

SAFETY DATA SHEET (SDS) R 134A


Please ensure that this SDS is received by the appropriate persons.

Review Date: 07/08/2023 v01

Emergency: 0860 02 02 02

Document Number: AFX-SDS-0060

1. PRODUCT AND COMPANY IDENTIFICATION	
Product Synonym	R 134A 1,1,1,2-Tetrafluoroethane
Chemical Formula	C ₂ H ₂ F ₄
Trade Name	R 134A Disposal cylinder R 134A Cylinder 60Kg R 134A Cylinder 60Kg R 134A Drum 850Kg
Colour Coding	Corn flower blue body, light blue shoulder and valve guard
Product Code	W341045 disposable 578013-LC-N 578013-LG-N 578013-TC-N
Company Identification	African Oxygen Limited 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 (Afrox)

Biological Hazards	- The greatest physiological effect of R 134A is asphyxiation
Vapour Inhalation	- Asphyxiation
GHS Classification	- Gas under pressure (Liquefied gas)
GHS Pictogram	
GHS Signal Words	Warning
GHS Hazard Statements	- H280: Contains gas under pressure, may explode if heated
GHS Precautionary Statements	Prevention: - P280 : Wear protective gloves/eye protection/face protection. Response: - None Storage: - P403 : Store in a well-ventilated place - P410: Protect from sunlight Disposal - Return cylinder and content to supplier to dispose of safely
Other Hazards that do not result in classification	- May cause frostbite or freezing of skin - Will displace oxygen in an enclosed space - Asphyxiant in high concentrations

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: Ethereal Taste: None Physical State: Compressed Gas Form: Gas under pressure
Main Hazards	- All cylinders are portable gas containers and must be regarded as pressure vessels at all times. - R 134A does not support life - Asphyxiant in high concentrations - It can act as a simple asphyxiant by diluting the concentration of oxygen in air below the levels necessary to support life. As it is heavier than air it will tend to concentrate at lower levels - Contact with liquid may cause cold burns/frost bite
Adverse Health Effects	- None
Chemical Hazards	- R 134A is relatively non-reactive and non-toxic

3. COMPOSITION OF INGREDIENTS	
Chemical name	R 134A
Chemical family	1,1,1,2-tetrafluoroethane
CAS No	811-97-2
UN No	3159
ERG No	126
Hazard class	2.2
Hazchem Warning	2A Non-flammable Non-toxic Gas

4. FIRST AID MEASURES	
Eye contact	The liquid may cause frostbite. - Rinse the eye with water immediately - Remove contact lenses, if present and easy to do. Continue rinsing - Flush thoroughly with water for at least 15 minutes - Get immediate medical assistance. If medical assistance is not immediately available, flush an additional 15 minutes.
Skin Contact	The liquid may cause frostbite - For exposure to liquid, immediately warm frostbite area with warm water not to exceed 41°C. Water temperature should be tolerable to normal skin - Maintain skin warming for at least 15 minutes or until normal colouring and sensation have returned to the affected area

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	- In case of massive exposure, remove clothing while showering with warm water Seek medical evaluation and treatment as soon as possible
Ingestion	- Ingestion is not considered a potential route of exposure
Inhalation	- In high concentrations may cause asphyxiation. Symptoms may include loss of mobility/consciousness. Victim may not be aware of asphyxiation - Remove victim to uncontaminated area wearing self-contained breathing apparatus - Keep victim warm and rested. Seek medical attention. Apply artificial respiration if breathing stopped - Low concentrations of R134a cause increased respiration

	- In an enclosed or non-ventilated space, a self-contained breathing apparatus must be used
Environmental Precautions	- Prevent further leakage or spillage if safe to do so - Prevent from entering sewers, basements and workpits, or any place where its accumulation can be dangerous
Methods and material for containment and cleaning up:	- Provide adequate ventilation

