

SAFETY DATA SHEET

FROSTBERG[®] R-507



1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NAME : R-507A
OTHER NAME : Pentafluoroethane, 1,1,1- Trifluoroethane
USE : Refrigerant Gas

Principle : **FROSTBERG INTERNATIONAL LLC**
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2. HAZARDS IDENTIFICATION

Classification : Gases under pressure, Liquefied Gas
Signal word : WARNING
Hazard statement : Contains gas under pressure, may explode if heated
SYMBOL : Gas Cylinder
PRECAUTIONARY STATEMENT : STORAGE: Protect from sunlight, store in a well ventilated place



EMERGENCY OVERVIEW : Colorless, volatile liquid with ethereal and faint sweetish odor. Non-flammable material. Overexposure may cause dizziness and loss of concentration. At higher levels, CNS depression and cardiac arrhythmia may result from exposure. Vapors displace air and can cause asphyxiation in confined spaces. At higher temperatures, (>250 C), decomposition products may include Hydrofluoric Acid (HF) and carbonyl halides.

POTENTIAL HEALTH HAZARDS

SKIN : Irritation would result from a defatting action on tissue. Liquid contact could cause frostbite.
EYES : Liquid contact can cause severe irritation and frostbite. Mist may irritate.
INHALATION : R 507 is low in acute toxicity in animals. When oxygen levels in air are reduced to 1214% by displacement, symptoms of asphyxiation, loss of coordination, increased pulse rate and deeper respiration will occur. At high levels, cardiac arrhythmia may occur.
INGESTION : Ingestion is unlikely because of the low boiling point of the material. Should it occur, discomfort in the gastrointestinal tract from rapid evaporation of the material and consequent evolution of gas would result. Some effects of inhalation and skin exposure would be expected.
DELAYED EFFECTS : None known.

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3. COMPOSITION / INFORMATION ON INGREDIENTS

INGREDIENT NAME	CAS NUMBER	WEIGHT %
Pentafluoroethane	354-33-6	50
1,1,1 Trifluoroethane	420-46-2	50

COMMON NAME and SYNONYMS
R 507; HFC-507

There are no impurities or stabilizers that contribute to the classification of the material identified in Section 2

4. FIRST AID MEASURES

- SKIN** : Promptly flush skin with water until all chemical is removed. If there is evidence of frostbite, bathe (do not rub) with lukewarm (not hot) water. If water is not available, cover with a clean, soft cloth or similar covering. Get medical attention if symptoms persist.
- EYES** : Immediately flush eyes with large amounts of water for at least 15 minutes (in case of frostbite water should be lukewarm, not hot) lifting eyelids occasionally to facilitate irrigation. Get medical attention if symptoms persist.
- INHALATION** : Immediately remove to fresh air. If breathing has stopped, give artificial respiration. Use oxygen as required, provided a qualified operator is available. Get medical attention. Do not give epinephrine (adrenaline).
- INGESTION** : Ingestion is unlikely because of the physical properties and is not expected to be hazardous. Do not induce vomiting unless instructed to do so by a physician.
- ADVICE TO PHYSICIAN** : Because of the possible disturbances of cardiac rhythm, catecholamine drugs, such as epinephrine, should be used with special caution and only in situations of emergency life support. Treatment of overexposure should be directed at the control of symptoms and the clinical conditions.

5. FIRE FIGHTING MEASURES

FLAMMABLE PROPERTIES

- FLASH POINT : Gas, not applicable per DOT regulations
- FLASH POINT METHOD : Not applicable
- AUTOIGNITION TEMPERATURE : >750°C
- UPPER FLAME LIMIT (volume % in air) : None by ASTM E681
- LOWER FLAME LIMIT (volume % in air) : None by ASTM E681
- FLAME PROPAGATION RATE (solids) : Not applicable
- OSHA FLAMMABILITY CLASS : Not applicable

EXTINGUISHING MEDIA:

Use any standard agent - choose the one most appropriate for type of surrounding fire (material itself is not flammable)

UNUSUAL FIRE AND EXPLOSION HAZARDS:

R 507 is not flammable at ambient temperatures and atmospheric pressure. However, this material will become combustible when mixed with air under pressure and exposed to strong ignition sources. Contact with certain reactive metals may result in formation of explosive or exothermic reactions under specific conditions (e.g. very high temperatures and/or appropriate pressures).

