

MATERIAL SAFETY DATA SHEET

2% Propane, 3% n-Butane Bal Dimethylether

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

Date: October 2014

Version 1

Ref. no.: MS112

1 PRODUCT AND COMPANY IDENTIFICATION

PRODUCT IDENTIFICATION

Product Name DIMETHYLETHER
Chemical Formula C₃H₈, C₄H₁₀ CH₃-O-CH₃
Company Identification African Oxygen Limited
23 Webber Street
Johannesburg, 2001
Tel. No: (011) 490-0400

EMERGENCY No. **0860020202 or +27(0) 11 821 3000**
(24hrs)

2 COMPOSITION/INFORMATION ON INGREDIENTS

Trade Name 2% Propane, 3% n-Butane bal
Dimethylether
UN No. 3161
Hazchem Code: 2 WE
Hazchem Warning 2 A Flammable gas

3 HAZARDS IDENTIFICATION

Main Hazards 2% PROPANE, 3% N-BUTANE BAL DIMETHYLETHER is highly flammable, and burns in air with an intensely hot, almost invisible flame. The flammability limits in air are between 3,4 and 17% by volume, and explosive gas / air mixtures may be formed.

Adverse Health effects Its principal physiological effect is that of anaesthesia. Concentrations of 5 - 20% (v/v) can cause such symptoms as intoxication, inco-ordination, blurring of vision, anaesthesia, headache, dizziness, excitation and unconsciousness, depending on the duration of the exposure.

Chemical Hazards Due to its high solvency power, special attention should be paid to elastomeric gaskets and sealing materials.

Biological Hazards At concentrations resulting from normal use as a propellant, 2% PROPANE, 3% N-BUTANE BAL DIMETHYLETHER cannot cause narcotic effects.

Vapour inhalation Can cause narcotic effects (See adverse health effects).

Eye Contact Exposure to the liquid or concentrated vapour can be irritating and should be avoided.

Skin Contact Liquid or concentrated vapour could cause frostbite.

4 FIRST AID MEASURES

Prompt medical attention is mandatory in all cases of overexposure to 2% PROPANE, 3% N-BUTANE BAL DIMETHYLETHER. Rescue personnel should be equipped with self-contained breathing apparatus.

Inhalation If the victim feels dizzy or sick or has a headache or blurred vision, he should go to an uncontaminated area and inhale fresh air.

Eyes In case of contact with the eyes, wash them with copious quantities of water for at least 15 minutes. A physician, preferably an eye specialist, should be called.

Skin contact In case of skin contact with the liquid or concentrated vapour, frostbite may develop. If this occurs, cover the frost-bitten part with a warm hand or woollen material. If the fingers or hand are frost-bitten, have the victim hold his

hand in his armpit, next to his body. Then place the frost-bitten part in warm water, at about 42°C. If warm water is not available, or is impractical to use, wrap the affected part gently in blankets. Let the circulation re-establish itself naturally. Encourage the victim to exercise the affected part while warming it up.

5 FIRE FIGHTING MEASURES

Extinguishing media Use fog-water spray. (In the absence of fog equipment a fine spray of water may be used).
Specific hazards Do not extinguish the fire unless the leakage can be stopped immediately. Highly flammable. May form explosive gas mixtures with air. The flame of burning 2% PROPANE, 3% N-BUTANE BAL DIMETHYLETHER is very difficult to see in daylight.

Emergency actions If possible, shut off ignition at source. Evacuate area. Post warnings to prevent persons from approaching with lit cigarettes or open flames. Using water, keep all cylinders in the vicinity of the fire cool if possible. Remove all cylinders with signs of overheating to a safe area. CONTACT THE NEAREST Afrox branch

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

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

6 ACCIDENTAL RELEASE MEASURES

Personal As 2% PROPANE, 3% N-BUTANE BAL DIMETHYLETHER is a simple narcotic, care should be

precautions 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 2% PROPANE, 3% N-BUTANE BAL DIMETHYLETHER does not pose a hazard to the

Precautions 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.

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 draft if necessary. Ensure that all equipment is flameproof.

