) of § 1910.12000

A change in the chemical's physical form : No information available
Chemical reaction products associated with known or reasonably anticipated uses or applications : No information available

2.4. Other hazards which do not result in classification

Other hazards which do not result in classification : No information available.

2.5. Unknown acute toxicity (GHS US)

No additional information available

SECTION 3: Composition/Information on ingredients

3.1. Substances

Name	Product identifier	%
1,1,1,2,3,3,3-Heptafluoropropane	CAS-No.: 431-89-0	≥ 99.9

Full text of hazard classes and H-statements : see section 16

3.2. Mixtures

Not applicable

SECTION 4: First-aid measures

4.1. Description of first aid measures

First-aid measures after inhalation	: Remove victim to fresh air and keep at rest in a position comfortable for breathing. Give oxygen or artificial respiration if necessary. If experiencing respiratory symptoms: Call a poison center or a doctor.
First-aid measures after skin contact	: Wash skin with plenty of water. Take off contaminated clothing. If skin irritation occurs: Get medical advice/attention.
First-aid measures after eye contact	: Remove contact lenses, if present and easy to do. Continue rinsing. Rinse cautiously with water for several minutes. If eye irritation persists: Get medical advice/attention.
First-aid measures after ingestion	: Not an expected route of exposure.

4.2. Most important symptoms and effects (acute and delayed)

Symptoms/effects	: Acts as a simple asphyxiant. Contact with rapidly expanding gas may cause burns or frostbite.
------------------	-------------------------------------------------------------------------------------------------

4.3. Immediate medical attention and special treatment, if necessary

Treat symptomatically.

SECTION 5: Fire-fighting measures

5.1. Suitable (and unsuitable) extinguishing media

Suitable extinguishing media	: Heptafluoropropane is a fire extinguishing media. Use extinguishing media appropriate for surrounding fire.
Unsuitable extinguishing media	: No information available.

5.2. Specific hazards arising from the chemical

Fire hazard	: No fire hazard.
Explosion hazard	: Intense heat may cause container to burst.
Hazardous decomposition products in case of fire	: Thermal decomposition can lead to the release of irritating gases and vapors. Carbon oxides (CO, CO ₂). Halogenated compounds.

5.3. Special protective equipment and precautions for fire-fighters

Firefighting instructions	: Fight fire from safe distance and protected location. Do not enter fire area without proper protective equipment, including respiratory protection.
Protection during firefighting	: Do not attempt to take action without suitable protective equipment. Self-contained breathing apparatus. Complete protective clothing.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

6.1.1. For non-emergency personnel

- Protective equipment : Wear recommended personal protective equipment.
Emergency procedures : Ventilate spillage area.

6.1.2. For emergency responders

- Protective equipment : Do not attempt to take action without suitable protective equipment. For further information refer to section 8: "Exposure controls/personal protection".
Emergency procedures : Evacuate unnecessary personnel. Stop leak if safe to do so.

6.2. Environmental precautions

Avoid release to the environment.

6.3. Methods and material for containment and cleaning up

- For containment : Stop leak, if possible without risk.
Methods for cleaning up : Ventilate spillage area. 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.
Other information : Dispose of materials or solid residues at an authorized site.

6.4. Reference to other sections

For further information refer to section 13.

SECTION 7: Handling and storage

7.1. Precautions for safe handling

- Precautions for safe handling : Ensure good ventilation of the work station. Wear personal protective equipment. 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.
Hygiene measures : Do not eat, drink or smoke when using this product. Always wash hands after handling the product.

7.2. Conditions for safe storage, including any incompatibilities

- Technical measures : Keep in a cool, well-ventilated place away from heat.
Storage conditions : Protect from sunlight. Store in a well-ventilated place. Keep away from open flames, hot surfaces and sources of ignition. Keep container tightly closed.
Incompatible materials : Strong reducing agents.
Packaging materials : Store always product in container of same material as original container.

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

No additional information available

8.2. Appropriate engineering controls

- Appropriate engineering controls : Ensure good ventilation of the work station.
Environmental exposure controls : Avoid release to the environment.

Safety Data Sheet

According to Federal Register / Vol. 89, No. 98 / Monday, May 20, 2024 / Rules and Regulations (According to HCS-2024 APPENDIX D TO §1910.1200)

8.3. Individual protection measures/Personal protective equipment

Personal protective equipment:

Wear recommended personal protective equipment.

