

MATERIAL SAFETY DATA SHEET

R 410A

DATE: April 2007

1 PRODUCT AND COMPANY IDENTIFICATION

PRODUCT IDENTIFICATION

Product Name R 410A
 Chemical Formula Difluoromethane, Pentafluoroethane
 Company Identification African Oxygen Limited
 23 Webber Street
 Johannesburg, 2001
 Tel. No: (011) 490-0400
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2 COMPOSITION/INFORMATION ON INGREDIENTS

Trade Names R 410A
 Chemical Names: A preparation of Difluoromethane, Pentafluoroethane
 Chemical Family Mixtures of Hydrofluoroalkanes
 Synonyms Halocarbons
 UN No. 1078
 Hazchem Code: 2 TE
 Hazchem Warning 2C non-flammable, non toxic gas

3 HAZARDS IDENTIFICATION

Main Hazards

Adverse Contains a liquefied gas. Contact of liquid **health effects** may cause frostbite and injury to the cornea. In high concentrations may cause asphyxiation.

Chemical hazards Heating will cause a rise in pressure with a risk of bursting. On Combustion, toxic gases are released.

Biological hazards Contact with liquid could cause frost burns

Vapour inhalation High exposures may cause an abnormal heart rhythm and prove suddenly fatal. May have a narcotic effect, very high concentrations may cause anaesthetic effects and asphyxiation.

Eye Contact Vapour - unknown effect

Skin Contact Liquid - could cause serious burns

Ingestion Vapour - unknown effect

Liquid - see vapour inhalation above

4 FIRST AID MEASURES

Prompt medical attention is mandatory in all cases of overexposure to vapourised R410A. Rescue personnel should be equipped with self-contained breathing apparatus. Conscious persons should be assisted to an uncontaminated area and inhale fresh air. Quick removal from the contaminated area is most important. Unconscious persons should be removed to an uncontaminated area and given mouth-to-mouth resuscitation and supplemental oxygen. The use of adrenaline or similar drugs should be avoided.

Eye contact (Liquid) Rinse with water whilst keeping the eyes wide open for at least 15 minutes. Consult an eye specialist immediately.

Skin contact (Liquid) Thaw affected areas with water. Remove contaminated clothing and then rinse again with water. If it sticks, do not pull it off. Call a doctor immediately.

Ingestion Not Specifically applicable (gas).

Inhalation Remove patient from exposure, keep warm and at rest. Administer oxygen if necessary. Apply artificial respiration if breathing has ceased or shows signs of failing. In the event of cardiac arrest apply external cardiac massage. Obtain immediate medical attention.

5 FIRE FIGHTING MEASURES

Extinguishing media All extinguishing agents can be used. If there is a fire close by, use suitable extinguishing agents.

Specific hazards Pressurised container. On Heating there is a risk of bursting due to internal pressure build-up NOT flammable. However, it may present a risk in the event of fire. Toxic vapours (Halogen compound) are released.

Emergency Actions Stay upwind. Evacuate the personnel away from the fumes. Cool down the containers/equipment exposed to heat with a water spray.

Protective clothing Self-contained breathing apparatus. Safety gloves and shoes or boots should be worn when handling cylinders.

Environmental precautions Prevent the product from spreading into the environment

6 ACCIDENTAL RELEASE MEASURES

Personal Avoid contact with skin and eyes. Do not breathe gas. For further information refer to 8 "Exposure-controls/Personal Protection" Heavy vapours. Shut off low-level opening in the vicinity (ventilation shafts, drains) Prevent the product from entering cellars, basements or pits. Stop the leak. Ventilate spillage area and basements.

Environmental Prevent the product from spreading into the precautions environment. Contain the spilled material by bunding.

Small spills Shut off source of product. Ventilate area

Large spills Evacuate the area. Shut off the source of the spill if this can be done without risk. Restrict access to the area until completion of the clean-up procedure. Ventilate the area using forced-draft if necessary.

7 HANDLING AND STORAGE

Suck back of water/oil 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. Contact your gas supplier if in doubt. Refer to supplier's container handling instructions. Keep container below 50°C in a well ventilated place.

