


**SAFETY DATA SHEET (SDS)**  
**5% Hydrogen, 5% Carbon dioxide balance Nitrogen**  
**Please ensure that this SDS is received by the appropriate persons**

Review Date: 20/09/2022 v01

Emergency: 0860 02 02 02

Document Number: AFX-SDS-0140

1. PRODUCT AND COMPANY IDENTIFICATION	
Product Synonym	5% Hydrogen 5% Carbon dioxide balance Nitrogen
Chemical Formula	CO <sub>2</sub> N <sub>2</sub> , H <sub>2</sub>
Trade Name	5% Hydrogen 5% Carbon dioxide balance Nitrogen
Colour Coding	Silver body with red shoulder and Lime green valve guard
Product Code	519206-SH-C
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: <a href="mailto:customer.service@afrox.linde.com">customer.service@afrox.linde.com</a> <a href="http://www.afrox.com">www.afrox.com</a>
Emergency Numbers	<b>0860 02 02 02 (Afrox)</b>

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: None Odour: None Taste: None Physical State: Compressed Gas Form: Gas under pressure
	- All cylinders are portable gas containers and must be regarded as pressure vessels at all times. - 5% Hydrogen 5% Carbon dioxide balance Nitrogen does not support life.
Adverse Health Effects	- Asphyxiant in high concentrations.
Chemical Hazards	- None
Biological Hazards	- None
Vapour Inhalation	- Asphyxiant in high concentrations.
GHS Classification	- Gas under pressure
GHS Pictogram	

GHS Signal Words	Warning
GHS Hazard Statements	- H280: Contains gas under pressure, may explode if heated
GHS Precautionary Statements	<b>Storage:</b> - P403 : Store in a well-ventilated place. <b>Prevention:</b> - P280 : Wear protective gloves/eye protection/face protection. <b>Response:</b> - None <b>Disposal</b> - None
Other Hazards that do not result in classification	- S2 Keep out of reach of Children - S9 Keep container in a well ventilated place - S15 Keep away from heat - S37 Wear suitable gloves - S39 Wear eye/face protection - S51 Use only in well-ventilated areas

3. COMPOSITION OF INGREDIENTS	
Chemical name	Hydrogen
Chemical family	
CAS No	1333-74-0
UN No	1049
ERG No	115
Hazard class	2.2
Hazchem Warning	2C flammable gas
Chemical name	Nitrogen
Chemical family	
CAS No	7727-37-9
UN No	1066
ERG No	121
Hazard class	2.1
Hazard warning	2C Non-flammable gas
Chemical name	Carbon dioxide
Chemical family	
CAS No	124-38-9
UN No	1013
ERG No	122
Hazard class	2.2
Hazard warning	2C Non-flammable gas

4. FIRST AID MEASURES	
Eye contact	- Get immediate medical assistance. If medical assistance is not immediately available, flush an additional 15 minutes.
Skin Contact	- 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.

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	- Keep victim warm and rested. Seek medical attention. Apply artificial respiration if breathing stopped.
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5. FIRE-FIGHTING MEASURES	
<b>Suitable extinguishing media</b>	- Material will not burn. In case of fire in the surroundings: use appropriate extinguishing agent.
<b>Unsuitable extinguishing media:</b>	- None.
<b>Specific Hazards</b>	- Asphyxiant in high concentrations.
<b>Special fire fighting procedures:</b>	- 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.
<b>Special protective equipment for firefighters:</b>	- 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.

6. ACCIDENTAL RELEASE MEASURES	
<b>Personal precautions, protective equipment and emergency procedures:</b>	- Evacuate area. - Provide adequate ventilation. - Wear self-contained breathing apparatus when entering area unless atmosphere is proved to be safe. - In an enclosed or non-ventilated space, a self-contained breathing apparatus must be used.
<b>Environmental Precautions</b>	- Prevent further leakage or spillage if safe to do so.
<b>Methods and material for containment and cleaning up:</b>	- Provide adequate ventilation.

7. HANDLING AND STORAGE	
<b>Safe Handling</b>	-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 back feed into the container. 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 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.
<b>Conditions for safe storage, including any incompatibilities</b>	-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	
<b>Occupational Exposure Hazards (HCS)</b>	-Not specified
<b>Engineering Control Measures</b>	- 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.  <b>A Risk assessment should be conducted to evaluate the suitability of PPE to the task being performed</b>
<b>Personal Protection</b>	- 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

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	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.
<b>Eyes</b>	-Wear safety glasses
<b>Hands</b>	-Guideline: Protective gloves against mechanical risks. -Additional Information: Wear working gloves while handling containers
<b>Body protection:</b>	As per regulation for area.
<b>Feet</b>	-Wear safety shoes while handling containers

<b>Possibility of hazardous reactions</b>	- Gas under high pressure. Accumulate in low lying areas.
<b>Conditions to avoid</b>	- Overheating of cylinders. Never use cylinders as rollers or supports; or for any other purpose than the storage of 5% Hydrogen balance Nitrogen
<b>Incompatible Materials</b>	None
<b>Hazardous Decomposition of Products</b>	Will not decompose

