

# MATERIAL SAFETY DATA SHEET

## R502

### 1. PRODUCT AND COMPANY IDENTIFICATION

**Product Name** R502

**Trade Names** R502

**Company Identification:**

African Oxygen Limited

23 Webber Street

Johannesburg

Tel No: (011) 490 0400

Fax No: (011) 490 0506

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### 2. COMPOSITION /INFORMATION ON

#### INGREDIENTS

Chemical Name Chlorodifluoromethane

(R22)

CAS No: 75-45-6

Proportion (%) 48.8

Chloropentafluoroethane

(R115)

CAS No: 76-15-3

Proportion (%) 51.2

UN No: 1973

ERG No: 126

Hazchem code 2RE

Dangerous Goods 2.2

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### 3. HAZARDS IDENTIFICATION

**Main Hazards.** All cylinders are portable gas containers, and must be treated as pressure vessels at all times. Uncontrolled release of compressed gas may cause physical injuries. Cylinders should never be exposed to excessive temperatures as this may cause rupturing of the cylinders with escape of the gas.

**Adverse health effects.** Uncontrolled release of compressed gas may cause physical injuries in addition to the following health effects:

**Swallowed:** Unlikely exposure route. If swallowed discomfort in the gastrointestinal tract would result from rapid evaporation of liquid and consequent

evolution of gas. Some of the effects of inhalation would be expected. Necrosis from freezing of tissue could occur.

**Eye:** May cause irritation and cold burns.

**Skin:** May cause irritation and cold burns.

**Inhaled:** May replace oxygen in the inhaled air and cause asphyxiation. As the amount of oxygen inhaled is reduced from 21 to 14 volume % the pulse rate will accelerate and the rate and volume of breathing will increase. The ability to maintain attention and think clearly is diminished, muscular co-ordination is somewhat disturbed. As oxygen decreases from 14 to 10 volume % judgment becomes faulty, severe injuries may cause no pain. Muscular effort leads to rapid fatigue. Prolonged exposure to high concentrations may result in sensitization to the effects of adrenalin on the heart. Further reduction to 6% may cause nausea and vomiting. Ability to move may be lost. Permanent brain damage may result even after resuscitation from exposure to this low level of oxygen. Below 6% breathing is in gasps and convulsions may occur. Inhalation of a mixture containing no oxygen may result in unconsciousness from the first breath and death will follow in a few minutes. (adopted from Henderson and Haggard).  
**Chronic:** Thought to be mutagenic and teratogenic. Women of childbearing age should have exposure limited.

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### 4. FIRST-AID MEASURES

Rescue personnel must use self-contained breathing apparatus when entering confined spaces and poorly ventilated areas.

**Swallowed:** Do not induce vomiting unless instructed to do so by Doctor.

**Eye:** Rinse immediately with plenty of water. If irritation persists contact doctor or poisons

information center.

**Skin:** Wash area with warm water. If irritation persists contact doctor or poison information center.

**Inhaled:** Remove from exposure. Check there is no obstruction to the airway if breathing is weak or has ceased and give artificial respiration, preferably using an oxygen resuscitator. Keep warm and rested. Seek medical attention. Further treatment should be symptomatic and supportive.

**Advice to Doctor:** Use of adrenalin and other catecholamines may be contraindicated due to possible cardiac sensitization. Treatment for asphyxia.

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## 5. FIRE FIGHTING MEASURES

Extinguishing media. Dry powder. Fog-water spray.

**Specific hazards:** Exposure to fire may cause containers to rupture/explode. Non-flammable. Hazardous decomposition products such as hydrogen fluoride and hydrogen chloride may be formed. Cool cylinders exposed to fire by applying water from a protected location. Do not approach cylinders suspected of being hot. Remove cool cylinders from the path of the fire. Evacuate the area if unable to keep cylinders cool.

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

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## 6. ACCIDENTAL RELEASE MEASURES

Personal Precautions: R502 is a simple asphyxian, care should be taken when entering confined spaces where leaks have taken place. Wear self-contained breathing apparatus. Methods for cleaning up: Ventilate area. Environmental precautions: Try to stop release. Prevent from entering sewers, basements and work pits, or place where its accumulation can be dangerous.

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## 7. HANDLING AND STORAGE

Cylinders should always be transported in the upright position, with the valve uppermost, and be firmly secured. Also, cylinders should be stored upright, prevented from falling, in a secure area away from flammable or combustible materials; below 45 deg C,

in a dry, well ventilated constructed of noncombustible material with firm level floor.

