# AFROX

**MATERIAL SAFETY DATA SHEET**

**LIQUEFIED PETROLEUM GAS & PROPANE**

**DATE:** April 2001

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## 1 PRODUCT AND COMPANY IDENTIFICATION

**PRODUCT IDENTIFICATION**

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>Handigas (Liquefied Petroleum Gas)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chemical Formula</td>
<td>C3H8 PLUS C4 H10 PLUS C3 H6</td>
</tr>
<tr>
<td>Trade Name</td>
<td>Handigas</td>
</tr>
<tr>
<td>Colour Coding</td>
<td>Plascon Dark Admiralty Grey (SABS 1091 – G.12) body, with a Handigas decal affixed to the cylinder. All cylinders fitted with an internal eductor tube for liquid withdrawal shall be clearly marked with two Yellow (B.49) stripes painted diametrically opposite each other along the length of the cylinder.</td>
</tr>
<tr>
<td>Valve</td>
<td>Brass 5/8 inch BSP left hand female, either single or two-way outlet.</td>
</tr>
<tr>
<td>Company Identification</td>
<td>African Oxygen Limited</td>
</tr>
<tr>
<td>Tel. No</td>
<td>(011) 490-0400</td>
</tr>
<tr>
<td>Fax No</td>
<td>(011) 490-0506</td>
</tr>
</tbody>
</table>

## 2 COMPOSITION/INFORMATION

**Chemical Name** Butane / Propane / Propylene
**Chemical Family** Aliphatic Hydrocarbon

### 10752

**CAS No.**
- Butane: 106-97-8 UN No. 1075
- Propane: 74-98-6 UN No. 1978
- Propylene: 115-07-01 UN No. 1077

**UN No.** 1075
**ERG No.** 115
**Hazchem Warning** 2A Flammable gas

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## 3 HAZARDS IDENTIFICATION

**Main Hazards**

- All cylinders are portable gas containers, and must be regarded as pressure vessels at all times. Vapourised liquefied petroleum gas is highly flammable and can form explosive mixtures with air. The vapourised liquid does not support life. It can act as a simple asphyxiant by diluting the concentration of oxygen in the air below the levels necessary to support life. It can act as a simple asphyxiant.

**Adverse Health effects.**

- Prolonged inhalation of high concentrations has an anaesthetic effect.

**Chemical Hazards**

- Propane and butane (known most extensively in natural gas and natural gasoline, and from their corresponding applications) have several thousand industrial applications and many more in other fields. Their very broad application stems from their occurrences as hydrocarbons between un-mixed and in mixtures, have several thousand industrial applications and many more in other fields. Their very broad application stems from their occurrences as hydrocarbons between natural gas and natural gasoline, and from their corresponding properties. As a result of their wide application, misuse could result in serious chemical hazards.

**Biological Hazards.** Contact with the liquid phase of liquefied petroleum gases with the skin can result in frostbite.

**Vapour Inhalation**

As the vapourised liquid acts as a simple asphyxiant death may result from errors in judgement, confusion, or loss of consciousness which prevents self-rescue. At low oxygen concentrations, unconsciousness and death may occur in seconds without warning.

**Eye Contact**

The liquid can cause severe burn-like injuries.

**Skin Contact**

Contact with the liquid phase can cause severe burn-like injuries.

**Ingestion**

No known effect.

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## 4 FIRST AID MEASURES

Prompt medical attention is mandatory in all cases of overexposure to vapourised liquefied petroleum gas. Rescue personnel should be equipped with self-contained breathing apparatus. In the case of frostbite from contact with the liquid phase, place the frost-bitten part in warm water, about 40 - 42°C. If warm water is not available, or is impractical to use, wrap the affected part gently in blankets. Encourage the patient to exercise the affected part whilst it is being warmed. Do not remove clothing whilst frosted. 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.

**Eye Contact**

 Immediately flush with large quantities of tepid water, or with sterile saline solution. Seek medical attention.

**Skin Contact**

See above for handling of frostbite.

**Ingestion**

No known effect.

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## 5 FIRE FIGHTING MEASURES

**Extending media**

Do not extinguish fire unless the leakage can be stopped. DO NOT USE WATER JET. Use dry chemical, CO2, or foam.

**Specific Hazards**

The rupturing of cylinders or bulk containers due to excessive exposure to a fire could result in a BLEVE (Boiling Liquid Expanding Vapour Explosion), with disastrous effects. As the flammability limits in air for the main constituents of liquefied petroleum gas vary between approximately 2 and 11% by vol, extreme care must be taken when handling leaks.

**Emergency Actions**

If possible, shut off the source of the spillage. Evacuate area. Post notices “NO NAKED LIGHTS - NO SMOKING” Prevent liquid or vapour from entering sewers, basements and workpits. Keep cylinders or bulk vessels cool by spraying with water if exposed to a fire. If tanker has overturned, do not attempt to right or move it. CONTACT THE NEAREST AFROX BRANCH.

**Protective Clothing**

Self-contained breathing apparatus. Safety gloves and shoes, or boots, should be worn when handling containers.

**Environmental precautions.** Vapourised liquefied petroleum gas is heavier than air and could form pockets of oxygen-deficient atmosphere in low lying areas.

