

SAFETY DATA SHEET (MSDS) R507A Refrigerant

Please ensure that this SDS is received by the appropriate persons


Review Date: 24/9/2022 v01

Emergency: 0860 02 02 02

Document Number: AFX-SDS-0065

1. PRODUCT AND COMPANY IDENTIFICATION	
Product	R507A Pentafluoroethane (HFC-125), 1,1,1-Trifluoroethane (HFC-143a)
Chemical Formula	CHF ₂ CF ₃ CHF ₂ CF ₃
Trade Name	R507A Disposable Cylinder 11.3Kg
Colour Coding	Disposable cylinder with a French Blue (F.09) body and the relevant grade stencilled onto the cylinder
Valve	¼ inch flare fitting
Product Code	W341080
Company Identification	Grayston Office Park Building 7, 128 Peter Road Sandown, Sandton, 2196 Tel. No: (011) 490-0400 Fax No: (011) 490-0530 Email: customer.service@afrox.linde.com www.afrox.com
Emergency Numbers	0860 02 02 02

2. HAZARD IDENTIFICATION	
Classification	Classification under South African Hazardous Chemical Substances Regulations subsequently amended. (HCS) Classification under the Globally Harmonized System of classification and labelling of chemicals (GHS)
Emergency Overview	Colour: Colourless Odour: Slight Ethereal Taste: None Physical State: Gas Form: Gas under pressure Volatile liquid. 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, (>250C), decomposition products may include Hydrofluoric Acid (HF) and carbonyl halides.
Main Hazards	- All cylinders are portable gas containers and must be regarded as pressure vessels at all times
Adverse Health Effects	- Contains a liquefied gas. Contact with liquid may cause frostbite and injury to the cornea
Chemical Hazards	- Heating will cause a rise in pressure with a risk of the cylinders bursting. On combustion, toxic gases are released
Biological Hazards	- Contact with liquid could cause frost burns

Vapour Inhalation	- High exposures may cause an abnormal heart rhythm and prove suddenly fatal. May have a narcotic effect, very high concentrations may cause anaesthetic effects and asphyxiation
Eye Contact	- Vapour - unknown effect - Liquid - could cause serious burns - Mist may irritate
Skin Contact	- Vapour - unknown effect Ingestion. - Liquid - see vapour inhalation above - Irritation would result from a defatting action on tissue
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
Pictogram	
Signal Words	Warning
Hazard Statements	- H280 Contains gas under pressure, may explode if heated
Precautionary Statements	Prevention: None Response: None Storage: - P410: Protect from sunlight - P403: Store in a well-ventilated place Disposal: None
Other Hazards that do not result in classification	- Protect from sunlight - Store in a well-ventilated place - Liquid can cause burns similar to frostbite

3. COMPOSITION OF INGREDIENTS	
Chemical name	Pentafluoroethane HFC R125, 1,1,1-Trifluoroethane HFC R143a
CAS No	HFC125 HFC143a 354-33-6, 420-46-2
UN No	1078
ERG No	126
Hazard class	2.2
Hazchem Warning	2A Non-flammable gas

4. FIRST AID
Prompt medical attention is mandatory in all cases of overexposure to vaporised R507. Rescue personnel should be equipped with self-contained breathing apparatus. Conscious persons should be assisted to an uncontaminated area and inhale fresh air. Quick removal from the contaminated area is most important. Unconscious persons should be removed to an uncontaminated area and given mouth-to-mouth resuscitation

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and supplemental oxygen. The use of adrenaline or similar drugs should be avoided

Eye contact	- (Liquid) Rinse with water whilst keeping the eyes wide open for at least 10 minutes. Consult an eye specialist immediately
Skin Contact	- (Liquid) Thaw affected areas with water. Remove contaminated clothing and then rinse again with water. If it sticks, do not pull it off. Call a doctor immediately
Ingestion	- Not Specifically applicable (gas). Do not induce vomiting - If patient conscious, wash out mouth with water and give 200 - 300ml water to drink. Obtain immediate medical attention
Inhalation	- Remove patient from exposure, keep warm and at rest. Administer oxygen if necessary. Apply artificial respiration if breathing has ceased or shows signs of failing. In the event of cardiac arrest apply external cardiac massage. Obtain immediate medical attention

	completion of the clean-up procedure. Ventilate the area using forced draught if necessary
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5. FIRE-FIGHTING