SPECIAL FIRE FIGHTING PRECAUTIONS/INSTRUCTIONS:

Firefighters should wear self-contained, NIOSH-approved breathing apparatus for protection against possible toxic decomposition products. Proper eye and skin protection should be provided. Use water spray to keep fire exposed containers cool.

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6. ACCIDENTAL RELEASE MEASURES

IN CASE OF SPILL OR OTHER RELEASE:

(Always wear recommended personal protective equipment.)

Evacuate unprotected personnel. Product dissipates upon release. Protected personnel should remove ignition sources and shut off leak, if without risk, and provide ventilation. Unprotected personnel should not return to the effected area until air has been tested and determined safe, including low lying areas.

Spills and releases may have to be reported to Federal and/or local authorities.

7. HANDLING AND STORAGE

NORMAL HANDLING:

(Always wear recommended personal protective equipment.)

Avoid breathing vapors and liquid contact with eyes, skin or clothing. Do not puncture or drop cylinders, expose them to open flame or excessive heat. Use authorized cylinders only.

Follow standard safety precautions for handling and use of compressed gas cylinders.

R 507 should not be mixed with air above atmospheric pressure for leak testing or any other purpose.

STORAGE RECOMMENDATIONS:

Store in a cool, well ventilated area of low fire risk and out of direct sunlight. Protect cylinder and its fittings from physical damage. Storage in subsurface locations should be avoided. Close valve tightly after use and when empty.

INCOMPATIBILITIES:

Freshly abraded aluminum surfaces at specific temperatures and pressures may cause a strong exothermic reaction. Chemically reactive metals: potassium, calcium, powdered aluminum, magnesium, and zinc.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

ENGINEERING CONTROLS:

Provide local ventilation at filling zones and areas where leakage is probable. Mechanical (general) ventilation may be adequate for other operating and storage areas.

PERSONAL PROTECTIVE EQUIPMENT

SKIN PROTECTION:

Skin contact with refrigerant may cause frostbite. General work clothing and gloves (leather) should provide adequate protection. If prolonged contact with the liquid or gas is anticipated, insulated gloves constructed of PVA, neoprene or butyl rubber should be used. Any contaminated clothing should be promptly removed and washed before reuse.

EYE PROTECTION:

For normal conditions, wear safety glasses. Where there is reasonable probability of liquid contact, wear chemical safety goggles.

RESPIRATORY PROTECTION:

None generally required for adequately ventilated work situations. For accidental release or non ventilated situations, or release into confined space, where the concentration may be above the PEL of 1,000 ppm, use a self contained, NIOSH approved breathing apparatus or supplied air respirator. For escape: use the former or a NIOSH approved gas mask with organic vapor canister.

ADDITIONAL RECOMMENDATIONS:

Where contact with liquid is likely, such as in a spill or leak, impervious boots and clothing should be worn. High dose level warning signs are recommended for areas of principle exposure. Provide eyewash stations and quick drench shower facilities at convenient locations. For tank cleaning operations, see OSHA regulations, 29 CFR 1910.132 and 29 CFR 1910.133.