Do not allow cylinders to slide or come into contact with sharp edges. Cylinders should be stacked vertically at all times, and should be firmly secured in order to prevent them from being knocked over. Use a "first in - first out" inventory system to prevent full cylinders from being stored for excessive periods of time. Keep out of reach of children.

8 EXPOSURE CONTROLS/PERSONAL PROTECTION

Occupational As R410A is a simple asphyxiant, avoid exposure hazards any areas where spillage has taken place. Only enter once testing has proved the atmosphere to be safe, and remember that the gas is heavier than air.

Engineering Engineering control measures are preferred to control measures reduce exposures to oxygen depleted atmospheres. General methods include forced-draft ventilation, separate from other exhaust ventilation systems. Ensure that sufficient fresh air enters at, or near, floor level.

Personal protection Self-contained breathing apparatus should always be worn when entering area where oxygen depletion may have occurred. Safety goggles, gloves and shoes or boots should be worn when handling cylinders.

Skin No known effect.

9 PHYSICAL AND CHEMICAL PROPERTIES

PHYSICAL DATA

Chemical Symbol	Mixture
Molecular Weight	Mixture
Boiling point @ 101,325 kPa	-48.5°C
Specific Density (saturated vapour) at 21.1C	1.08
Vapour pressure @ 21.1°C bar	13.9
Colour	colourless

10 STABILITY AND REACTIVITY

Conditions to avoid The dilution of oxygen concentration in the atmosphere to levels which cannot support life.

Incompatible	Never use cylinders as rollers or supports, or for any other purpose than the storing of R410A. Never expose the cylinders to excessive heat, as this may cause sufficient build-up of pressure to rupture the cylinders. Since the performance of plastic materials is affected by polymer variations, compounding agents, fillers, and moulding processes, verifying compatibility using actual fabricated parts under end-use conditions is advised. The effects on specific elastomers depend on the nature of the polymer, the compounding formulation used and the curing of vulcanizing conditions. Actual samples should be tested under end-use conditions before specifying elastomers for critical components.
Hazardous Decomposition Products	On combustion or on thermal decomposition (pyrolysis) releases: toxic gases (Fluorinated compounds) (hydrofluoric acid)

11 TOXICOLOGICAL INFORMATION

Acute Toxicity (TWA 8+12 hr)	
Skin & eye contact	No known effect
Chronic Toxicity	No known effect
Carcinogenicity	No known effect
Mutagenicity	No known effect
Reproductive Hazards	No known effect
(For further information see Section 3. Adverse health effects)	

12 ECOLOGICAL INFORMATION

Prevent the product from spreading into the environment.

13 DISPOSAL CONSIDERATIONS

Disposal Methods	Do not allow the product to be released into the environment. Consult the manufacturer of supplier for information regarding recovery and recycling of the product.
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14 TRANSPORT INFORMATION

ROAD TRANSPORTATION

UN No.	1078
Hazchem code	2 TE

Hazchem warning	2 C Non-flammable gas
SEA TRANSPORTATION	
IMDG	1078
Class	2.2
Label	Non-flammable gas non toxic gas
AIR TRANSPORTATION	
ICAO/IATA Code	1078
Class	2.2

15 REGULATORY INFORMATION

EEC Hazard class	Non flammable gas
Risk phrases	Ras Asphyxiant in high concentrations. R34 Liquid phase could cause burns R44 Risk of explosion when heated under confinement R59 Dangerous for the ozone layer.
National legislation	None
Refer to SABS 0625 for explanation of the above.	
Safety phrases	S9 Keep container in a well-ventilated place S15 Keep away from heat S23 Do not breathe the gas S36 Wear suitable protective clothing S41 In case of fire/explosion do not breathe S51 Use only in well ventilated areas S59 Refer to manufacturer/supplier for information on recovery/recycling. S61 Avoid release to the environment.
National legislation	None
Refer to SABS 0625 for explanation of the above.	

16 OTHER INFORMATION

Bibliography
Occupational Exposure Standard (UK HSE EH40)

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

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