Hand protection:

Chemically resistant protective gloves

Eye protection:

Chemical goggles or face shield with safety glasses

Skin and body protection:

Wear suitable protective clothing

Respiratory protection:

In case of insufficient ventilation, wear suitable respiratory equipment

Thermal hazard protection:

No information available.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical state	: Gas
Appearance	: Liquefied gas.
Color	: Colorless
Odor (includes odor threshold)	: Odorless
pH	: No data available
Melting point	: -129.5 °C
Freezing point	: -131 °C
Boiling point	: -16.4 °C
Flash point	: No data available
Flammability (solid, gas)	: No data available
Vapor pressure	: 404 kPa @21°C
Relative vapor density at 20°C	: No data available
Relative density	: No data available
Density at 25°C	: 1.388 g/cm³ (as liquid)
Solubility	: No data available
Partition coefficient n-octanol/water (Log Pow)	: 2.289
Auto-ignition temperature	: No data available
Decomposition temperature	: No data available
Viscosity, kinematic	: Not applicable
Viscosity, dynamic	: No data available
Explosion limits	: No data available
Explosive properties	: No data available
Oxidizing properties	: No data available
Particle characteristics	: No data available

9.2. Other information

No additional information available

Safety Data Sheet

According to Federal Register / Vol. 89, No. 98 / Monday, May 20, 2024 / Rules and Regulations (According to HCS-2024 APPENDIX D TO §1910.1200)

SECTION 10: Stability and reactivity

10.1. Reactivity

The product is non-reactive under normal conditions of use, storage and transport.

10.2. Chemical stability

Stable under normal conditions.

10.3. Possibility of hazardous reactions, including those associated with foreseeable emergencies

No dangerous reactions known under normal conditions of use.

10.4. Conditions to avoid

Keep out of direct sunlight. Keep away from heat, sparks and flame.

10.5. Incompatible materials

Strong oxidizing agents.

10.6. Hazardous decomposition products

Thermal decomposition can lead to the release of irritating gases and vapors. Carbon oxides (CO, CO₂). Halogenated compounds.

SECTION 11: Toxicological information

11.1. Information on toxicological effects

Acute toxicity (oral) : Not classified
Acute toxicity (dermal) : Not classified
Acute toxicity (inhalation) : Not classified

1,1,1,2,3,3,3-Heptafluoropropane (431-89-0)

LC50 Inhalation - Rat [ppm]	> 788696 ppm/4h
-----------------------------	-----------------

Skin corrosion/irritation	: Not classified
Serious eye damage/irritation	: Not classified
Respiratory or skin sensitization	: Not classified
Germ cell mutagenicity	: Not classified
Carcinogenicity	: Not classified
Reproductive toxicity	: Not classified
STOT-single exposure	: Not classified
STOT-repeated exposure	: Not classified
Aspiration hazard	: Not applicable

SECTION 12: Ecological information

12.1. Toxicity

Ecology - general : The product is not considered harmful to aquatic organisms or to cause long-term adverse effects in the environment.

12.2. Persistence and degradability

No additional information available

Super 227

Safety Data Sheet

According to Federal Register / Vol. 89, No. 98 / Monday, May 20, 2024 / Rules and Regulations (According to HCS-2024 APPENDIX D TO §1910.1200)

12.3. Bioaccumulative potential

HFC227ea (431-89-0)

Partition coefficient n-octanol/water (Log Kow)	2.11
-------------------------------------------------	------

12.4. Mobility in soil

No additional information available

12.5. Other adverse effects

Effect on global warming : No known effects from this product.

SECTION 13: Disposal considerations

13.1. Disposal methods

Waste treatment methods	: Dispose of contents/container in accordance with licensed collector's sorting instructions.
Product/Packaging disposal recommendations	: Dispose of contents/container in accordance with licensed collector's sorting instructions.
Additional information	: No additional information available.

SECTION 14: Transport information

In accordance with DOT / TDG / IMDG / IATA

14.1. UN number

DOT NA No	: UN3296
UN-No. (TDG)	: UN3296
UN-No. (IMDG)	: UN3296
UN-No. (IATA)	: UN3296

14.2. UN proper shipping name

Proper Shipping Name (DOT)	: Heptafluoropropane
Proper Shipping Name (TDG)	: HEPTAFLUOROPROPANE
Proper Shipping Name (IMDG)	: HEPTAFLUOROPROPANE
Proper Shipping Name (IATA)	: Heptafluoropropane

14.3. Transport hazard class(es)

DOT

Transport hazard class(es) (DOT)	: 2.2
Hazard labels (DOT)	: 2.2



TDG

Transport hazard class(es) (TDG)	: 2.2
Hazard labels (TDG)	: 2.2



Super 227

Safety Data Sheet

According to Federal Register / Vol. 89, No. 98 / Monday, May 20, 2024 / Rules and Regulations (According to HCS-2024 APPENDIX D TO §1910.1200)

IMDG

Transport hazard class(es) (IMDG) : 2.2
Hazard labels (IMDG) : 2.2



IATA

Transport hazard class(es) (IATA) : 2.2
Hazard labels (IATA) : 2.2



14.4. Packing group

Packing group (DOT) : Not applicable
Packing group (TDG) : Not applicable
Packing group (IMDG) : Not applicable
Packing group (IATA) : Not applicable

14.5. Environmental hazards

Other information : No supplementary information available.

