

MATERIAL SAFETY DATA SHEET

R 406A

1 PRODUCT AND COMPANY IDENTIFICATION

PRODUCT IDENTIFICATION

Product Name	R®406A
Chemical Formula	Mixture containing chlorodifluoromethane, 1-chloro-1, 1-di-fluoroethane and isobutene
Company Identification	African Oxygen Limited 23 Webber Street Johannesburg, 2001
Emergency Phone Numbers	Tel. No: (011) 490-0400 Fax No: (011) 490-0506

2 COMPOSITION/INFORMATION ON INGREDIENTS

1-Chloro-1, 1-Difluoroethane

Concentration	41%
CAS nr	75-68-3
EINECS Nr	200-891-8
Symbols	F+
Phases ®	12,59

Chlorodifluoromethane

Concentration	55%
CAS nr	75-45-6
EINECS Nr	200-871-9
Phases ®	R:59

Isobutane

Concentration	4%
CAS nr	75-28-5
EINECS Nr	200-857-2
Symbols	F+
Phases ®	R:12

3 HAZARDS IDENTIFICATION

Hazards	Gas (liquefied). Presents an insignificant hazard to human health. In case of decomposition, releases dangerous products.
Identification	

4 FIRST AID MEASURES

Inhalation	At high concentrations, risk of narcosis, cardiac arrhythmia, asphyxia by lack of oxygen. Remove the subject from contaminated area. Oxygen or cardiopulmonary resuscitation if necessary. Consult with a physician in case of respiratory and nervous symptoms.
Skin Contact	Gas: none. Liquefied gas: cold sensation followed by redness of skin, risk of frostbite. Allow product to evaporate. Rinse with luke warm running water. Consult with a physician in case of persistent pain or redness.
Eye Contact	Gas: none. Liquefied gas: severe eye irritation, watering, redness and swelling of eyelids, risk of burns (frostbite). Keep eyelids open to allow evaporation of product. Flush eyes with running water for several minutes, while keeping the eyelids wide open. Consult with an ophthalmologist in case of persistent pain.
Ingestion	Impossible risk (gas).

5 FIRE FIGHTING MEASURES

Specific hazards	Non-flammable (See section 9). Formation of danger in case of decomposition (see section 10). Gas.vapours combustion possible in presence of air in very particular conditions (see section 9 and /or consult the producer).
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Hazardous Combustion Products

Suitable Extinguishing Media	In case of fire in close proximity, all means of extinguishing is acceptable.
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Specific methods	Evacuate all non-essential personnel. Contact only by capable personnel who are trained and aware of the hazards of the product. If safe to do so, remove the exposed containers, or cool with large quantities of water. After the fire, ventilation and clean the rooms before re-entry.
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Special protective Equipment for Fire fighters In all cases wear self-contained breathing apparatus.

Fire fighters	When in close proximity or contact wear acid resistant suit. After contact proceed to clean equipment (take shower, remove clothing carefully, clean and check.
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Personal precautions

Respect the protection measures given in section 5. Local ventilation. If safe to do so, without exposing personnel, try to stop spillage. Avoid materials and products which are incompatible with the product (see section 10).

Environmental Precautions

Avoid discharge into the environment (atmosphere).

Clean up

Let the product evaporate. Prevent the product from entering

Methods

sewers or confined places.

7 HANDLING AND STORAGE

Handling

Operate in well-ventilated area. Prevent any product decomposition vapours from contacting hot sports and electric arc action (post welding). Use only containers that are compatible with the substance. Keep away from sources of ignition, heat and reactive substances.

Storage

In a ventilated, cool area. Keep away from heat sources and reactive substances.

8 EXPOSURE CONTROLS/PERSONAL PROTECTION

Exposure limit for country

SAEL (Solvay)	1994-1995
TWA (ppm)	1000

Chlorodifluoromethane

TLV (ACGIH-USA)	1994-1995
TWA (ppm)	1000
TWA (mg/m3)	3540
LTEL: ppm	10

Personal Protection

None of the local exhaust ventilation is adequate. Self contained breathing apparatus if risk of decomposition, in medium confinement / insufficient oxygen / in case of large uncontrolled emissions / in al circumstances when the mask and cartridge do not give adequate protection. Use only respiratory protection that conforms to international / national standards. Protection gloves, chemical resistant, polyvinylalcohol. Wear protective goggles for all industrial operations. Chemical proof goggles / face shield if risk of splashing. For skin protection wear apron / boots of neoprene if risk of splashing. Shower and eye wash stations. Gloves, overalls and boots have to be double layered (protection against cold temperature). Consult your industrial hygienist or safety manger for the selection of personal protective equipment suitable for the working conditions.

9 PHYSICAL AND CHEMICAL PROPERTIES

PHYSICAL DATA

Melting point	
Boiling point	-32 to -23°C
Critical temperature	114 20°C
Relative density, gas	
Relative density, liquid	
Vapour Pressure 20°C	5.62 bar
Solubility g/l water	4.9
Appearance/Colour	pressurise liquefied gas - colourless
Odour	odourless
Autoignition Temperature	-632 to 635
Flammability range	No flammability limit in air but in case of leak of liquefied gas, the liquid phase can ignite if the concentration >60% in weight of R142b.

6 ACCIDENTAL RELEASE MEASURES

10 STABILITY AND REACTIVITY

Stability	Stable under certain conditions (see below). Decomposition produces dangerous gases, upon contact with flames or hot metallic surfaces.
Conditions to avoid	Heat / sources of heat
Materials to avoid	Metallic powders, alkaline-earth metals, alkaline metals and their alloys.
Hazardous decomposition Products	Hydrogen Fluoride, hydrochloric acid, Phosgene, Fluophosgene
Other information	Contact with strong bases or alkaline materials may provoke violent reactions or explosions. The vapour is heavier than air, dispersing at ground level.

11 TOXICOLOGICAL INFORMATION

General

LC50/1h (ppm) LD50 (Rat) – Ingestion of 7340 mg/kg

12 ECOLOGICAL INFORMATION

General Product is persistent in air (atmospheric lifetime: 14 years). Product is not significant hazardous for the aquatic environment as: Considerable volatility. No bioaccumulation.

13 DISPOSAL CONSIDERATIONS

General Comply with local and national regulations. Contact the producer for recycling. To avoid treatment, as far as possible, use dedicated containers.

14 TRANSPORT INFORMATION

ROAD TRANSPORTATION

UN No.	1078
Class/Div	
Subsidiary risk	
ADR/RID Item	No2,4 ^a
ADR/RID Hazard No	
Labelling ADR	20/1078
Other information	

15 REGULATORY INFORMATION

Number in Annex Not dangerous according to Dir. 88/379/EEC

EC Classification

- **Symbol**
 - **Labelling of cylinders** Labelling “Dangerous for environment” not classified in the absence of classification to be applied to dangerous preparations.
- criteria
- **Symbol**
- **Risk phases**
- **EEC Hazard Class**

16 OTHER INFORMATION

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 products described herein.



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For product and safety enquiries please phone

**EMERGENCY N°:
0860111185 (24 hr)**