Extinguishing media	- All extinguishing agents can be used. If there is a fire close by, use suitable extinguishing agents
Specific Hazards	- Pressurised container. On heating there is a risk of bursting due to internal pressure build-up NOT flammable However, it may present a risk in the event of fire. Toxic vapours (Halogen compound are released)
Emergency Actions	- Stay upwind. Evacuate the personnel away from the fumes. Cool down the containers/equipment exposed to heat with a water spray. - CONTACT LOCAL EMERGENCY SERVICES AND THE AFROX EMERGENCY NUMBER
Protective Clothing	- Self-contained breathing apparatus. Safety gloves and shoes, or boots, should be worn when handling cylinders
Environmental precautions	- Prevent the product from spreading into the environment

7. HANDLING AND STORAGE

Safe Handling	- Suck back of water into the container must be prevented. Do not allow Back feed into the container. Use only properly specified equipment which is suitable for this product, its supply pressure and temperature. - Contact your gas supplier if in doubt. Refer to supplier's container handling instructions. Keep container below 50°C in a well-ventilated place. Do not shake container when handling product - Do not allow cylinders to slide or come into contact with sharp edges - Cylinders should be stacked vertically at all times and should be firmly secured in order to prevent them from being knocked over. Use a "first in - first out" inventory system to prevent full cylinders from being stored for excessive periods of time. Keep out of reach of children
Hygiene Measures	- When using do not eat, drink or smoke. - Handle in accordance with good industrial hygiene and safety practice
Technical Measures	- Freshly abraded aluminium surfaces at specific temperatures and pressures may cause a strong exothermic reaction. Chemically reactive metals: potassium, calcium, powdered aluminium, magnesium, and zinc
Storage conditions	- 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 - Protect from sunlight. - Store in a well-ventilated place

6. ACCIDENTAL RELEASE

Personal Precautions	- Avoid contact with skin and eyes. Do not breathe gas. Shut off low-level openings in the vicinity (Ventilation Shafts, drains) Prevent the product from entering cellars, basements or pits. Stop the leak. Ventilate spillage area
Environmental Precautions	- Prevent the product from spreading into the environment
Small Spills	- Shut off the source of the escaping gas. Ventilate the area
Large Spills	- Evacuate the area. Shut off the source of the spill if this can be done without risk. Restrict access to the area until

8. EXPOSURE CONTROLS

Occupational Exposure Hazards	- No information available
Engineering Control Measures	- Engineering control measures are preferred to reduce exposures to oxygen depleted atmospheres. General methods include forced draught ventilation, separate from other exhaust ventilation systems. - Ensure that sufficient fresh air enters at, or near, floor level - Mechanical (general) ventilation may be adequate for other operating and storage areas

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Personal protection	- Self-contained breathing apparatus should always be worn when entering area where oxygen depletion may have occurred. Safety goggles, gloves and shoes or boots should be worn when handling cylinders
Skin	- No known effect

	compounding formulation used and the curing of vulcanizing conditions. Actual samples should be tested under end-use conditions before specifying elastomers for critical components.
Hazardous Decomposition of Products	On combustion or on thermal decomposition (pyrolysis) releases: Toxic gases (Fluorinated compounds)

9. PHYSICAL AND CHEMICAL PROPERTIES

Chemical Name	R507A
Chemical Symbol	CHF ₂ CF ₃ , CH ₃ CF ₃
Physical state	Gas
Form:	Liquefied gas
Colour:	Colourless
Odour:	Faint ethereal odor
Odour Threshold:	No data available
pH:	Neutral
Melting Point:	Not Known
Boiling Point:	: -47,1 °C
Sublimation Point:	Not Known
Critical Temp. (°C):	Not Known
Flash Point:	Not applicable
Evaporation Rate:	>1 COMPARED TO: CC14 = 1
Flammability (solid, gas):	Not applicable
Flammability limit - upper (%):	Not applicable
Flammability limit - lower(%):	Not applicable
Vapour pressure:	1.10 (20 °C)
Vapour density (air=1)	3,43
Relative density:	5,52 @20C
Solubility(ies)	
Solubility in Water:	Unknown
Partition coefficient (n-octanol/water):	Not applicable
Autoignition Temperature:	No data available
Decomposition Temperature:	>250° C
Viscosity	
Kinematic viscosity:	No data available.
Dynamic viscosity:	No data available.
Explosive properties:	Not applicable
Oxidising Properties:	Not applicable
Molecular weight	98.8g/mol

