

## SAFETY DATA SHEET (SDS)

### Butane


Please ensure that this SDS is received by the appropriate persons

Review Date: 18/07/2022 v01

Emergency: 0860 02 02 02

Document Number: AFX-SDS-0036

1. PRODUCT AND COMPANY IDENTIFICATION	
Product Synonym	Butane Butane
Chemical Formula	C <sub>4</sub> H <sub>10</sub>
Trade Name	Butane
Colour Coding	Silver
Product Code	544128-LF-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. - Butane does not support life.
Adverse Health Effects	- Asphyxiant
Chemical Hazards	- Flammable
Biological Hazards	- The greatest physiological effect of Butane is to cause asphyxiation.
Vapour Inhalation	- Asphyxiation
GHS Classification	- Gas under pressure
GHS Pictogram	
GHS Signal Words	Danger
GHS Hazard Statements	- Extremely flammable gas.

	- 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	- Asphyxiant in high concentrations

3. COMPOSITION OF INGREDIENTS	
Chemical name	Butane
Chemical family	Butane
CAS No	106-97-8
UN No	1011 (gas)
ERG No	115
Hazard class	Class 2.1
Hazchem Warning	Compressed gas

4. FIRST AID MEASURES	
Eye contact	- Rinse the eye with water immediately. - 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	- 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. - 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.

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5. FIRE-FIGHTING MEASURES	
<b>Suitable extinguishing media</b>	- Material will burn. In case of fire in the surroundings: use appropriate extinguishing agent.
<b>Unsuitable extinguishing media:</b>	- None.
<b>Specific Hazards</b>	- Extremely flammable gas. Contains gas under pressure; may explode if heated.
<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>	- WARNING! Liquid and gas under pressure. Rapid release of gaseous Butane through a pressure relief device (PRD) or valve can result is very cold and can cause frostbite.  - 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 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.
<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>

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<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 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>	- Fireproof overall - Anti-static materials for clothes.
<b>Feet</b>	- Wear safety shoes while handling containers. - Anti-static safety boots

#### 9. PHYSICAL AND CHEMICAL PROPERTIES

<b>Chemical Name</b>	<b>Butane</b>
<b>Chemical Symbol</b>	C <sub>4</sub> H <sub>10</sub>
<b>Physical state</b>	Gas
<b>Form:</b>	Gas
<b>Colour:</b>	Colourless
<b>Odour:</b>	Odourless
<b>Odour Threshold:</b>	Not applicable
<b>pH:</b>	No effect in water
<b>Melting Point:</b>	-138°C
<b>Boiling Point:</b>	-0.5
<b>Sublimation Point:</b>	Not available
<b>Critical Temp. (°C):</b>	151.85°C
<b>Flash Point:</b>	-60°C
<b>Evaporation Rate:</b>	Not applicable.
<b>Flammability ( gas):</b>	Extremely Flammable
<b>Flammability limit - upper (%):</b>	-Lower: 1.8%
<b>Flammability limit - lower(%):</b>	-Upper: 8.4%
<b>Vapour pressure:</b>	2.08 bar@20°C
<b>Vapour density (air=1)</b>	2.53@ 20°C
<b>Relative density:</b>	2.07@ 20 °C)
<b>Solubility(ies)</b>	NA
<b>Solubility in Water:</b>	0.034l/kg water @1 bar
<b>Partition coefficient (n-octanol/water):</b>	0.37
<b>Autoignition Temperature:</b>	365°C.
<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>	56.1 g/mole

#### 10. STABILITY AND REACTIVITY

<b>Reactivity</b>	-Extremely flammable
<b>Chemical stability</b>	- Stable under normal conditions.
<b>Possibility of hazardous reactions</b>	- Extremely flammable and explosive
<b>Conditions to avoid</b>	- Avoid all possible sources of ignition (spark or flame). Do not pressurize, cut, weld, braze, solder, drill, grind or expose containers to heat or sources of ignition.
<b>Incompatible Materials</b>	Oxidizers
<b>Hazardous Decomposition of Products</b>	Will not produce any hazardous products.

#### 11. TOXOLOGICAL INFORMATION

<b>Acute Toxicity</b>	658 mg/l inhalation
<b>Skin &amp; eye contact</b>	Not available
<b>Chronic Toxicity</b>	Not available
<b>Carcinogenicity</b>	Not available
<b>Mutagenicity</b>	Not available
<b>Reproductive Hazards</b>	Not available

#### 12. ECOLOGICAL INFORMATION

<b>Toxicity</b>	Not available
<b>Persistence and degradability</b>	Not available
<b>Bioaccumulative Potential Product</b>	Not available
<b>Mobility in soil</b>	Not available
<b>Results of PBT and vPvB assessment</b>	Not available
<b>Other adverse effects</b>	Not available
<b>Effect on ozone layer</b>	Not available
<b>Effect on the global warming (CO<sub>2</sub>=1)</b>	Not available

#### 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>	1011
<b>Shipping Name</b>	Butane
<b>ERG No.</b>	116
<b>Class</b>	2.1
<b>Subsidiary Risk</b>	Flammable
<b>Hazchem Warning</b>	Flammable Gas

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Sea Transportation	
IMDG	1011
Shipping Name	Butane
ERG No.	116
Class	2.1
Subsidiary Risk	Flammable
Label	Flammable Gas
Air Transportation	
ICAO/IATA Code	1011
Class	2.1
Packing Group:	NA
Packaging instructions	- Cargo: 150kg - Passenger: not allowed

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)

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 flammable and explosive hazard</li> <li>- Regularly check supplier's information sources for updated versions of SDS's</li> </ul>	
<b>Revision Date</b>	18/07/2022 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

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