AFROX
A Member of The Linde Group

MATERIAL SAFETY DATA SHEET (MSDS)

METHANE – CH_4

(Please ensure that this MSDS is received by an appropriate person)

Date: January 2017 Version2
Ref. no.: MS042

1 PRODUCT AND COMPANY IDENTIFICATION

PRODUCT IDENTIFICATION

Product Name	METHANE
Chemical Formula	CH_4
Trade Names	Methane (N2.5) Methane (N3.5)
Colour Coding	Signal Red (A.11) body with a Black band round the centre of the cylinder
Valve	Neriki – Brass 5/8inch left hand female
Company Identification	African Oxygen Limited 23 Webber Street Johannesburg, 2001 Tel. No: (011) 490-0400 Fax No: (011) 490-0506

EMERGENCY No. 0860 020202 or (011) 873 4382
(24 hours)

2 COMPOSITION/INFORMATION ON INGREDIENTS

Chemical Name	Methane
Chemical Family	Paraffins
CAS No.	74-82-8
UN No.	1971
ERG No.	115
Hazchem Warning	2A flammable gas

3 HAZARDS IDENTIFICATION

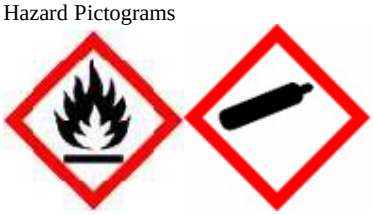
Main Hazards All cylinders are portable gas containers, and must be regarded as pressure vessels at all times. Methane poses hazards to personnel through its flammability. All the precautions necessary for the safe handling of any flammable compressed gas must be observed in working with Methane.

Adverse Health Effects Methane is classified as a simple asphyxiant. It is practically physiologically inert, except when it lowers the partial pressure of oxygen in the air enough to cause systemic effects due to oxygen-deficiency.

Chemical hazards	No known hazards
Biological Hazards	No known effect
Vapour Inhalation	No known effect
Eye contact	No known effect
Skin contact	No known effect
Ingestion	No known effect

Label Elements

Hazard Pictograms



Signal Word: Danger

Precautionary Statements:

P210: Keep away from heat/ sparks/open flames/ hot surface. No Smoking
P377: leaking gas fire: Do not extinguish, unless leak can be stopped safely.
P381: Eliminate all ignition sources if safe to do so.
P403: Store in well ventilated place.

Hazard Statements:

H220: Extremely flammable gas.

4 FIRST AID MEASURES

The conscious person who becomes aware of nausea and pressure on the forehead and eyes should go promptly to an uncontaminated area and inhale fresh air or oxygen. However, in the event of a massive exposure the victim may become unconscious or symptoms of asphyxiation may persist. In that case the person should be removed to an uncontaminated area, and given artificial respiration and then oxygen, after breathing has been restored. Treat symptomatically thereafter.

5 FIRE FIGHTING MEASURES

Extinguishing media Dry powder. Carbon dioxide. Fog-water spray. (In the absence of fog equipment a fine spray of water may be used).

Specific hazards Highly flammable. May form explosive gas mixtures with air. Is a simple asphyxiant.

Emergency actions If possible, shut off gas flow at source. Evacuate area. Post warning to prevent persons from approaching with lit cigarettes or open flames. Using water, keep all cylinders in the vicinity of the fire cool. Remove cylinders from the vicinity of the fire if possible. Allow small fires on cylinders to remain burning if they are not posing a hazard. CONTACT THE NEAREST AFROX BRANCH.

Protective clothing Exposed fire fighters should wear approved self-contained breathing apparatus with full mask.

Environmental precautions. As the gas is lighter than air, ensure that is not trapped in confined spaces. This could lead to the formation of a highly explosive gas-air mixture. Ventilate all confined spaces using forced-draught if necessary. Ensure that all electrically powered equipment is flameproof.

6 ACCIDENTAL RELEASE MEASURES

Personal precautions. As Methane is a simple asphyxiant care should be taken when entering confined spaces where leaks have occurred. Do not enter any potentially hazardous area with any source of ignition such as a lit cigarette or match.

Environmental precautions. Methane does not pose a hazard to the environment. An explosive gas-air mixture could be formed when leaks occur, so eliminate all forms of ignition.

