



MATERIAL SAFETY DATA SHEET

R401A

PRODUCT AND COMPANY IDENTIFICATION

Product Name R401A

Trade Names R401A

Company Identification:

African Oxygen Limited

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Johannesburg

Tel No: (011) 490 0400

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2. COMPOSITION /INFORMATION ON

INGREDIENTS

ERG No: 126

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.

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/Skin: Contact with product may cause cold burns or frostbite.

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 without medical advice.

Eye: Rinse immediately with plenty of water for at

least 15 minutes. Keep eye wide open while rinsing.

If symptoms persist, obtain medical assistance.

Skin/Eye contact: In case of frostbite spray with water for at least 15 minutes. Apply a sterile dressing. Immediately flush eyes thoroughly with water for at least 15 minutes. Obtain medical assistance.

Inhalation : In low concentrations may cause narcotic effects. Symptoms may include dizziness, headache, nausea and loss of co-ordination.

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. Call a doctor. Apply artificial respiration if breathing has stopped.

Ingestion: Ingestion is not considered a potential route of exposure.

5. FIRE FIGHTING MEASURES

Exposure to fire may cause containers to rupture/explode. Not flammable.

Specific hazards: If involved in a fire following toxic and/or corrosive fumes may be produced by thermal decomposition: Hydrogen chloride, Hydrogen fluoride, Carbon monoxide, Phosgene, Carbonyl fluoride.

Suitable extinguishing media: All known extinguishants can be used.

Specific methods: If possible, stop flow of product. Move away from the container and cool with water from a protected position.

Special protective equipment for fire fighters:

Use self-contained breathing apparatus and chemically protective clothing.

6. ACCIDENTAL RELEASE MEASURES

Personal Precautions: Evacuate area.

Wear self-contained breathing apparatus when entering area unless atmosphere is proved to be safe. Ensure adequate air ventilation.

Environmental Precautions: Try to stop release. Prevent from entering sewers, basements and workpits, or any place where its accumulation can be dangerous.

Methods for cleaning up: Ventilate area.

7. HANDLING AND STORAGE

Cylinders should be stored upright and prevented from falling. Secure them away from flammable or combustible materials, in a dry, well ventilated construction of non-combustible material with firm level floor.

Suck back of water into the container must be prevented. Do not allow backfeed into the container.

Use only properly specified equipment, which is suitable for this product, its supply pressure and temperature. Keep container below 50 deg. Celsius in a well ventilated place.

Use the "first in – first out" inventory system to prevent full cylinders from being stored for excessive periods of time. Compliance of all relevant legislation is essential. Keep away from children.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Occupational exposure hazards:

Personal Protection: Ensure adequate ventilation. Protect eyes, face and skin from liquid splashes. In case of insufficient ventilation wear suitable respiratory equipment, preferably compressed airline breathing apparatus. Wear as appropriate: safety glasses, goggles, face-shield and protective suit for abnormal processing problems. Do not smoke while handling product.

9. PHYSICAL AND CHEMICAL PROPERTIES

Molecular weight: 94.4

Appearance/Colour: Colourless gas

Odour: Ethereal. Poor warning properties at low

concentrations.

Critical temperature: 108 deg. C

Boiling point /range: -33.1 deg. C

Melting point/range:

Solubility mg/l water: No reliable data available.

Relative density, gas 3.3 (air = 1)

Relative density, liquid 1.2 (water = 1)

Vapour pressure at 20 deg. C 5.7 bar

Other data: Gas/ vapour heavier than air. May accumulate in confined spaces, particularly at or below ground level.

10. STABILITY AND REACTIVITY

Stability and reactivity: Stable under normal.

Thermal decomposition yields toxic products which can be corrosive in the presence of moisture.

Incompatible materials: Alkali metals. May react with aluminium.

11. TOXICOLOGICAL INFORMATION

General: May produce irregular heart beat and Nervous symptoms.

12. ECOLOGICAL INFORMATION

General: When discharged in large quantities may contribute to the greenhouse effect. May have damaging effect on ozone layer.

Covered by the 'Montreal Protocol'

Global warming factor: 1082 (CO₂ = 1)

Ozone depletion factor: 0.04 (R11 = 1)

13. DISPOSAL CONSIDERATIONS

General: Must not be discharged to atmosphere.

Do not discharge into any place where its accumulation could be dangerous. Refer to supplier's waste gas recovery programme.

Contact supplier if further guidance is required.

14. TRANSPORT INFORMATION

UN No: 3163

ADR/RID Classification code: 2A

Class/Div: 2.2

ADR/RID Item Nr. 2,2 deg. A

ADR/RID Hazard Nr. 20

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.

15. REGULATORY INFORMATION

Number in Annex 1 of Dir 67/548: Not applicable for preparations

EC Classification: Not classified as dangerous substance

Labeling of cylinder – symbol: Label 2: nonflammable non-toxic gas.

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.

17. EXCLUSION OF LIABILITY

This Safety Data Sheet has been established in accordance with the applicable European Directives and applies to all countries that have translated the directives in their national laws.

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

Information contained in this publication is accurate at the date of publication. The company and its agencies do not accept liability arising from the use of this information, or the use, application, adaptation or

process of any products described herein.