



Chengdu Taiyu Industrial Gases Co.,Ltd

Material Safety Data Sheet

1. IDENTIFICATION OF THE SUBSTANCE/PREPARATIONS AND OF THE COMPANY UNDERTAKING

Product Name HFC-227ea Gas
Other Trade Names Heptafluoropropane,
Product Description Fire Extinguishing Agent
Manufacturer/Supplier Chengdu Taiyu Industrial Gases
Address No.2375,Chengluo Avenue,
Chengdu,China
Phone Number (86)28 88455212

Chemtrec Number (86)28 88455212
(for emergencies only)

Safety Data Sheet according to EC directive 2001/59/EC and OSHA's Hazcom Standard (29 CFR 1910.1200)

2. HAZARDS IDENTIFICATION

EU Main Hazards
Non Flammable Gas

Routes of Entry

- Eye contact - Inhalation - Skin contact

Carcinogenic Status

Not considered carcinogenic by NTP, IARC, and OSHA.

Target Organs

- Respiratory System - Skin - Eye - Cardiovascular System - Central Nervous System

Health Effects - Eyes

Direct contact with the cold gas or liquid can cause freezing of exposed tissues, with pain, redness, burns and corneal damage.

Health Effects - Skin

Direct contact with the cold gas or liquid can cause freezing of exposed tissues.

Health Effects - Ingestion

Ingestion is not a possible route of exposure.

Health Effects - Inhalation

Exposure to vapor at high concentrations have the following effects: - light headedness - dizziness - difficulty with breathing - drowsiness - nausea - mental confusion - increased blood pressure - increased respiratory rate - heart irregularities - loss of consciousness - suffocation if air is displaced by vapors. Individuals with preexisting diseases of the cardiovascular system or nervous system may have increased susceptibility from excessive exposures.

3. COMPOSITION/INFORMATION ON INGREDIENTS

Component Name	CAS#/Codes	Concentration	R Phrases	EU Classification
1,1,1,2,3,3,3-Heptafluoropropane	431-89-0 EC#207-079-2	>99.9%	None	Non Flammable Gas



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4. FIRST AID MEASURES

Eyes

Immediately flood the eye with plenty of warm water for at least 15 minutes, holding the eye open. Obtain medical attention if soreness or redness persists.

Skin

Flush with water. Obtain medical attention if frostbite or blistering occurs or redness persists.

Ingestion

Ingestion is not considered a potential route of exposure.

Inhalation

Remove from exposure. If there is difficulty in breathing, give oxygen. Obtain medical attention immediately.

Advice to Physicians

In case of frostbite, place the frostbitten part in warm water. If warm water is not available or impractical to use, wrap the affected parts gently in blankets. **DO NOT USE HOT WATER.** The use of epinephrine or similar compounds can increase susceptibility to heart irregularities caused by excessive exposure to these types of compounds.

5. FIRE - FIGHTING MEASURES

Extinguishing Media

FM-200 is used as an extinguishing agent and therefore is not a problem when trying to control a blaze. Use extinguishing agent appropriate to other materials involved. Keep containers and surroundings cool with water spray as containers may rupture or burst in the heat of a fire.

Unusual Fire and Explosion Hazards

Containers may explode in heat of fire.

Protective Equipment for Fire-Fighting

Wear full protective clothing and self-contained breathing apparatus as appropriate for specific fire conditions.

6. ACCIDENTAL RELEASE MEASURES

Wear full protective clothing and self-contained breathing apparatus. Remove leaking cylinder to a safe place. Ventilate the area. Leaks inside confined spaces may cause suffocation as vapors may displace air, and should not be entered without a self-contained breathing apparatus.

7. HANDLING AND STORAGE

Containers should be properly stored and secured to prevent falling or being knocked over. Do not drag, slide or roll containers. Do not drop containers or permit them to strike against each other. Never apply flame or localized heat directly to any part of the containers. Store away from sources of heat or ignition. Storage area should be: - cool - dry - well ventilated - under cover - out of direct sunlight

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Occupational Exposure Standards

Occupational exposure limits are listed below, if they exist.

1,1,1,2,3,3,3-Heptafluoropropane

None established.



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8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Engineering Control Measures

Use with adequate ventilation. There should be local procedures for the selection, training, inspection and maintenance of this equipment. When used in large volumes or odor becomes apparent, use local exhaust ventilation.

Respiratory Protection

Not normally required under conditions of use as a portable fire extinguisher. For other applications creating oxygen deficient atmospheres, use a self contained breathing apparatus, as an air purifying respirator will not provide protection.

Hand Protection

Wear rubber gloves. Avoid contact with skin.

Eye Protection

Chemical goggles or safety glasses with side shields. Avoid contact with eyes.

Body Protection

Normal work wear.

9. PHYSICAL AND CHEMICAL PROPERTIES

Physical State	Liquefied gas under pressure
Color	Colorless
Odor	Odorless
Specific Gravity	1.46
Boiling Range/Point (°C/F)	-16.4°C/3°F
Flash Point (PMCC) (°C/F)	Not Flammable
Solubility in Water	260 mg/L
Vapor Density (Air = 1)	6.04
Vapor Pressure	58.8 psia @ 70°F
Gas Density	2.01 lb/ft ³ @ 70°F
Evaporation Rate	Not applicable

10. STABILITY AND REACTIVITY

Stability

Stable under normal conditions.

