

**HFC227ea**

Version 2

Revision Date 10/01/2010

Print Date 01/05/2013

**SECTION 1. PRODUCT AND COMPANY IDENTIFICATION**

Product name : HFC227ea

Company : Beijing Starget Chemicals Co.,Ltd.  
No.2 Jinzhan South Road,Chaoyang District,Beijing,China.

For more information call : 0086-10-84340783 0086-10-84340782  
(Monday-Friday, 9:00am-5:00pm)

**In case of emergency call : Medical: 0086-10-84340783 or 0086-10-84340782**  
: **Transportation: 0086-10-84340783**  
: (24 hours/day, 7 days/week)

**SECTION 2. COMPOSITION**

INGREDIENT NAME: 1,1,1,2,3,3,3-Heptafluoropropane  
CAS No: 431890  
Purity: ≥99.9%

**EXPOSURE LIMITS:**

Y (Hazardous)  
Not established  
Not established  
Not established  
Not established  
Not established  
Not established

**SECTION 3: HAZARDS IDENTIFICATION**

Emergency  
Colorless  
Odorless

Direct eye or skin contact with the liquid or cold gas can cause chilling or possibly frostbite of exposed tissues.

May cause central nervous system effects.

Inhalation of high concentrations can be harmful or fatal due to oxygen deprivation and/or heart irregularities.

**Relevant Routes of Exposure:**

Symptoms similar to oxygen deprivation (headache, nausea, dizziness or loss of consciousness) may result from overexposure by inhalation. Heart irregularities such as irregular pulse or heart palpitations may indicate cardiac sensitivity. Cold, white or discolored skin or in severe cases blistering, can be a sign of frostbite caused by cold liquids or gases.

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**Medical Conditions Generally Aggravated By Exposure:**

Persons with preexisting cardiac, respiratory, or central nervous system disorders may be more susceptible to effects of an overexposure. The use of epinephrine or similar compounds can increase susceptibility to heart irregularities caused by excessive exposure to these types of compounds.

**Potential Health Effects:**

See Section 11 for additional

**Eyes:** Direct eye contact with the liquid or cold gas can cause chilling or possibly frostbite of exposed tissues.

**Skin:** Direct skin contact with the liquid or cold gas can cause chilling or possibly frostbite of exposed tissues.

**Ingestion:** Not expected to be a hazard in normal industrial use.

**Inhalation:** Inhalation of high concentrations can be harmful or fatal due to oxygen deprivation and/or heart irregularities (arrhythmias). Misuse of the product by deliberately inhaling high concentrations of this gas could cause death without warning.

**Carcinogenicity:**

**NTP:** No

**IARC:** No

**OSHA:** No

**ACGIH:** No

**OTHER:** No

**SECTION 4 .FIRST AID MEASURES**

**Eyes:** Flush with water. Get medical attention.

**Skin:** Flush with water; if frostbite occurs get medical attention.

**Ingestion:** No information available

**Inhalation:** Remove person to fresh air; if not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention.

**Antidotes:** No information available

**Notes to Physicians and/or Protection for First-Aiders:**

The use of epinephrine or similar compounds can increase susceptibility to heart irregularities caused by excessive exposure to these types of compounds.

**SECTION 5. FIRE FIGHTING MEASURES**

**Flammable Limits in Air (% by Volume):** Not applicable

**Flash Point:** Nonflammable gas

**Autoignition Temperature:** Not available

**Extinguishing Media:** All conventional media are suitable.

**Fire Fighting Instructions:**

Keep cylinders cool with a water spray applied from a safe distance. Use a self-contained breathing apparatus if containers rupture or release under fire conditions. Do not allow reentry into areas where this material has been released without first ventilating to remove products of combustion/decomposition.

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**Unusual Fire and Explosion Hazards:**

Although containers of our product are provided with pressure and temperature relief devices, containers can rupture if exposed to localized heat. Thermal decomposition will generate toxic and corrosive gases.

Flammability Classification: Nonflammable gas

**Known or Anticipated Hazardous Products of Combustion:**

Decomposition by elevated temperatures (fire conditions, glowing metal surfaces) may generate hazardous decomposition products common to other CFCs, HCFCs or HBFCs. These can include hydrogen fluoride, carbon monoxide, carbon dioxide and others.

**SECTION 6. ACCIDENTAL RELEASE MEASURES**

Accidental Release Measures: Evacuate the area and ventilate. Do not enter areas where high concentrations may exist (especially confined or poorly ventilated areas) without appropriate protective equipment including a self-contained breathing apparatus.

Personal Precautions: See Section 8

Environmental Precautions: No information available

**SECTION 7. HANDLING AND STORAGE**

Handling: Use the same type of precautions as would be used in handling any cryogenic gas. Protect container from damage. Handle in well-ventilated areas. When this material is used as a firefighting agent in fixed or portable extinguishing systems, follow manufacturer's instructions for operation, inspection, maintenance and repair of the system.

