



BOC Limited
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MATERIAL SAFETY DATA SHEET

PRODUCT NAME **HANDIGAS**

1. IDENTIFICATION OF THE MATERIAL AND SUPPLIER

Supplier Name	BOC LIMITED (AUSTRALIA)
Address	10 Julius Avenue, North Ryde, NSW, AUSTRALIA, 2113
Telephone	+61 131 262, (02) 8874 4400
Fax	+61 132 427 (24 hours)
Emergency	1800 653 572 (24/7) (Australia only)
Web Site	http://www.boc.com.au/
Synonym(s)	PRODUCT CODES: 0110 HANDIGAS (ALL HEATING CYLINDERS) • 0111 HANDIGAS FORKLIFT, 0115 HANDISWAP, 0761 • 0765 AND 0763 ALL LPG BULK, 0768 AUTOGAS • 0118 & 0118P HANDIGAS - HOSPITALITY
Use(s)	FUEL
MSDS Date	11 September 2007

2. HAZARDS IDENTIFICATION

NOT CLASSIFIED AS HAZARDOUS ACCORDING TO NOHSC CRITERIA

CLASSIFIED AS A DANGEROUS GOOD BY THE CRITERIA OF THE ADG CODE

UN No.	1075	DG Class	2.1	Subsidiary Risk(s)	None Allocated
Pkg Group	None Allocated	Hazchem Code	2WE	EPG	2A2

3. COMPOSITION / INFORMATION ON INGREDIENTS

Ingredient	Formula	CAS No.	Content
PROPANE	C3-H8	74-98-6	>90%
HYDROCARBONS	Not Available	Not Available	<10%
DIENES	Not Available	Not Available	<0.3%

4. FIRST AID MEASURES

Eye	Treatment for cold burns: Immediately flush with tepid water or with sterile saline solution. Hold eyelids apart and irrigate for 15 minutes. Seek medical attention.
Inhalation	Remove from area of exposure immediately. If assisting a victim avoid becoming a casualty, wear an Air-line respirator or Self Contained Breathing Apparatus (SCBA). Be aware of possible explosive atmospheres. If victim is not breathing apply artificial respiration and seek urgent medical attention. Give oxygen if available. Keep warm and rested.
Skin	Cold burns: Remove contaminated clothing and gently flush affected areas with warm water (30 C) for 15 minutes. Apply sterile dressing and treat as for a thermal burn. For large burns, immerse in warm water for 15 minutes. DO NOT apply any form of direct heat. Seek immediate medical attention.
Ingestion	For advice, contact a Poison Information Centre on 13 11 26 (Australia Wide) or a doctor. Ingestion is considered unlikely due to product form.
Advice to Doctor	Treat symptomatically

5. FIRE FIGHTING MEASURES

Flammability	Highly flammable. Heating to decomposition produces acrid smoke and irritating fumes. Product will add fuel to a fire. Eliminate all ignition sources including cigarettes, open flames, spark producing switches/tools, heaters, naked lights, pilot lights, mobile phones etc. when handling.
Fire and Explosion	Highly flammable. Temperatures in a fire may cause cylinders to rupture and internal pressure relief devices to be activated. Call fire brigade. This product will add fuel to a fire. Cool cylinders exposed to fire by applying water from a protected location. Do not approach cylinders suspected of being hot.
Extinguishing	Stop flow of gas if safe to do so, such as by slowly closing the cylinder valve. If the gas source cannot be isolated, do not extinguish the flame, since re-ignition and explosion could occur. Await arrival of emergency services or manufacturer's advisor. Drench and cool cylinders with water spray from protected area at a safe distance. If it is absolutely necessary to extinguish the flame, use only a dry chemical powder extinguisher. Do not move cylinders for at least 24 hours. Avoid shock and bumps to cylinders.
Hazchem Code	2WE

6. ACCIDENTAL RELEASE MEASURES

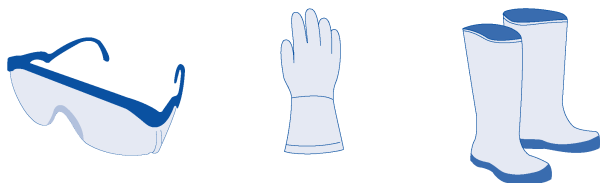
Spillage	GAS CYLINDERS: If the cylinder is leaking, eliminate all potential ignition sources and evacuate area of personnel. Inform manufacturer/supplier of leak. Wear appropriate PPE and carefully move it to a well ventilated remote area, then allow to discharge. Do not attempt to repair leaking valve or cylinder safety devices.
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7. STORAGE AND HANDLING