Shipping name: Chlorodifluoromethane and chloropentafluoroethane mixture. Transport: E.P.G. card: 2C2.

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 period of time. Compliance of all relevant legislation is essential. Keep away from children.

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## 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Occupational exposure hazards:

**Engineering control measures:** Engineering control measures are preferred to reduce exposures. Securely connect decanting control equipment having suitable pressure and flow rating with connection to match cylinder valve outlet. Cylinders should be positioned in well ventilated areas, preferably outside a building. Mechanical lifting devices and trolleys should be used to lift and move cylinders. Personal injury and mechanical damage to cylinder valve and connected equipment may result from falling cylinders. Secure cylinders against falling at all times, especially when in use. Ensure cylinder valve is shut and equipment depressurized and purge with inert gas before commencing maintenance and repairs. Any source of ignition such as lighted cigarettes, flames, hot spots and welding may produce toxic and corrosive decomposition products.

**Personal Protection:** Avoid contact with escaping gas and liquid. Only experienced and properly trained people should use this product. Wear safety goggles, safety shoes, use impervious nitrile gloves when moving, connecting and operating cylinders. Open cylinder valve slowly to avoid pressure shock and close when not in use.

Ensure adequate ventilation. Do not smoke while handling product. Protect eyes, face and skin from contact with a product.

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## 9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance: Water white volatile liquid with a slight ethereal odour

Boiling point (at 101.32kPa): -45.6 deg. C

Vapour pressure (at 25 deg. C): 1155 kPa

Relative density (0 deg. C, 101.32 kPa, Air = 1): 4.3

Flashpoint (deg. C): Non-flammable

Lower flammability limit (%): Non-flammable

Upper flammability limit (%): Non-flammable

Solubility in water (101.32 kPa, 20 deg. C): 0.3 cm<sup>3</sup>/cm<sup>3</sup>

Critical pressure kPa: 4260

Liquefiable gas, critical temperature deg. C: 90.1

Odour threshold: Not determined

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## 10. STABILITY AND REACTIVITY

May react violently with sodium, potassium, barium and other alkali or alkaline earth metals and finely divided metals. Compounding ingredients in natural rubber can be extracted during rapid liquid withdrawal and will swell.

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## 11. TOXICOLOGICAL INFORMATION

Thought to be mutagenic and teratogenic. Women of child bearing age should have exposure limited

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## 12. ECOLOGICAL INFORMATION

General: Covered by the 'Montreal Protocol'. May have damaging effects on ozone layer. When discharged in large quantities may contribute to the greenhouse effect.

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## 13. DISPOSAL CONSIDERATION

**General:** Must not be discharged to the atmosphere. Do not discharge to any place where its accumulation could be dangerous.

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## 14. TRANSPORT INFORMATION

UN No: 1973

Labeling ADR: Label 2.2: non-flammable non-toxic gas.

**Other transport information:** Avoid transport on vehicles where the load space is not separated from the driver's compartment. Ensure vehicle driver is aware of the potential hazards of the load and knows what to do in the event of an accident or an

emergency. Before transporting product containers ensure that they are firmly secured and: valve outlet cap nut or plug (where provided) is correctly fitted. Valve protection device (where provided) is correctly fitted. There is adequate ventilation. Compliances with applicable regulations.

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## 15. REGULATORY INFORMATION

**Number in annex I of Dir 67/548:** Not include in Annex I

**EC Classification:** N; R59

**Symbols:** N: Dangerous for the environment

**Symbols;** Label 22: non-flammable non-toxic gas

**Risk phrases:** R59 Dangerous for the ozone layer.

**Safety phrases:** S59 Refer to manufacture/ supplier for

information on recovery/recycling

S61 Avoid release to the environment. Refer to special instructions/Safety data sheets.

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## 16. OTHER INFORMATION

Ensure all national/ regulations are observed.

Asphyxiant in high concentrations. Keep container in well ventilated place. Do not breathe the gas. The hazard of asphyxiation is often overlooked and must be stressed during operator training. Users of breathing apparatus must be trained. Contact with liquid may cause cold burns/frostbite.

Before using this product in any new process or experiment, a thorough material compatibility and safety study should be carried out.

Details given in this document are believed to be correct at the time of going press. Whilst proper care has been taken in the preparation of this document, no liability for injury or damage resulting from its use can be accepted.

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