

**SAFETY DATA SHEET (SDS)  
CO-Cal Gas Standard**

Please ensure that this SDS is received by the appropriate persons


Review Date: 26/07/2022 v01

Emergency: 0860 02 02 02

Document Number: AFX-SDS-0038

1. PRODUCT AND COMPANY IDENTIFICATION	
Product Synonym	CO-Cal Gas Standard CO-Cal Gas Standard
Chemical Formula	CO O <sub>2</sub> N <sub>2</sub>
Trade Name	CO-CAL 400 CO-CAL 450
Colour Coding	Silver body with red shoulder and yellow band with lime green valve guard
Product Code	519123-NE-A 519124-NE-A
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) - GASES UNDER PRESSURE - Liquefied gas TOXICITY (inhalation) - Category 2 - SPECIFIC TARGET ORGAN TOXICITY (SINGLE EXPOSURE) (Respiratory tract irritation) - Category 3 AQUATIC HAZARD (ACUTE) - Category 1
Emergency Overview	Colour: None Odour: None Taste: None Physical State: Gas
	- All cylinders are portable gas containers and must be regarded as pressure vessels at all times. - CO-Cal Gas Standard does not support life.
Adverse Health Effects	- Harmful if inhaled.
Chemical Hazards	- Acute Toxicity
Biological Hazards	- Vapour is harmful to living organisms

Vapour Inhalation	Carbon monoxide combines with the haemoglobin in the blood to form carboxyhaemoglobin which is unable to transport oxygen. The symptoms of carbon monoxide poisoning are largely due to anoxia Conscious persons should be assisted to an uncontaminated area and be treated with supplemental oxygen. Quick removal from the contaminated area is most important. Unconscious persons should be moved to an uncontaminated area and given artificial respiration and oxygen at the same time. The administration of the oxygen at an elevated pressure (up to 2 to 2.5 atmospheres) has shown to be beneficial as has treatment in a hyperbaric chamber. The physician should be informed that the patient has inhaled toxic quantities of carbon monoxide. Prompt medical attention is mandatory in all cases of overexposure to carbon monoxide. Rescue personnel should be equipped with self-contained breathing apparatus.
GHS Classification	Flammable gas 2 Acute toxicity 3
GHS Pictogram	
GHS Signal Words	Danger
GHS Hazard Statements	H331: Toxic if inhaled H400: Very toxic to aquatic life
GHS Precautionary Statements	- P260: Do not breathe gas/vapours - P262: Do not get in eyes, on skin, or on clothing - P264: Wash hands thoroughly after handling - P271: Use only outdoors or in a well ventilated area - P273: Avoid release to the environment P391: Collect spillage - P284: Wear respiratory protection P304+P340: IF INHALED: remove to fresh air and keep at rest in a position comfortable for breathing - P310: Immediately call a POISON CENTRE or doctor/physician
Other Hazards that do not result in classification	- Gas under pressure

3. COMPOSITION OF INGREDIENTS	
Chemical name	Carbon Monoxide
Chemical family	
CAS No	630-08-0
UN No	1016
ERG No	119

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<b>Hazard class</b>	Class 2.1
<b>Hazchem Warning</b>	Toxic flammable Gas
<b>Chemical name</b> <b>Chemical family</b>	<b>Oxygen</b>
<b>CAS No</b>	7782-44-7
<b>UN No</b>	1072
<b>ERG No</b>	122
<b>Hazard class</b>	Class 2.2
<b>Hazchem Warning</b>	Oxidiser
<b>Chemical name</b> <b>Chemical family</b>	<b>Nitrogen</b>
<b>CAS No</b>	7727-37-9
<b>UN No</b>	1066
<b>ERG No</b>	121
<b>Hazard class</b>	Class 2.1
<b>Hazchem Warning</b>	Non-Flammable

**4. ACCIDENTAL RELEASE MEASURES**

<b>Personal precautions, protective equipment and emergency procedures:</b>	<ul style="list-style-type: none"> <li>- WARNING! gas under pressure. Rapid release of gaseous CO-Cal Gas Standard through a pressure relief device (PRD) or valve can result is very cold and can cause frostbite.</li> <li>- Evacuate area.</li> <li>- Provide adequate ventilation.</li> <li>- Wear self-contained breathing apparatus when entering area unless atmosphere is proved to be safe.</li> <li>- In an enclosed or non-ventilated space, a self-contained breathing apparatus must be used.</li> </ul>
<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.

**5. 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
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	<p>ventilation. Suck back of water into the container must be prevented. Do not allow backfeed 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.</p>
<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.