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## 6 ACCIDENTAL RELEASE MEASURES

**Personal Precautions.** Do not enter any area where liquefied petroleum gas has been spilled unless tests have shown that it is safe to do so.

**Environmental precautions.** The danger of widespread formation of explosive LPG/Air mixtures should be taken into account. Accidental ignition could result in a massive explosion.

**Small spills**

DO NOT extinguish the fire unless the leakage can be stopped immediately. Once the fire has been extinguished and all spills have been stopped, ventilate the area.

**Large spills**

Stop the source if it can be done without risk. Contain the leaking liquid, with sand or earth, or disperse with special water/fog spray nozzle. Allow to evaporate. Restrict access to the area until completion of the clean-up procedure. Ventilate the area using forced-draught if necessary. All electrical equipment must be flameproof.

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## 7 HANDLING AND STORAGE

Cylinders containing liquefied petroleum gas should only be handled and stored in the vertical position. Cylinders should never be rolled. Do not allow cylinders to slide or come into contact with sharp edges and they should be handled carefully. Ensure that cylinders are stored away from other oxidants. Comply with all local legislation.

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## 8 EXPOSURE CONTROLS/PERSONAL PROTECTION

**Occupational Exposure Hazards.** As vapourised LPG is a simple asphyxiant, avoid any areas where spillage has taken place.

**Engineering control measures**

Engineering control measures are preferred to reduce exposure to Oxygen-depleted atmospheres. General methods include forced-draught ventilation, separate from other exhaust ventilation systems. Ensure that all electrical equipment is flameproof.

**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 containers.

**Skin.** Wear loose-fitting overalls, preferably without pockets.

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## 9 PHYSICAL AND CHEMICAL PROPERTIES

**PHYSICAL DATA**
Specific Volume @ 20°C & 101,325 kPa  471ml/g
Auto ignition temperature ±450°C
Relative density (Air=1) @ 101,325 kPa +1.75
Flammability in air 2.2 - 9.5%
Colour - Liquid Clear
Taste None
Odour Ethyl Mercaptan added
Specification SABS 690

10 STABILITY AND REACTIVITY

Conditions to avoid The dilution of the oxygen concentration in the atmosphere to levels which cannot support life. The formation of explosive gas/air mixtures.

Incompatible Materials. Any common, commercially available metals may be used with commercial (or higher) grades of liquefied petroleum gases because they are non-corrosive, though installations must be designed to withstand the pressures involved and must comply with all state and local regulations.

Hazardous Decomposition Products. The constituents of liquefied petroleum gas are relatively stable. However, on combustion, toxic compositions, typically carbon monoxide, may be formed, depending on conditions.

11 TOXICOLOGICAL INFORMATION

Acute Toxicity TLV 1000 VPM.
Skin & eye contact No known effect.
Carcinogenicity Severe cold burns can result in carcinoma.
(For further information see Section 3. Adverse Health Effects).

12 ECOLOGICAL INFORMATION
Vapourised liquefied petroleum gas is heavier than air, and can cause pockets of oxygen-depleted atmosphere in low-lying areas. It does not pose a hazard to the ecology, unless the gas/air mixture is ignited.

13 DISPOSAL CONSIDERATIONS

Disposal Methods. Disposal of liquefied petroleum gases, as with other gases, should be undertaken only by personnel familiar with the gas and the procedures for disposal. Contact the supplier for instructions. In general, should it become necessary to dispose of liquefied petroleum gases, the best procedure, as for other flammable gases, is to burn them in any suitable burning unit available in the plant. This should be done in accordance with appropriate regulations.

Disposal of packaging. The disposal of cylinders must only be performed by the gas supplier.

14 TRANSPORT INFORMATION

ROAD TRANSPORTATION
UN No. 1075
ERG No. 115
Hazchem warning 2A-Flammable gas

SEA TRANSPORTATION
IMDG 1075
Label Flammable gas

AIR TRANSPORTATION
ICAO/IATA Code 1075
Class 2.1
Packaging instructions
- Cargo 200
- Passenger Forbidden
Maximum quantity allowed
- Cargo 150kg
- Passenger Forbidden

15 REGULATORY INFORMATION

EEC Hazard class Flammable
Risk phrases R2 Risk of explosion by shock, friction, fire or other sources of ignition
R13 Extremely flammable liquefied gas
R18 In use may form flammable explosive vapour-air mixture
R44 Risk of explosion if heated under confinement

Safety phrases S2 Keep out of reach of children
S3 Keep in a cool place
S4 Keep away from living quarters
S9 Keep container in a well-ventilated place
S15 Keep away from heat
S16 Keep away from sources of ignition
S29 Do not empty into drains
S33 Take precautionary measures against static discharges
S38 In case of insufficient ventilation, wear suitable respiratory equipment
S41 In case of fire and/or explosion do not breathe fumes
S51 Use only in well-ventilated areas

Refer to SABS 0265 for explanation of the above.

16 OTHER INFORMATION
Bibliography
Compressed Gas Association, Arlington, Virginia
Handbook of Compressed Gases - 3rd Edition
SABS 0265 - Labelling of Dangerous Substances

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