5. FIRE-FIGHTING MEASURES

Suitable extinguishing media	- Material will not burn. In case of fire in the surroundings: use appropriate extinguishing agent
Unsuitable extinguishing media:	- None
Specific Hazards	- Exposure to fire may cause containers to rupture/explode. Non flammable - If involved in a fire the following toxic and/or corrosive fumes may be produced by thermal decomposition: - Hydrogen fluoride.
Special fire fighting procedures:	- In case of fire: Stop leak if safe to do so. Continue water spray from protected position until container stays cool. Use extinguishants to contain the fire. Isolate the source of the fire or let it burn out.
Special protective equipment for firefighters:	- Exposed Firefighters must use standard protective equipment including flame retardant coat, helmet with face shield, gloves, rubber boots, and in enclosed spaces a self-contained breathing apparatus

7. HANDLING AND STORAGE

Safe Handling	- Only experienced and properly instructed persons should handle gases under pressure. Use only properly specified equipment which is suitable for this product, its supply pressure and temperature. Refer to supplier's handling instructions. The substance must be handled in accordance with good industrial hygiene and safety procedures. Protect containers from physical damage; do not drag, roll, slide or drop. Do not remove or deface labels provided by the supplier for the identification of the container contents. When moving containers, even for short distances, use appropriate equipment eg. trolley, hand truck, fork truck etc. Secure cylinders in an upright position at all times, close all valves when not in use. Provide adequate ventilation. Suck back of water into the container must be prevented. Do not allow backfeed into the container. Avoid suckback of water, acid and alkalis. Keep container below 50°C in a well-ventilated place. Observe all regulations and local requirements regarding storage of containers. When using do not eat, drink or smoke. Store in accordance with local/regional/national/international regulations. Never use direct flame or electrical heating devices to raise the pressure of a container. Leave valve protection caps in place until the container has been secured against either a wall or bench or placed in a container stand and is ready for use. Damaged valves should be reported immediately to the supplier Close container valve after each use and when empty, even if still connected to equipment. Never attempt to repair or modify container valves or safety relief devices. Replace valve outlet caps or plugs and container caps were supplied as soon as container is disconnected from equipment. Keep container valve outlets clean and free from
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6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures:	- WARNING! Liquid and gas under pressure. Rapid release of gaseous R 134A through a pressure relief device (PRD) or valve can result in the formation of cold liquid, which is very cold and can cause frostbite. - Evacuate area. - Provide adequate ventilation. - Prevent from entering sewers, basements and workpits, or any place where its accumulation can be dangerous. - Wear self-contained breathing apparatus when entering area unless atmosphere is proved to be safe.
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	contaminants particularly oil and water. If user experiences any difficulty operating container valve discontinue use and contact supplier. Never attempt to transfer gases from one container to another. Container valve guards or caps should be in place
Conditions for safe storage, including any incompatibilities	-Containers should not be stored in conditions likely to encourage corrosion. Keep away from food, drink and animal feeding stuffs. Stored containers should be periodically checked for general conditions and leakage. Container valve guards or caps should be in place. Store containers in location free from fire risk and away from sources of heat and ignition. Keep pressure containers away from combustible material.

8. EXPOSURE CONTROLS AND PERSONAL PROTECTION

Occupational Exposure Hazards (HCS)	No information available
Engineering Control Measures	- Engineering control measures are preferred to reduce exposures. General methods include mechanical ventilation, process or personal enclosure, and control of process conditions. Administrative controls and personal protective equipment may also be required. A Risk assessment should be conducted to evaluate the suitability of PPE to the task being performed
Personal Protection	- When allowed by a risk assessment Respiratory Protective Equipment (RPE) may be used. The selection of the Respiratory Protective Device (RPD) must be based on known or anticipated exposure levels, the hazards of the product and the safe working limits of the selected RPD. Self-contained breathing apparatus (SCBA) or positive pressure airline with mask are to be used in oxygen-deficient atmospheres
Eyes	- Wear safety glasses when handling cylinders; vapour-proof goggles and a face shield during cylinder change-out or whenever contact with product is possible
Hands	- Guideline: Protective gloves against mechanical risks. - Additional Information: Wear working gloves while handling containers
Body protection:	- No special precautions
Feet	- Wear safety shoes while handling containers

