

SAFETY DATA SHEET (SDS) Dimethylether (DME)

Please ensure that this SDS is received by the appropriate persons


Review Date: 20/06/2023 v01

Emergency: 0860 02 02 02

Document Number: AFX-SDS-0071

1. PRODUCT AND COMPANY IDENTIFICATION	
Product Synonym	DiMethylether (DME)
Chemical Formula	C ₃ H ₈ C ₄ H ₁₀ C ₂ H ₆ O
Trade Name	Dimethylether DME Prozone
Colour Coding	Protea pink with a red shoulder
Product Code	544101-LF
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: customer.service@afrox.linde.com www.afrox.com
Emergency Numbers	0860 02 02 02 (Afrox)

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. - Dimethylether does not support life
Adverse Health Effects	- Asphyxiant
Chemical Hazards	- Extremely Flammable
Biological Hazards	- The greatest physiological effect of Dimethylether is to cause asphyxiation.
Vapour Inhalation	- Asphyxiation
GHS Classification	Flammable liquids (Category 1), Acute toxicity, Oral (Category 4), Specific target organ toxicity - single exposure (Category 3), Respiratory system

GHS Pictogram	
GHS Signal Words	Danger
GHS Hazard Statements	H224: Extremely flammable liquid and vapor H302: Harmful if swallowed H335: May cause respiratory irritation H336: May cause drowsiness or dizziness
GHS Precautionary Statements	Prevention: P210: Keep away from heat/sparks/open flames/hot surfaces. No smoking P264: Wash hands thoroughly after handling product P270: Do not eat, drink or smoke when using this product P261: Avoid breathing gas/mist/fumes/vapours/spray P271: Use only outdoors or in a well-ventilated area Response: P377: Leaking gas fire: Do not extinguish unless leak can be stopped safely. P381: Eliminate all ignition sources if safe to do so P301 + P312: IF SWALLOWED: Call a Medical professional P330: Rinse mouth thoroughly P304 + P340: IF INHALED: Remove person to fresh air and keep comfortable for breathing Storage: P403 + P233: Store in a well-ventilated place. Keep container tightly closed. - if product is volatile so as to generate hazardous atmosphere P405: Store locked up Disposal P501: Do not dispose of product or cylinder, return to supplier
Other Hazards that do not result in classification	- Asphyxiant in high concentrations

3. COMPOSITION OF INGREDIENTS	
Chemical name	Propane
Chemical family	
CAS No	74-98-6
UN No	1075 (gas)
ERG No	115
Hazard class	Class 2.1
Hazchem Warning	2C Flammable gas
Chemical name	Butane
Chemical family	
CAS No	106-97-8
UN No	1075
ERG No	115

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Hazard class	Class 2.1
Hazchem Warning	2C Flammable gas
Chemical name	Ethanol
Chemical family	
CAS No	64-17-5
UN No	1170
ERG No	127
Hazard class	Class 3
Hazchem Warning	2YE Flammable gas

Special fire fighting procedures:	- 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.
Special protective equipment for firefighters:	- 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.

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.

5. FIRE-FIGHTING MEASURES

Suitable extinguishing media	- Material will burn. In case of fire in the surroundings: use appropriate extinguishing agent. Carbon dioxide (CO2) Foam Dry powder
Unsuitable extinguishing media:	- For this substance/mixture no limitations of extinguishing agents are given
Specific Hazards	- Extremely flammable gas. Contains gas under pressure; may explode if heated. Carbon oxides. Combustible. Pay attention to flashback. Vapors are heavier than air and may spread along floors. Development of hazardous combustion gases or vapours possible in the event of fire. Forms explosive mixtures with air at ambient temperatures.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures:	- WARNING! Liquid and gas under pressure. Rapid release of gaseous 2%Propane,3%Butane BAL Ethanol 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.
Environmental Precautions	- Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Risk of explosion.
Methods and material for containment and cleaning up:	- Provide adequate ventilation.

7. HANDLING AND STORAGE

Safe Handling	-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. 'Suckback' of water into the container must be prevented. Do not allow backfeed into the container. Observe all
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	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.
Conditions for safe storage, including any incompatibilities	-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.