Storage: Store in a cool, dry, well-ventilated area away from incompatible materials. Keep container tightly closed.

Other Precautions: No information available

**SECTION 8. EXPOSURE CONTROLS/PERSONAL****PROTECTION**

Engineering Controls: No information available

Ventilation Requirements: Use local ventilation to minimize exposure to gas. Use mechanical ventilation for general area control.

**Personal Protective Equipment:**

Eye/Face Protection: Chemical splash goggles when handling liquid

Skin Protection: Use lined neoprene gloves if handling liquid. Clothing designed to minimize skin contact.

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Other Protective Clothing or Equipment:

No information available

Exposure Guidelines: See Section 2.

Work Hygienic Practices: Wash thoroughly after handling. Wash contaminated clothing before reuse. Make sure piping is empty before doing maintenance work.

**SECTION 9. STABILITY AND REACTIVITY**

Stability: Stable under normal conditions of handling and use.

Incompatibility With Other Materials: Powdered metals (ex. Al, Mg, or Zn) and strong alkalis, oxidizers or reducing agents are not compatible with this and most other halogenated organic compounds.

Hazardous Decomposition Products:

Thermal decomposition may produce the following:

Hydrogen fluoride

Carbon monoxide and carbon dioxide

Hazardous Polymerization: Will not occur

**SECTION 10. PHYSICAL & CHEMICAL PROPERTIES**

Molecular/Chemical Formula:	C3HF7 (CF3CHFCF3)
Molecular Weight:	170.03
Appearance:	Colorless gas
Boiling Point:	-16.4 °C
Melting Point:	-131 °C
Color:	Colorless
Odor:	Odorless
Decomposition Temperature:	Not available
Evaporation Rate:	Not available
Critical Temperature:	101.8 °C
Critical Pressure:	422 psia
Critical Density:	0.582 kg/l
Reactivity in Water:	Not water reactive
Saturated Vapor Concentration:	Not available
Solubility in Water:	260 mg/L
Specific Gravity or Density (Water=1):	1.46
Vapor Density (Air=1):	6.04
Vapor Pressure:	58.8 psia at 21 °C
Viscosity of Liquid:	0.443 lb/ft hr at 25 °C

**SECTION 11 .TOXICOLOGICAL INFORMATION**

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VALUE (LD50 or LC50) &gt;788,696 ppm/4H (Rat) ( Acute Inhalation)

## Toxicological Information:

The human health hazards of this product are expected to be similar to other liquified gases including N<sub>2</sub>, CO<sub>2</sub>, CFCs, HCFCs, and HBFCs. Therefore, direct eye or skin contact with the liquid or cold gas can cause chilling or possibly frostbite of exposed tissues. Inhalation of high concentrations can be harmful or fatal due to oxygen deprivation and/or heart irregularities (arrhythmias). Misuse of the product by deliberately inhaling high concentrations of this gas could cause death without warning. Persons with preexisting cardiac or central nervous system disorders may be more susceptible to effects of an overexposure. When tested with and without metabolic activation over a concentration range of 43.9-93.5%, heptafluoropropane was not mutagenic in *S. typhimurium*. Neither toxicity nor mutagenicity was observed in a mouse lymphoma assay when heptafluoropropane was tested to a concentration of 56.8%. Neither toxicity nor an increase in micronuclei was observed in mice exposed to 10.5% heptafluoropropane. Therefore, there is no evidence that heptafluoropropane is capable of inducing gene or chromosomal mutations in vitro or chromosomal effects in vivo. In other studies, heptafluoropropane did not show genotoxicity or cytotoxicity. Animal studies have found the rat 4 hour LC50 to be >788,696ppm (~80%), the highest level tested. A cardiac sensitization study in dogs found the No Observable Adverse Effect Level (NOAEL) to be 9.0%. The Lowest Observable Adverse Effect Level (LOAEL) for this study was reported to be 10.5%. A 90 day inhalation study did not find any exposure related effects at 105,000 ppm (10.5% vol./vol.), the highest level tested. Inhalation studies looking for developmental effects on pregnant rabbits and rats or their offspring did not show any exposure related effects at the highest concentrations tested (105,000 ppm).

**SECTION 12. ECOLOGICAL INFORMATION**

Ozone Depleting Potential: 0  
Global Warming Potential: 0.6(compared to R11=1)  
Atmospheric Lifetime: about 40 years

**SECTION 13. TRANSPORT INFORMATION**

Proper Shipping Name: Heptafluoropropane  
Hazard Class: 2.2  
ID Number: UN3296  
Packing Group: N/A  
Packing: In returnable containers of 1000kg. Bulk quantities are shipped in ISO-tank-containers(up to 19t).

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Labels: Nonflammable gas  
Special Provisions: N/A

**SECTION 14. OTHER INFORMATION****Further information**

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. Final determination of suitability of any material is the sole responsibility of the user. This information should not constitute a guarantee for any specific product properties.

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Prepared by: Beijing Starget Chemicals Co., Ltd.