9. PHYSICAL AND CHEMICAL PROPERTIES

Chemical Name	R 134A
Chemical Symbol	1,1,1,2 tetra-fluoroethane
Physical state	Gas
Form:	Liquefied gas
Colour:	Colourless
Odour:	Ethereal
Odour Threshold:	Odourless
pH:	Not applicable
Melting Point:	-101°C
Boiling Point:	-26.4°C
Sublimation Point:	Not Applicable
Critical Temp. (°C):	100.6°C
Flash Point:	Not applicable
Evaporation Rate:	Not applicable
Flammability (solid, gas):	Non-flammable Gas
Flammability limit - upper (%):	Not applicable
Flammability limit - lower(%):	Not applicable
Vapour pressure:	6.76 bar (20 °C)
Vapour density (air=1)	1.32 (20 °C)
Relative density:	1.10 (20 °C)
Solubility(ies)	
Solubility in Water:	0.9g/l (20 °C)
Partition coefficient (n-octanol/water):	1.11
Autoignition Temperature:	632°C
Decomposition Temperature:	Not known
Viscosity	
Kinematic viscosity:	No data available
Dynamic viscosity:	Not known
Explosive properties:	Not applicable
Oxidising Properties:	Not applicable
Molecular weight	102 g/mol

10. STABILITY AND REACTIVITY

Reactivity	- No reactivity hazard other than the effects described in sub-sections below
Chemical stability	- Stable under normal conditions
Possibility of hazardous reactions	- May react violently with alkaline-earth and alkali metals
Conditions to avoid	- Overheating of cylinders. Never use cylinders as rollers or supports; or for any other purpose than the storage of R 134A - Heat. Hot surfaces. Direct sunlight.
Incompatible Materials	Alkali metals. Alkali earth metals. Finely powdered metals.
Hazardous Decomposition of Products	- Electrical discharges and high temperatures decompose R 134A into HF and F ₂ - In combustion emits toxic fumes of hydrogen fluoride. In combustion emits toxic fumes of carbon dioxide / carbon monoxide

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11. TOXOLOGICAL INFORMATION	
Acute Toxicity	Based on available data, the classification criteria are not met
Skin & eye contact	Based on available data, the classification criteria are not met
Chronic Toxicity	Based on available data, the classification criteria are not met
Carcinogenicity	Based on available data, the classification criteria are not met
Mutagenicity	Based on available data, the classification criteria are not met
Reproductive Hazards	Based on available data, the classification criteria are not met

12. ECOLOGICAL INFORMATION	
Toxicity	No ecological damage caused by this product
Persistence and degradability	Not applicable to gases and gas mixtures Not readily biodegradable
Bioaccumulative Potential Product	The subject product is expected to biodegrade and is not expected to persist for long periods in an aquatic environment.
Mobility in soil	Because of its high volatility, the product is unlikely to cause ground or water pollution.
Results of PBT and vPvB assessment	Not classified as persistent, bio-accumulating and toxic (PBT). Not classified as persistent, very persistent and very bio-accumulating (vPvB)
Other adverse effects	No ecological damage caused by this product
Effect on ozone layer	Zero ozone depletion
Effect on the global warming (CO ₂ =1)	1430 times more than CO ₂ Contains fluorinated greenhouse gases covered by the Kyoto Protocol.

13. DISPOSAL CONSIDERATIONS	
Disposal Methods	Do not discharge into any place where its accumulation could be dangerous. Do not vent to atmosphere
Disposal of Packaging	The container is the property of the supplier and the disposal of the product and containers must only be handled by the supplier

14. TRANSPORT INFORMATION	
Road Transportation	
UN No.	3159
Shipping Name	R 134A, 1,1,1,2-Tetrafluoroethane
ERG No.	126
Class	2.2
Subsidiary Risk	Non-flammable, non-toxic gases
Hazchem Warning	2A Non-flammable Gas
Sea Transportation	
IMDG	3159
Shipping Name	R 134A, 1,1,1,2-Tetrafluoroethane
ERG No.	126
Class	2.2

Subsidiary Risk	Non-flammable, non-toxic gases
Label	Non-flammable Gas
Air Transportation	
ICAO/IATA Code	3159
Class	2.2
Packing Group:	-
Packaging instructions	- Cargo: allowed 200kg - Passenger: allowed 75kg

15. REGULATORY INFORMATION	
EEC Hazard class: National legislation OHSact and Regulations 85 of 1993	
SANS 11014:2010 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	
<ul style="list-style-type: none"> - 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 	
Revision Date	07/08/2023 v01
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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