



MATERIAL SAFETY DATA SHEET

PRODUCT: **RT-227** (HFC-227ea) HEPTAFLUOROPROPANE

Chemical Product and Company Identification

Item Name: RT-227 is a registered trademark of RemTec International
Other Trade Names: Heptafluoropropane and HFC-227ea
Chemical Name: 1,1,1,2,3,3,3-Heptafluoropropane
Chemical Formula: C₃H₇F₇

Company's Name: RemTec International
Company's Street: 1100 Haskins Road
Company's City, State, Zip: Bowling Green, OH 43402, USA
Company's Info Ph #: 419-867-8990 FAX 419-867-3279

Company's ER Ph #: PERS-N.America 800-633-8253/International 801-629-0667

Date MSDS Prepared: 01/30/03; Revised on 11/30/2009
MSDS Preparer's Name: RemTec
MSDS File Number: MSDS227.doc
Specification Number: NFPA 2001

Ingredients/Identity Information

Ingredient: 1,1,1,2,3,3,3-Heptafluoropropane
Percent: 99.0+
CAS Number: 431-89-0

Hazards Identification

Fire and Explosion Hazard:

Flash Point: NONFLAMMABLE

Extinguishing Media: Heptafluoropropane is a fire extinguishing media. Use media appropriate for surrounding material.

Special fire fighting procedure: Wear fire fighting protective equipment and full faced self-contained breathing apparatus. Cool fire exposed containers with water spray or fog to cool containers

Unusual fire and Explosive hazards: Combustion or heat of fire may produce hazardous decomposition products and vapors. Do not reenter area where this material has been released without ventilating to remove products of combustion or decomposition.

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Reactivity Data:

Stability: Yes
Conditions To Avoid: None
Materials To Avoid: Powdered metals (aluminum, zinc), strong alkalis (sodium, potassium), alkali earth metals (magnesium, calcium), and oxidizers.
Hazardous Decomposition Products: Thermal decomposition products include hydrogen fluoride, hydrofluoric acid, carbon dioxide, carbon monoxide, and carbonyl fluorides.
Hazardous Poly Occur: No
Conditions To Avoid (Poly): None

Health Hazard Data:

Aggravated by Exposure: Individuals with preexisting cardiac, respiratory, or central nervous system may be more susceptible to overexposure. Using Epinephrine or similar drugs can increase susceptibility to heart irregularities.
Route Of Entry: Inhalation: Yes
Skin: No
Ingestion: No
Health Hazard Chronic: None Known
Carcinogenicity NTP/IARC/OSHA: No
Inhalation 4 hour LC50: > 788,698 ppm in rate
AEL: 1000 ppm, 8 & 12 Hr.
Signs/Symptoms Of Over exp: May cause asphyxiation, heart thumping, apprehension, lightheadedness, feeling of fainting, dizziness, weakness, loss of consciousness and death in high concentrations. Skin or eye contact with the liquid may cause frostbite. Inhalation of high concentration could be harmful or fatal due to oxygen deprivation and/or heart irregularities (arrhythmias). Misuse of the product by deliberately inhaling high concentrations of gas could cause death.

Emergency/First Aid Procedures

Eyes: Flush with water for at least 15 minutes. Get medical attention.
Skin: In case of skin contact, flush skin with plenty of water for 15 minutes. Treat for frostbite if necessary by gently warming affected area.
Ingestion: Not applicable
Inhalation: Remove victim to fresh air. Give symptomatic and supportive care. If breathing is difficult, give oxygen. If not breathing, give artificial respiration. Get medical attention.
Notes to Physician: The use of epinephrine or similar compounds can increase

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susceptibility to heart irregularities.

Fire Fighting Measures

Specific hazards:	Exposure to fire may cause containers to rupture/explode
Flammable	Non-flammable
Hazardous combustion products	If involved in a fire, the following toxic and/or corrosive fumes may be released by thermal decomposition including hydrogen fluoride, carbonyl fluoride and/or carbon monoxide.
Extinguishing media	All known extinguishants can be used.
Fire fighting instructions	Move away from the container and cool with water from a protected position. Self-contained breathing apparatus (SCBA) and chemically protective clothing should be used if cylinders rupture or release under fire conditions.