**6. EXPOSURE CONTROLS AND PERSONAL PROTECTION**

<b>Occupational Exposure Hazards (HCS)</b>	- Not specified
<b>Engineering Control Measures</b>	<ul style="list-style-type: none"> <li>- 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.</li> </ul> <p><b>A Risk assessment should be conducted to evaluate the suitability of PPE to the task being performed</b></p>
<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

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	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.
<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>	- Personal protective equipment for the body should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.
<b>Feet</b>	- Wear safety shoes while handling containers

<b>Molecular weight</b>	28.8g/mole
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8. STABILITY AND REACTIVITY	
<b>Reactivity</b>	- Contains reactive components
<b>Chemical stability</b>	- Stable under normal conditions.
<b>Possibility of hazardous reactions</b>	- Under normal conditions of storage and use, hazardous reactions will not occur.
<b>Conditions to avoid</b>	- Overheating of cylinders. Never use cylinders as rollers or supports; or for any other purpose than the storage of CO-Cal Gas Standard
<b>Incompatible Materials</b>	Oxidisers
<b>Hazardous Decomposition of Products</b>	Under normal conditions of storage and use, hazardous decomposition products should not be produced.

9. TOXOLOGICAL INFORMATION	
<b>Acute Toxicity</b>	Contains toxic components
<b>Skin &amp; eye contact</b>	Not known
<b>Chronic Toxicity</b>	No data on chronic toxicity.
<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.

10. ECOLOGICAL INFORMATION	
<b>Toxicity</b>	Ecological damage caused by this product.
<b>Persistence and degradability</b>	Not applicable to gases and gas mixtures.
<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 adverse effect on environment.
<b>Effect on ozone layer</b>	None
<b>Effect on the global warming (CO<sub>2</sub>=1)</b>	0

11. 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.

7. PHYSICAL AND CHEMICAL PROPERTIES	
<b>Chemical Name</b>	<b>CO-Cal Gas Standard</b>
<b>Chemical Symbol</b>	CO, O <sub>2</sub> , N <sub>2</sub>
<b>Physical state</b>	Permanent Gas
<b>Form:</b>	Gas
<b>Colour:</b>	Colourless
<b>Odour:</b>	None
<b>Odour Threshold:</b>	None
<b>pH:</b>	Not known
<b>Melting Point:</b>	Not known
<b>Boiling Point:</b>	Not known
<b>Sublimation Point:</b>	Not known
<b>Critical Temp. (°C):</b>	Not known
<b>Flash Point:</b>	Not known
<b>Evaporation Rate:</b>	Not known
<b>Flammability ( gas):</b>	Contains flammable components below flammability levels
<b>Flammability limit - upper (%):</b>	Not applicable
<b>Flammability limit - lower(%):</b>	Not applicable
<b>Vapour pressure:</b>	Not applicable
<b>Vapour density</b>	1.20 kg/m <sup>3</sup> @20°C
<b>Relative density:</b>	1.0
<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 known
<b>Decomposition Temperature:</b>	Not known
<b>Viscosity</b>	
<b>Kinematic viscosity:</b>	Not known
<b>Dynamic viscosity:</b>	Not known
<b>Explosive properties:</b>	Not known
<b>Oxidising Properties:</b>	Not known

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12. TRANSPORT INFORMATION	
Road Transportation	
UN No.	1956
Shipping Name	CO-Cal Gas Standard
ERG No.	126
Class	2.2
Subsidiary Risk	Non-flammable, toxic gases
Hazchem Warning	2TE Toxic flammable Gas
Sea Transportation	
IMDG	1956
Shipping Name	CO-Cal Gas Standard
ERG No.	126
Class	2.2
Subsidiary Risk	Non-flammable, toxic gases
Label	Toxic corrosive flammable Gas
Air Transportation	
ICAO/IATA Code	1956
Class	2.2
Packing Group:	-
Packaging instructions	- Cargo: 150 kg - Passenger: 75 kg

EXCLUSION OF LIABILITY
Whilst AFROX made best endeavour to ensure that the information contained in this publication is accurate at the date of publication, AFROX does not accept liability for an inaccuracy or liability arising from the use of this information, or the use, application, adaptation or process of any products described herein.

15 REGULATORY INFORMATION	
EEC Hazard class: Toxic, 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)
<b>ISO 10156 2020</b>	Flammability calculation of gas mixtures.

16 OTHER INFORMATION	
<ul style="list-style-type: none"> <li>- Ensure all national/local regulations are observed.</li> <li>- Ensure users and relevant persons understand the asphyxiation hazard</li> <li>- Regularly check supplier's information sources for updated versions of SDS's</li> </ul>	
<b>Revision Date</b>	26/07/2022 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	