**9. PHYSICAL AND CHEMICAL PROPERTIES**

<b>Chemical Name</b>	5% Hydrogen 5% Carbon dioxide balance Nitrogen
<b>Chemical Symbol</b>	CO <sub>2</sub> N <sub>2</sub> ,H <sub>2</sub>
<b>Physical state</b>	Gas
<b>Form:</b>	Gas
<b>Colour:</b>	Colourless
<b>Odour:</b>	Odourless
<b>Odour Threshold:</b>	No odour.
<b>pH:</b>	No effect in water
<b>Melting Point:</b>	Not applicable
<b>Boiling Point:</b>	Not applicable
<b>Sublimation Point:</b>	Not applicable
<b>Critical Temp. (°C):</b>	Not applicable
<b>Flash Point:</b>	Not applicable
<b>Evaporation Rate:</b>	Not applicable.
<b>Flammability ( gas):</b>	Non Flammable
<b>Flammability limit - upper (%):</b>	Non Flammable
<b>Flammability limit - lower(%):</b>	Non Flammable
<b>Vapour pressure:</b>	Permanent gas
<b>Vapour density</b>	1.14 @ 20°C
<b>Relative density:</b>	0.95 @ 20 °C
<b>Solubility(ies)</b>	
<b>Solubility in Water:</b>	Not Known
<b>Partition coefficient (n-octanol/water):</b>	Not known
<b>Autoignition Temperature:</b>	Not applicable.
<b>Decomposition Temperature:</b>	Not known.
<b>Viscosity</b>	
<b>Kinematic viscosity:</b>	No data available.
<b>Dynamic viscosity:</b>	Not applicable
<b>Explosive properties:</b>	Not applicable
<b>Oxidising Properties:</b>	Not applicable
<b>Molecular weight</b>	Not applicable

**11. TOXOLOGICAL INFORMATION**

<b>Acute Toxicity</b>	Non toxic
<b>Skin &amp; eye contact</b>	No adverse effect
<b>Chronic Toxicity</b>	Based on available data, the classification criteria are not met.
<b>Carcinogenicity</b>	Based on available data, the classification criteria are not met.
<b>Mutagenicity</b>	Based on available data, the classification criteria are not met.
<b>Reproductive Hazards</b>	Based on available data, the classification criteria are not met.

**12. ECOLOGICAL INFORMATION**

<b>Toxicity</b>	No ecological damage caused by this product.
<b>Persistence and degradability</b>	Not applicable
<b>Bioaccumulative Potential Product</b>	No bio-accumulating hazard.
<b>Mobility in soil</b>	No hazard
<b>Results of PBT and vPvB assessment</b>	Not classified as persistent, bio-accumulating and toxic (PBT).
<b>Other adverse effects</b>	No ecological damage caused by this product.
<b>Effect on ozone layer</b>	None
<b>Effect on the global warming (CO<sub>2</sub>=1)</b>	0

**13. DISPOSAL CONSIDERATIONS**

<b>Disposal Methods</b>	- Do not discharge into any place where its accumulation could be dangerous. Vent to atmosphere in a well-ventilated place. .
<b>Disposal of Packaging</b>	- The container is the property of the supplier and the disposal of the containers must only be handled by the supplier.

**14. TRANSPORT INFORMATION**

<b>Road Transportation</b>	
<b>UN No.</b>	1956
<b>Shipping Name</b>	5% Hydrogen 5% Carbon dioxide balance Nitrogen
<b>ERG No.</b>	121
<b>Class</b>	2.2
<b>Subsidiary Risk</b>	Non-flammable, toxic gases

**10. STABILITY AND REACTIVITY**

<b>Reactivity</b>	-Not reactive
<b>Chemical stability</b>	- Stable under normal conditions.

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<b>Hazchem Warning</b>	2C Non-flammable
<b>Sea Transportation</b>	
<b>IMDG</b>	1956
<b>Shipping Name</b>	5% Hydrogen 5% Carbon dioxide balance Nitrogen
<b>ERG No.</b>	121
<b>Class</b>	2.2
<b>Subsidiary Risk</b>	Non- flammable
<b>Label</b>	Non-flammable
<b>Air Transportation</b>	
<b>ICAO/IATA Code</b>	1956
<b>Class</b>	2.2
<b>Packing Group:</b>	-
<b>Packaging instructions</b>	- Cargo: 150 kg - Passenger: 75 kg

**15. REGULATORY INFORMATION**

EEC Hazard class: non-Toxic, non-Corrosive gas.  
National legislation OHSact and Regulations 85 of 1993.

<b>SANS 11014:2010 Edition 1</b>	Safety data sheet for chemical products - Content and order of sections
<b>SANS 10228:2012 Edition 6</b>	The identification and classification of dangerous goods for transport by road and rail modes
<b>SANS 10234:2019 Edition 2</b>	Globally Harmonized System of classification and labelling of chemicals (GHS)
<b>SUPPLEMENT TO SANS 10234 Edition 1</b>	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

<b>Revision Date</b>	20/9/2022 v01
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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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