Accidental Release Measures

Steps If Material Released/Spill:	Evacuate area. Keep upwind. Self-contained breathing apparatus (SCBA) and chemically protective clothing should be used if cylinders rupture or release under fire conditions. Ventilate area- especially low places remove open flames and heating elements. Disperse gas with floor level forced air.
Other Precautions:	Avoid eye, and skin contact. Do not breath vapor mists or sprays. Avoid hot surfaces, open flames, cigarette smoking
Neutralizing Agent:	None
Waste Disposal Method:	Try to stop release if possible. Recycle or reclaim if possible. Reclaimed material may be incinerated but toxic and corrosive combustion products (hf & hcl) must be handled appropriately. Dispose of in accordance with local, state and federal regulations.

Precautions for Safe Handling and Storage

Precautions-Handling/Storing:	Store in tightly closed containers. Keep out of direct sunlight. Keep away from sources of heat and open ignition sources.
Leak Testing	Periodic leak testing is recommended.

Exposure Controls/Personal Protection

Personal Protection	Ensure adequate ventilation. Keep containers closed tightly. Do not smoke while handling product.
Respiratory Protection:	If engineering controls fail, non-routine use or emergency occurs; use Niosh/MSHA approved respirator or supplied air respirator or SCBA, as required. Use in accordance with 29 CFR 1901.134.
Protective Gloves:	Rubber
Eye Protection:	Safety glasses/chemical splash goggles
Other Protective Equipment:	Clothing to prevent contact if liquid.

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Work Hygienic Practices: Wash hands after use and before eating, drinking, or smoking.

Physical and Chemical Properties

Molecular Weight:	170
Appearance And Odor:	Clear, colorless, liquefied gas with faint ethereal odor
Boiling Point:	3°F, -16.4°C
Melting Point:	-205°F, -132°C
Vapor Pressure (at 70°F):	58.8 psia
Critical Pressure:	424.7 psia
Vapor Density (Air=1):	6.04
Liquid Density at 77°F:	86.53 lb/ft ³
Specific Gravity:	1.46 (WATER=1)
Critical Temperature (C):	101.6°
Solubility In Water:	260mg/L TYPE 1:

Stability and Reactivity

Stability and reactivity	Stable under normal conditions. Thermal decomposition yields toxic products which can be corrosive in the presence of moisture.
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Toxicological Information

General	No known toxicology effects from this product.
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Transportation Information

DOT Proper Shipping Name:	Heptafluoropropane
DOT Hazard Class:	2.2
DOT ID Number:	UN3296
DOT Label:	Nonflammable Gas

Other transport information	Avoid transport in vehicles where the load space is not separated from the driver's compartment. Ensure vehicle driver is aware of the potential hazards of the containers and knows what to do in the event of an accident or an emergency.
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Before transporting product containers ensure that they are firmly secured and:

- cylinder valve is closed and not leaking
- valve outlet cap nut or plug (if provided) is correctly connected
- valve protection device is correctly connected
- there is adequate ventilation
- compliance with all local and national regulations.

Regulatory Information

U.S. Federal Regulation

TSCA Inventory Status: Listed

SARA Hazards

Acute:	Yes	Chronic:	No	Reactive:	No
Contact:	Slight	Fire:	No	Pressure:	No

NFPA Codes

Health:	1	Flammability:	0
Reactivity:	1	Other:	0

HMIS Codes

Health:	1	Flammability:	0
Reactivity:	0	Protection:	X

OSHA requires that you must provide copies of this MSDS to all of your customers who purchase this product.

Other Information

NFPA Codes

Health:	1	Flammability:	0
Reactivity:	1	Other:	0

HMIS Codes

Health:	1	Flammability:	0
Reactivity:	0	Protection:	X

OSHA requires that you must provide copies of this MSDS with shipments of this product.

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