10. STABILITY AND REACTIVITY

Conditions to avoid	The dilution of oxygen concentration in the atmosphere to levels which cannot support life. Never use cylinders as rollers or supports, or for any other purpose than the storing of cylinders. Never expose the cylinders to excessive heat, as this may cause sufficient build-up of pressure to rupture the cylinders
Incompatible Materials	Since the performance of plastic materials is affected by polymer variations, compounding agents, fillers, and moulding processes, verify compatibility using actual fabricated parts under end -use conditions. The effects on specific elastomers depend on the nature of the polymer, the

11. TOXOLOGICAL INFORMATION

Acute Toxicity	No known effect
Skin & eye contact	No known effect
Chronic Toxicity	No known effect
Carcinogenicity	No known effect
Mutagenicity	No known effect
Reproductive Hazards	No known effect

12. ECOLOGICAL INFORMATION

Toxicity	- Not available
Persistence and degradability	- R-507a is a gas at room temperature; therefore, it is unlikely to remain in water
Mobility in soil	- Not available
Results of PBT and vPvB assessment	- Not available
Other adverse effects	- No known significant effects or critical hazards
Environmental	- Product is volatile when in aqueous solution. Ultimate destination of the product could be the atmosphere

13. DISPOSAL CONSIDERATIONS

Disposal Methods	Environmental effect, please return to supplier for safe disposal
Disposal of Packaging	-Return to supplier for safe disposal, environmental impact

14. TRANSPORT INFORMATION

Road Transportation	
UN No.	1078
Shipping Name	Liquefied gas, n.o.s. (contains pentafluoroethane and 1,1,1-trifluoroethane)
ERG No.	126
Class	2.2
Subsidiary Risk	2.2
Hazchem Warning	2A Non-flammable gas
Sea Transportation	
IMDG	1078
Shipping Name	Liquefied gas, n.o.s. (contains pentafluoroethane and 1,1,1-trifluoroethane)
ERG No.	126
Class	2.2
Subsidiary Risk	2.2
Label	Non-flammable gas
Air Transportation	

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ICAO/IATA Code	1078
Class	2.2
Subsidiary risk	2.2
Packaging instructions	- Cargo: 200 - Passenger: 200
Maximum quantity allowed	- Cargo: 150 kg - Passenger: 75 kg

15. REGULATORY INFORMATION

SANS11014:2010 Edition 1	Safety data sheet for chemical products - Content and order of sections
SANS 10228:2012 Edition 6	The identification and classification of dangerous goods for transport by road and rail modes
SANS 10234:2019 Edition 2	Globally Harmonized System of classification and labelling of chemicals (GHS)
SUPPLEMENT TO SANS 10234 Edition 1	List of classification and labelling of chemicals in accordance with the Globally Harmonized System (GHS)

16. OTHER INFORMATION

- Ensure all national/local regulations are observed.
- Ensure users and relevant persons understand the asphyxiation hazard
- Regularly check supplier's information sources for updated versions of SDS's
- SANS 10234-Globally Harmonized System of Classification and Labelling of Chemicals and Matheson Gas data book

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Bibliography

Compressed Gas Association, Arlington, Virginia
 Handbook of Compressed Gases - 3rd Edition
 Matheson Gas Data Book - 6th Edition
 SANS 11014 - Safety data sheet for chemical products:
 Content and order of sections
 SANS 10234 - List of classification and labelling of chemicals
 in accordance with the Globally Harmonized System (GHS)
 SANS 10265 – Classification and Labelling of Dangerous
 Substances

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