14.6. Special precautions for user

DOT
UN-No.(DOT) : UN3296
DOT Special Provisions (49 CFR 172.102) : T50 - When portable tank instruction T50 is referenced in Column (7) of the 172.101 Table, the applicable liquefied compressed gases are authorized to be transported in portable tanks in accordance with the requirements of 173.313 of this subchapter.
DOT Packaging Exceptions (49 CFR 173.xxx) : 306
DOT Packaging Non Bulk (49 CFR 173.xxx) : 304
DOT Packaging Bulk (49 CFR 173.xxx) : 314, 315
DOT Quantity Limitations Passenger aircraft/rail (49 CFR 173.27) : 75 kg
DOT Quantity Limitations Cargo aircraft only (49 CFR 175.75) : 150 kg
DOT Vessel Stowage Location : A - The material may be stowed "on deck" or "under deck" on a cargo vessel and on a passenger vessel.

TDG

UN-No. (TDG) : UN3296
Explosive Limit and Limited Quantity Index : 0.125 L
Excepted quantities (TDG) : E1
Passenger Carrying Road Vehicle or Passenger Carrying Railway Vehicle Index : 75 L
Emergency Response Guide (ERG) Number : 126

IMDG

Limited quantities (IMDG) : 120 ml
Excepted quantities (IMDG) : E1
Packing instructions (IMDG) : P200
Tank instructions (IMDG) : T50
EmS-No. (Fire) : F-C - FIRE SCHEDULE Charlie - NON-FLAMMABLE GASES
EmS-No. (Spillage) : S-V - SPILLAGE SCHEDULE Victor - GASES (NON-FLAMMABLE, NON-TOXIC)

Super 227



Safety Data Sheet

According to Federal Register / Vol. 89, No. 98 / Monday, May 20, 2024 / Rules and Regulations (According to HCS-2024 APPENDIX D TO §1910.1200)

Stowage category (IMDG) : A
Properties and observations (IMDG) : Non-flammable compressed gas. Heavier than air (1.4).

IATA

PCA Excepted quantities (IATA) : E1
PCA Limited quantities (IATA) : Forbidden
PCA limited quantity max net quantity (IATA) : Forbidden
PCA packing instructions (IATA) : 200
PCA max net quantity (IATA) : 75kg
CAO packing instructions (IATA) : 200
CAO max net quantity (IATA) : 150kg
ERG code (IATA) : 2L

14.7. Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

Not applicable

SECTION 15: Regulatory information

15.1. US Federal regulations

Commercial status of components according to the United States Environmental Protection Agency's Toxic Substances Control Act (TSCA):

Name	CAS-No.	Listing	Commercial status	Flags
1,1,1,2,3,3,3-Heptafluoropropane	431-89-0	Present	Active	PMN

15.2. International regulations

CANADA

1,1,1,2,3,3,3-Heptafluoropropane (431-89-0)

Listed on the Canadian DSL (Domestic Substances List)

EU-Regulations

1,1,1,2,3,3,3-Heptafluoropropane (431-89-0)

Listed on the EEC inventory EINECS (European Inventory of Existing Commercial Chemical Substances)

National regulations

1,1,1,2,3,3,3-Heptafluoropropane (431-89-0)

Listed introduction on Australian Industrial Chemicals Introduction Scheme (AICIS Inventory)
Listed on PICCS (Philippines Inventory of Chemicals and Chemical Substances)
Listed on the Japanese ENCS (Existing New Chemical Substances) inventory
Listed on IECSC (Inventory of Existing Chemical Substances Produced or Imported in China)
Listed on NZIoC (New Zealand Inventory of Chemicals)
Listed on KECL/KECI (Korean Existing Chemicals Inventory)
Listed on the Japanese ISHL (Industrial Safety and Health Law)
Listed on INSQ (Mexican National Inventory of Chemical Substances)
Listed on the TCSI (Taiwan Chemical Substance Inventory)
Listed on the NCI (Vietnam - National Chemical Inventory)
Listed on Thailand Existing Chemicals Inventory (DIW)

15.3. US State regulations

No additional information available

Safety Data Sheet

According to Federal Register / Vol. 89, No. 98 / Monday, May 20, 2024 / Rules and Regulations (According to HCS-2024 APPENDIX D TO §1910.1200)

SECTION 16: Other information

According to Federal Register / Vol. 89, No. 98 / Monday, May 20, 2024 / Rules and Regulations (According to HCS-2024 APPENDIX D TO §1910.1200)

Version	: 1.0
Issue date	: 6/17/2024
Revision date	: 6/17/2024
Data sources	: LOLI. ECHA reference.
Training advice	: Normal use of this product shall imply use in accordance with the instructions on the packaging.
Other information	: No information available.

Abbreviations and acronyms	
IATA	International Air Transport Association
IMDG	International Maritime Dangerous Goods
EC50	Median effective concentration
LC50	Median lethal concentration
LD50	Median lethal dose
NOAEL	No-Observed Adverse Effect Level
NOAEC	No-Observed Adverse Effect Concentration
NOEC	No-Observed Effect Concentration
N.O.S.	Not Otherwise Specified
IARC	International Agency for Research on Cancer
SDS	Safety Data Sheet

Safety Data Sheet (SDS), USA

This information is based on our current knowledge and is intended to describe the product for the purposes of health, safety and environmental requirements only. It should not therefore be construed as guaranteeing any specific property of the product.