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EXPOSURE GUIDELINES

INGREDIENT NAME	ACGIH TLV	OSHA PEL	OTHER LIMIT
Pentafluoroethane	None	None	*1000 ppm TWA (8hr)
1,1,1 Trifluoroethane	None	None	

* = Workplace Environmental Exposure Level (AIHA)

OTHER EXPOSURE LIMITS FOR POTENTIAL DECOMPOSITION PRODUCTS:

Hydrogen Fluoride: ACGIH TLV: 2 ppm ceiling, 0.5ppm TLV TWA

9. PHYSICAL AND CHEMICAL PROPERTIES

APPEARANCE	:	Clear, colorless liquid and vapor
PHYSICAL STATE	:	Gas at ambient temperatures
MOLECULAR WEIGHT	:	98.8
CHEMICAL FORMULA	:	CHF_2CF_3 and CH_3CF_3
ODOR	:	Faint ethereal odor
SPECIFIC GRAVITY (water = 1.0)	:	1.07 @ 21.1°C (70°F)
SOLUBILITY IN WATER (weight %)	:	Unknown
pH	:	Neutral
BOILING POINT	:	-46.7°C (-52.0°F)
FREEZING POINT	:	Not determined
VAPOR PRESSURE	:	153.9 psia @ 70°F 366.8 psia @ 130°F
VAPOR DENSITY (air = 1.0)	:	3.43
EVAPORATION RATE	:	>1 COMPARED TO : $\text{CCl}_4 = 1$
% VOLATILES	:	100 at 68°F (20°C)
ODOR THRESHOLD	:	Not established
FLAMMABILITY	:	Not applicable
LEL/UEL	:	None / None
RELATIVE DENSITY	:	1.07 g / cm ³ at 21.1 C
PARTITION COEFF (n-octanol/water)	:	Not applicable
AUTO IGNITION TEMP	:	Not determined
DECOMPOSITION TEMPERATURE	:	>250°C
VISCOSITY	:	Not applicable
FLASH POINT	:	Not applicable

10. STABILITY AND REACTIVITY

NORMALLY STABLE? (CONDITIONS TO AVOID)

The product is stable.

Do not mix with oxygen or air above atmospheric pressure. Any source of high temperature, such as lighted cigarettes, flames, hot spots or welding may yield toxic and/or corrosive decomposition products.

INCOMPATIBILITIES:

(Under specific conditions: e.g. very high temperatures and / or appropriate pressures)-Freshly abraded aluminum surfaces (may cause strong exothermic reaction). Chemically active metals: potassium, calcium, powdered aluminum, magnesium and zinc.

HAZARDOUS DECOMPOSITION PRODUCTS:

Halogens, halogen acids and possibly carbonyl halides.

HAZARDOUS POLYMERIZATION:

Will not occur.

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11. TRANSPORT INFORMATION

US DOT ID NUMBER : UN3163
US DOT PROPER SHIPPING NAME : Liquefied gas, n.o.s., (Pentafluoroethane, 1,1,1-Trifluoroethane)
US DOT HAZARD CLASS : 2.2
US DOT PACKING GROUP : Not applicable

For additional information on shipping regulations affecting this material, contact the information number found in Section 1.

12. REGULATORY INFORMATION

TOXIC SUBSTANCES CONTROL ACT (TSCA)

TSCA INVENTORY STATUS : Components listed on the TSCA inventory
OTHER TSCA ISSUES : Subject to Section 12 (b) export notification.
May contain 0-10ppm Ethane, 2-chloro 1,1,1-trifluoro
CAS # 75-88-7

SARA TITLE III / CERCLA

"Reportable Quantities" (RQs) and/or "Threshold Planning Quantities" (TPQs) exist for the following ingredients.

Spills or releases resulting in the loss of any ingredient at or above its RQ requires immediate notification to the National Response Center [(800) 424 8802] and to your Local Emergency Planning Committee.

SECTION 311 HAZARD CLASS : IMMEDIATE
PRESSURE

SARA 313 TOXIC CHEMICALS:

The following ingredients are SARA 313 "Toxic Chemicals". CAS numbers and weight percents are found in Section 2.

Notice to reader

To the best of our knowledge, the information contained herein is accurate. However, neither the above-named supplier, nor any of its subsidiaries, assumes any liability whatsoever for the accuracy or completeness of the information contained herein.

Final determination of suitability of any material is the sole responsibility of the user. All materials may present unknown hazards and should be used with caution. Although certain hazards are described herein, we cannot guarantee that these are the only hazards that exist.