Small spills Small leaks should be extinguished by shutting off the source of supply, e.g. closing the valve on the cylinder, or tightening the gland nut. If unable to stop small leaks the cylinder should be moved into the open, well away from any source of ignition. Should a small leak have ignited, use a multi-purpose dry powder or carbon dioxide extinguisher. Should there be no extinguisher available, a welders glove or heavy cloth, soaked in water may be used to extinguish the flame.

Large spills Stop the source if it can be done without risk. Eliminate all sources of ignition and static discharges. Restrict access to the area until completion of the clean-up procedure. Post relevant warning signs. Wear adequate protective clothing when working near the source of the leak. Ventilate the area using forced-draught if necessary. Ensure that all equipment is flameproof.

7 HANDLING AND STORAGE

Do not allow cylinders to slide or come into contact with sharp edges. Methane cylinders may be stacked horizontally provided that they are firmly secured in order to prevent rolling. Ensure that equipment is adequately earthed. Conspicuous signs should be posted in the storage area forbidding smoking or the use of naked lights. Use a "first-in - first-out" inventory system to prevent full cylinders from being stored for excessive periods of time. Compliance with all relevant legislation is essential. Keep out of reach of children.

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8 EXPOSURE CONTROLS/PERSONAL PROTECTION

Occupational exposure hazards No known effect.
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. Use a suitable flameproof ventilation system separate from other exhaust ventilation systems. Exhaust direct to outside. Supply sufficient replacement air to make up for air removed by exhaust system.
Personal protection Use self-contained breathing apparatus when fighting large fires.
Eyes. Use safety glasses when working with cylinders.
Hands. Use suitable protective gloves when working with cylinders.
Feet. Wear protective footwear when working with cylinders.

10 STABILITY AND REACTIVITY

Conditions to avoid Overheating of cylinders. Keep sparks and flames away from cylinder, and under no circumstances allow a torch flame to come into contact with any part of the cylinder. Never test for leaks with a flame. Use soapy water when testing for leaks. Never use cylinders as rollers or supports, or for any other purposes other than the storing of Methane.
Incompatible materials. Methane is non-corrosive and may be contained at ambient temperatures by most common metals used in installations designed to have sufficient strength for the working pressures involved.
Hazardous Decomposition Products. No hazardous compounds are formed when Methane / air mixtures burn.

11 TOXICOLOGICAL INFORMATION

Acute Toxicity	No known effect
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

As Methane is lighter than air it will disperse rapidly in open areas. It does not pose a hazard to the ecology.

13 DISPOSAL CONSIDERATIONS

Disposal Methods Small amounts may be blown to the atmosphere under controlled conditions. No sources of ignition should be in the vicinity. 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.	1971
Class	2.1
Subsidiary risk	Asphyxiant
ERG No	115
Hazchem warning	2 A Flammable gas

SEA TRANSPORTATION

IMDG	1971
Class	2.1
Label	Flammable gas

AIR TRANSPORTATION

ICAO/IATA Code	1971
Class	2.1
Subsidiary risk	Flammable gas
Packaging instructions	
- Cargo	200
- Passenger	Forbidden Maximum quantity allowed
- Cargo	150 kg
- Passenger	Forbidden

Skin. No known effect.

9 PHYSICAL AND CHEMICAL PROPERTIES

PHYSICAL DATA

Chemical Symbol	CH_4
Molecular Weight	16.04
Specific volume @ 20°C & 101,325 kPa	1474, 0 ml/g
Relative density of gas @ 101,325 kPa (Air=1)	0,555
Flammability limits in air	5.0 – 15.4% (by vol)
Auto ignition temperature	537°C
Colour	None
Taste	None
Odour	Sweet, oil-type

15 REGULATORY INFORMATION

EEC Hazard class Flammable gas
Refer to SANS 10234 Supplement.

16 OTHER INFORMATION

Bibliography
Compressed Gas Association, Arlington, Virginia
Handbook of Compressed Gases - 3rd Edition
Matheson. Matheson Gas Data Book - 6th Edition
SABS 0265 - Labelling of Dangerous Substances

17 EXCLUSION OF LIABILITY

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