	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.
Eyes	-Wear safety glasses
Hands	-Guideline: Protective gloves against mechanical risks. -Additional Information: Wear working gloves while handling containers
Body protection:	- Flame Retardant overall - Anti-static materials for clothes
Feet	- Wear safety shoes while handling containers. - Anti-static safety boots

9. PHYSICAL AND CHEMICAL PROPERTIES	
Chemical Name	<u>Dimethylether</u>
Chemical Symbol	C ₃ H ₆ C ₄ H ₁₀ C ₂ H ₆ O
Physical state	Gas Liquid
Form:	Liquid
Colour:	Colourless
Odour:	Ethelial
Odour Threshold:	Not known
pH:	No effect in water
Melting Point:	-138°C
Boiling Point:	-0.5
Sublimation Point:	Not applicable
Critical Temp. (°C):	151.85°C
Flash Point:	-60°C
Evaporation Rate:	Not applicable.
Flammability (gas):	Extremely Flammable
Flammability limit - upper (%):	8.4%
Flammability limit - lower(%):	1.8%
Vapour pressure:	Not applicable
Vapour density (air=1)	1.988 @ 20°C
Relative density:	1.657 @ 20 °C)
Solubility(ies)	
Solubility in Water:	Not known
Partition coefficient (n-octanol/water):	log Pow: 1,1 - Bioaccumulation is not expected
Autoignition Temperature:	175 °C
Decomposition Temperature:	Not known.
Viscosity	
Kinematic viscosity:	No data available.
Dynamic viscosity:	0,195 mPa.s at 40°C
Explosive properties:	Not applicable
Oxidising Properties:	Not applicable

8. EXPOSURE CONTROLS AND PERSONAL PROTECTION	
Occupational Exposure Hazards (HCS)	- OEL eight-hour TW 800 ppm - OEL-STEL/C 1000 ppm
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. A Risk assessment should be conducted to evaluate the suitability of PPE to the task being performed
Personal Protection	- 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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Molecular weight	46 g/mole
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10. STABILITY AND REACTIVITY

Reactivity	-Extremely flammable
Chemical stability	- Stable under normal conditions
Possibility of hazardous reactions	- Extremely flammable and explosive
Conditions to avoid	- 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.
Incompatible Materials	Oxidizers, rubber, plastics
Hazardous Decomposition of Products	Will not produce any hazardous products

11. TOXOLOGICAL INFORMATION

Acute Toxicity	Acute toxicity estimates Oral - 1.211 mg/kg
Skin & eye contact	Not available
Chronic Toxicity	Not available
Carcinogenicity	Not available
Mutagenicity	Not available
Reproductive Hazards	Not available

12. ECOLOGICAL INFORMATION

Toxicity	Not available.
Persistence and degradability	Not readily biodegradable
Bioaccumulative Potential Product	No bioaccumulation is to be expected
Mobility in soil	Not available.
Results of PBT and vPvB assessment	Not available
Other adverse effects	Not available
Effect on ozone layer	Not available
Effect on the global warming (CO₂=1)	Not available

13. DISPOSAL CONSIDERATIONS

Disposal Methods	- Do not discharge into any place where its accumulation could be dangerous. Vent to atmosphere in a well-ventilated place. .
Disposal of Packaging	- The container is the property of the supplier, and the disposal of the containers must only be handled by the supplier.

14. TRANSPORT INFORMATION

Road Transportation	
UN No.	1155
Shipping Name	Dimethylether

ERG No.	115
Class	2.1
Subsidiary Risk	Flammable
Hazchem Warning	2A Flammable Gas

Sea Transportation

IMDG	1155
Shipping Name	Dimethylether
ERG No.	115
Class	2.1
Subsidiary Risk	Flammable
Label	2A Flammable Gas

Air Transportation

ICAO/IATA Code	1155
Class	2.1
Packing Group:	1
Packaging instructions	- Cargo: 150kg - Passenger: not allowed

15. REGULATORY INFORMATION

EEC Hazard class: Toxic, Corrosive gas. National legislation OHSact and Regulations 85 of 1993.	
SANS 11014:2010 Edition 1	Safety data sheet for chemical products - Content and order of sections
SANS 10228:2012 Edition 6	The identification and classification of dangerous goods for transport by road and rail modes
SANS 10234:2019 Edition 2	Globally Harmonized System of classification and labelling of chemicals (GHS)
SUPPLEMENT TO SANS 10234 Edition 1	List of classification and labelling of chemicals in accordance with the Globally Harmonized System (GHS)

16. OTHER INFORMATION

- Ensure all national/local regulations are observed.
- Ensure users and relevant persons understand the flammable and explosive hazard
- Regularly check supplier's information sources for updated versions of SDS's

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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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