Conditions to Avoid

- Heat - High temperatures - Exposure to direct sunlight

Materials to Avoid

- powdered metals (ex. aluminum, zinc, etc.) - strong oxidizing agents – strong reducing agents – strong alkalies

Hazardous Polymerization

Will not occur.

Hazardous Decomposition Products

- oxides of carbon - hydrogen fluoride



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11. TOXICOLOGICAL INFORMATION

Acute Toxicity

4 hour LC50(rat) >788,698 ppm

Chronic Toxicity/Carcinogenicity

This product is not expected to cause long term adverse health effects.

Genotoxicity

This product is not expected to cause any mutagenic effects. Tests have shown that this material does not cause genetic damage in bacterial or mammalian cell cultures.

Reproductive/Developmental Toxicity

This product is not expected to cause adverse reproductive effects.

12. ECOLOGICAL INFORMATION

Mobility

No data available.

Persistence/Degradability

No data available.

Bio-accumulation

No data available.

Ecotoxicity

No data available.

13. DISPOSAL CONSIDERATIONS

Dispose of container in accordance with all applicable local and national regulations. Do not cut, puncture or weld on or near to the container. If spilled, contents will vaporize to the atmosphere.

14. TRANSPORT INFORMATION

DOT CFR 172.101 Data	Heptafluoropropane, 2.2, UN3296
UN Proper Shipping Name	Heptafluoropropane
UN Class	(2.2) Non-Flammable Gas
UN Number	UN3296
UN Packaging Group	Not applicable

15. REGULATORY INFORMATION

EU Label Information

Classification and labelling have been performed according to EU directives 67/548/EEC and 99/45/EC including amendments(2001/60/EC and 2006/8/EC)

EU Hazard Symbol and Indication of Danger.

Non Flammable Gas

R phrases

None

S phrases

None



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15. REGULATORY INFORMATION

US REGULATIONS (Federal, State) and INTERNATIONAL CHEMICAL REGISTRATION LAWS

TSCA Listing

This product contains ingredients that are listed on or exempt from listing on the EPA Toxic Substance Control Act Chemical Substance Inventory.

EINECS Listing

All ingredients in this product are listed on the European Inventory of Existing Commercial Chemical Substances (EINECS) or the European List of New Chemical Substances (ELINCS) or are exempt from listing.

DSL/NDSL (Canadian) Listing

All ingredients in this product are listed on the Domestic Substance List (DSL) or the Non-Domestic Substance List (NDSL) or are exempt from listing.

WHMIS Classification

A

This product was classified in accordance with the hazard criteria of the Canadian Controlled Products Regulations and the MSDS contains all the information required by these regulations.

MA Right To Know Law

All components have been checked for inclusion on the Massachusetts Substance List (MSL). Those components present at or above the de minimis concentration include: - none

PA Right To Know Law

This product contains the following chemicals found on the Pennsylvania Hazardous Substance List: - none

NJ Right To Know Law

This product contains the following chemicals found on the NJ Right To Know Hazardous Substance List: - none

California Proposition 65

This product does not contain materials which the State of California has found to cause cancer, birth defects or other reproductive harm.

SARA Title III Sect. 302 (EHS)

This product does not contain any chemicals subject to SARA Title III Section 302.

SARA Title III Sect. 304

This product does not contain any chemicals subject to SARA Title III Section 304.

SARA Title III Sect. 311/312 Categorization

- Immediate (Acute) Health Hazard - Pressure Hazard

SARA Title III Sect. 313

This product does not contain a chemical which is listed in Section 313 at or above de minimis concentrations.

16. OTHER INFORMATION

NFPA Ratings

NFPA Code for Health - 1

NFPA Code for Flammability - 0

NFPA Code for Reactivity - 0

NFPA Code for Special Hazards - None



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16. OTHER INFORMATION

HMIS Ratings

HMIS Code for Health - 1

HMIS Code for Flammability -0

HMIS Code for Reactivity -0

HMIS Code for Personal Protection - See Section 8

Abbreviations

N/A: Denotes no applicable information found or available

CAS#: Chemical Abstracts Service Number

ACGIH: American Conference of Governmental Industrial Hygienists

OSHA: Occupational Safety and Health Administration

TLV: Threshold Limit Value

PEL: Permissible Exposure Limit

STEL: Short Term Exposure Limit

NTP: National Toxicology Program

IARC: International Agency for Research on Cancer

R: Risk

S: Safety

Prepared By: EnviroNet LLC.

The information contained herein is based on data believed to be accurate. However, no representation, warranty, or guarantee is made to its accuracy, reliability or completeness. It is the user's responsibility to satisfy himself as to the suitability and completeness of such information for its own particular Taiyu Gases – Residential and Commercial assumes no responsibility for personal injury or property damage resulting from use, handling or from contact with this product.