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7 HANDLING AND STORAGE

The hazards due to the handling of 2% PROPANE,3%N-BUTANE BAL DIMETHYLETHER stem mainly from its flammability. Store and use 2% PROPANE,3%N-BUTANE BAL DIMETHYLETHER cylinders in well ventilated areas away from heat and all ignition sources such as flames and sparks. Never use flames to detect 2% PROPANE,3%N-BUTANE BAL DIMETHYLETHER gas leaks. Lines and equipment to contain 2% PROPANE,3%N-BUTANE BAL DIMETHYLETHER should be pressure tested for leaks with nitrogen, using soapy water. Do not use 2% PROPANE,3%N-BUTANE BAL DIMETHYLETHER around sparking motors or other non-explosion-proof equipment. Do not store reserve stocks of 2% PROPANE,3%N-BUTANE BAL DIMETHYLETHER with cylinders containing oxygen, or other highly oxidising or flammable materials. Ground all equipment and cylinders before use. Conspicuous signs should be posted in the storage area forbidding smoking or the use of naked lights. Use the "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.

8 EXPOSURE CONTROLS/PERSONAL PROTECTION

Occupational exposure hazards Present available data. Do not indicate that the use of 2% PROPANE,3%N-BUTANE BAL DIMETHYLETHER as a propellant presents a danger for the environment or human health. MAC - Value (Max. Allowable Concentration - TLV - for workers exposure): 1000 ppm (ml/m³) in air. (Germany).

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.

Skin Contact of the liquid or concentrated vapour with the skin can cause frostbite.

9 PHYSICAL AND CHEMICAL PROPERTIES

PHYSICAL DATA

Chemical Symbol	C3H8, C4H10,
CH ₃ -O-CH ₃	
Molecular Weight	46,07
Boiling point @ 101,325 kPa	-24,9°C
Relative density of vapour (Air=1)	1,59
Vapour pressure @ 20°C	517 kPa
Vapour pressure @ 50°C	1165 kPa
Flammability limits in air	3,4 - 17% by volume
Autoignition temperature	250°C
Colour	None
Odour	Ethereal

10 STABILITY AND REACTIVITY

Conditions to avoid The possibility that an explosive vapour/air mixture may be formed and ignited. However,

water in 2% PROPANE,3%N-BUTANE BAL DIMETHYLETHER formulations depresses the flammability to a far greater extent than it does for hydrocarbons. Never expose the containers to excessive heat as this may cause sufficient build-up of pressure to rupture the containers.

Incompatible materials Since 2% PROPANE,3%N-BUTANE BAL DIMETHYLETHER is non-corrosive, any commonly

available metals (e.g. steel, brass, aluminium, copper, etc.) can be used. However, 2% PROPANE,3%N-BUTANE BAL DIMETHYLETHER attacks most elastomers and any seals or o-rings should be made from PTFE, Nylon or Buna-N. Tygon, PVC or Neoprene should not be used.

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
MAC - Value (Max. Allowable Concentration - TLV - for workers exposure): 1000 ppm (ml/m ³) in air (Germany)	

12 ECOLOGICAL INFORMATION

Present available data do not indicate that the use of 2% PROPANE,3%N-BUTANE BAL DIMETHYLETHER as a propellant presents a danger for the environment or human health.

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.	3161
Hazchem code	2 WE
Hazchem warning	2 A Flammable gas

SEA TRANSPORTATION

IMDG	3161
Label	Flammable gas

AIR TRANSPORTATION

ICAO/IATA Code	3161
Class	2.1
Packaging instructions	
- Cargo	200
- Passenger	Forbidden
Maximum quantity allowed	
- Cargo	150 kg
- Passenger	Forbidden

15 REGULATORY INFORMATION

EEC Hazard class	Flammable
Risk phrases	R10 Flammable R18 In use may form flammable explosive vapour / air mixture R34 Contact with liquid phase could cause burns

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Safety phrases S2 Keep out of reach of children
 S3 Keep in a cool place
 S9 Keep container in a well-ventilated place
 S36 Wear suitable protective clothing
 S39 Wear eye / face protection
 S44 If you feel unwell seek medical advice
 (show label where possible).
 S51 Use only in well-ventilated areas

National legislation None

Refer to SABS 0625 for explanation of the above

16 OTHER INFORMATION

Bibliography

DEA Mineraruel AG, Hamburg, Germany
2% PROPANE,3%N-BUTANE BAL DIMETHYLETHER
Handbook, January 1997

17 EXCLUSION OF LIABILITY

Information contained in this publication is accurate at the date of publication. The company does not accept liability arising from the use of this information, or the use, application, adaptation or process of any product described herein

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