BOC GASES
A Member of The Linde Group

MATERIAL SAFETY DATA SHEET (MSDS)
SHIELDING GASES – Ar/O2
(Please ensure that this MSDS is received by the appropriate person)

DATE: January 2018 Version 2 Ref. No.: MS084

1 PRODUCT AND COMPANY IDENTIFICATION

Product Name	Shielding Gases
Chemical Formula	O_2 plus Ar
Trade Names	Stainshield
Colour coding	Metalic blue body with black shoulder. The relevant decal on the neck ring to identify the product.
Valve	3SO-Brass 5/8 inch BSP right hand female valve fitted.
Company Identification	AFROX Malawi Limited Johnstone Road Ginnery Corner Blantyre Tel No: +265(1) 871 611 Fax No: +265(1)871 260

EMERGENCY NUMBER +265 871 611 (24 Hours)

2 HAZARDS IDENTIFICATION

Main Hazards
All cylinders are portable gas containers, and must be regarded as pressurised all times. Although the above listed Shielding gas contains Oxygen, the concentration is too low to support life. It can act as simple asphyxiant by diluting the concentration of Oxygen in the air to below levels necessary to support life.
Adverse Health Effects
Inhalation of Shielding gases in excessive concentrations can result in dizziness, nausea, vomiting, loss of consciousness and death.
Chemical Hazards
At elevated temperatures, the Oxygen component could react with a range of materials to form irritating or toxic compounds.
Biological Hazards
No known effect.
Vapour Inhalation
As Shielding gases act as simple asphyxiants, death may result from errors in judgement, confusion, or loss of consciousness which prevents self-rescue. At low Oxygen concentrations, unconsciousness and death may occur in seconds without warning.

3 COMPOSITION/INFORMATION ON INGREDIENTS

Chemical Names	Argon plus Oxygen
UN No	3156
ERG No	122
Hazchem Warning	2 C Non-flammable gas

4 FIRST AID MEASURES

Eye/Skin Contact: No known effect.
Ingestion: (See Section 3 above).
Inhalation
Prompt medical attention is mandatory in all cases of overexposure to Shielding gases. 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 and supplemental Oxygen.

5 FIRE FIGHTING MEASURES

Extinguishing Media
Although this Shielding gas contains Oxygen, it does not contribute to the fire, but could help with the extinguishing by reducing the Oxygen content of the air by dilution to below the level to support combustion.
Specific Hazards
This Shielding gas does not support life. It can act as simple asphyxiant by diluting the concentration of Oxygen in the air below levels to support life.
Emergency Actions
If possible, shut off the source of excess Shielding gas. Evacuate area. All cylinders should be removed from the vicinity of the fire. Cylinders that cannot be removed should be cooled with water from a safe distance to prevent the build-up of excessive pressure. Cylinders which have been exposed to excessive heat should be clearly identified and returned to the supplier. CONTACT THE NEAREST AFROX BRANCH.
Protective Clothing
Self-contained breathing apparatus. Safety gloves and safety shoes, or boots, should be worn when handling cylinders.
Environmental Precautions
These Shielding gases are heavier than air and could accumulate in low-lying areas. Care should be taken when entering a potentially Oxygen-deficient environment. If possible, ventilate the affected area.

6. ACCIDENTAL RELEASE MEASURES

Personal Precautions
Do not enter any area where Shielding gas has been spilled unless tests have shown that it is safe to do so.
Environmental Precautions
Shielding gases do not pose a hazard to the environment.
Small Spills
Shut off the source of escaping Shielding 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 completion of the clean-up procedure. Ventilate the area using forced draught if necessary.

7 HANDLING AND STORAGE

Do not allow cylinders to slide or come into contact with sharp edges. Shielding gas cylinders may be stacked horizontally provided that they are firmly secured at each end to prevent rolling. Use the “first-in first-out” inventory system to prevent full cylinders from being stored for excessive periods of time. Keep out of reach of children.

8 EXPOSURE CONTROLS/PERSONAL PROTECTION

Occupational Exposure Hazards
As this Shielding gas is a simple asphyxiant, avoid areas where spillage has taken place. Only enter once testing has proved the atmosphere to be safe.
Engineering Control Measures
Engineering control measures are preferred to reduce exposure 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.
Personal Protection
Self-contained breathing apparatus should always be worn when entering an area where Oxygen depletion may have occurred. Safety goggles, gloves and shoes or boots should be worn when handling cylinders.
Skin No known effect.

9 PHYSICAL AND CHEMICAL PROPERTIES

Argon	
Chemical Symbol	Ar
Molecular Weight	39,948
Specific volume @ 20°C & 101,325 kPa	603,7 ml/g
Relative density of gas @ 101,325 kPa (Air=1)	1,380
Colour	None
Taste	None
Odour	None
Oxygen	
Chemical Symbol	O_2
Molecular Weight	32,00
Specific volume @ 20°C & 101,325 kPa	755 ml/g
Relative density of gas @ 101,325 kPa (Air=1)	1,053

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Colour	None
Taste	None

10 STABILITY AND REACTIVITY

Conditions to Avoid
The dilution of the 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 shielding gases. Never expose the cylinders to excessive heat, as this may cause sufficient build-up of pressure to rupture the cylinders.
Incompatible Materials
Dry Shielding gases are relatively inert and may be contained in systems constructed of any of the common metals which have been designed to safely withstand the pressures involved.
Hazardous Decomposition Products
See Section 3, "Chemical Hazards"

11 TOXICOLOGICAL INFORMATION

Acute Toxicity	TLV 5000 vpm (CO_2)
Skin & eye contact	No known effect
Chronic Toxicity	No known effect
Carcinogenicity	No known effect
Mutagenicity	No known effect
Reproductive Hazards	No known effect

(For further information see Section 3. Adverse Health effects)

12 ECOLOGICAL INFORMATION

The Shielding gases are heavier than air and can cause pockets of Oxygen-depleted atmosphere in low-lying areas. They do not pose a hazard to the ecology.

13 DISPOSAL CONSIDERATIONS

Disposal Methods
Small amounts may be blown to the atmosphere under controlled conditions. Large amounts should only be handled by the gas supplier.
Disposal of Packaging
The disposal of containers must only be handled by the gas supplier.

14 TRANSPORT INFORMATION

ROAD TRANSPORTATION

UN No	3156
ERG No	122
Hazchem warning	2C Non-flammable gas

SEA TRANSPORTATION

IMDG	3156
Class	2.2
Label	Non-flammable gas

AIR TRANSPORTATION

ICAO/IATA Code	3156
Class	2.2
Packaging instructions	
- Cargo	200
- Passenger	200
Maximum quantity allowed	
- Cargo	150 kg
- Passenger	75 kg

15 REGULATORY INFORMATION

EEC Hazard class: Non-flammable
National legislation OHSact and Regulations 85 of 1993.
Reference SANS 10234 and its supplement.

16 OTHER INFORMATION

Bibliography
Compressed Gas Association, Arlington, Virginia
Handbook of Compressed Gases - 3rd Edition
Matheson. Matheson Gas Data Book - 6th Edition

EXCLUSION OF LIABILITY