Storage	Do not store near sources of ignition or incompatible materials. Cylinders should be stored below 45 C in a secure area, upright and restrained to prevent cylinders from falling. Cylinders should also be stored in a dry, well ventilated area constructed of non-combustible material with firm level floor (preferably concrete), away from areas of heavy traffic and emergency exits.
Handling	Before use carefully read the product label. Use of safe work practices are recommended to avoid eye or skin contact and inhalation. Observe good personal hygiene, including washing hands before eating. Prohibit eating, drinking and smoking in contaminated areas.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Exposure Standards	PROPANE (74-98-6) ES-TWA: Asphyxiant ES-TWA#: 1000 ppm (NIOSH, ACGIH)
Biological Limit Values	No biological limit allocated.
Engineering Controls	Maintain adequate ventilation. Confined areas (eg. tanks) should be adequately ventilated or gas tested. Maintain vapour levels below the recommended exposure standard.
PPE	Wear safety boots, leather gloves and safety glasses. Where an inhalation risk exists, wear an Air-line respirator or self Contained Breathing Apparatus (SCBA).



9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance	COLOURLESS GAS	Solubility (water)	0.07 cm ³ /cm ³
Odour	CHARACTERISTIC ODOUR	Specific Gravity	NOT AVAILABLE
pH	NOT AVAILABLE	% Volatiles	NOT AVAILABLE
Vapour Pressure	1050 kPa @ 25°C (Propane)	Flammability	HIGHLY FLAMMABLE
Vapour Density	1.53 to 2.00 (Air = 1)	Flash Point	NOT AVAILABLE
Boiling Point	-42.1°C (Propane)	Upper Explosion Limit	9.5 %
Melting Point	NOT AVAILABLE	Lower Explosion Limit	1.8 %

PRODUCT NAME **HANDIGAS**

Evaporation Rate NOT AVAILABLE **Autoignition Temperature** 460°C (Approximately)

10. STABILITY AND REACTIVITY

Material to Avoid Incompatible with oxidising agents, acids, heat and ignition sources. Do not use natural rubber flexible hoses. Also incompatible (potentially violently) with oxygen, halogens and metal halides.

Decomposition Heating to decomposition produces acrid smoke and irritating fumes.

11. TOXICOLOGICAL INFORMATION

Health Hazard Summary Asphyxiant gas. Symptoms of exposure are directly related to displacement of oxygen from air. As the amount of oxygen inhaled is reduced from 21-14% 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 14-10% volume, judgement becomes faulty, severe injuries may cause no pain. Muscular effort lead to rapid fatigue. 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 minutes.

Eye Non irritating. However, direct contact with evaporating liquid may result in severe cold burns with possible permanent damage.

Inhalation Non irritating - Asphyxiant. Effects are proportional to oxygen displacement.

Skin Non irritating. Contact with evaporating liquid (eg. cold vessels or pipes containing low pressure liquid) may result in frost-bite with severe tissue damage.

Ingestion Due to product form, ingestion is considered highly unlikely.

Toxicity Data No LD50 data available for this product.

12. ECOLOGICAL INFORMATION

Environment No known ecological damage is caused by this product.

13. DISPOSAL CONSIDERATIONS

Waste Disposal Cylinders should be returned to the manufacturer or supplier for disposal of contents.

Legislation Dispose of in accordance with relevant local legislation.

14. TRANSPORT INFORMATION

Transport Ensure cylinder is separated from driver and that outlet of relief device is not obstructed.



CLASSIFIED AS A DANGEROUS GOOD BY THE CRITERIA OF THE ADG CODE

Shipping Name	PETROLEUM GASES, LIQUEFIED				
UN No.	1075	DG Class	2.1	Subsidiary Risk(s)	None Allocated
Pkg Group	None Allocated	Hazchem Code	2WE	EPG	2A2

15. REGULATORY INFORMATION

Poison Schedule A poison schedule number has not been allocated to this product using the criteria in the Standard for the Uniform Scheduling of Drugs and Poisons (SUSDP).

AICS All chemicals listed on the Australian Inventory of Chemical Substances (AICS).

16. OTHER INFORMATION

Additional Information APPLICATION METHOD: Gas regulator of suitable pressure and flow rating fitted to cylinder or manifold with low pressure gas distribution to equipment. This controls fuel gas mixture and flame.

ABBREVIATIONS:

ADB - Air-Dry Basis.

CAS# - Chemical Abstract Service number - used to uniquely identify chemical compounds.

CNS - Central Nervous System.

IARC - International Agency for Research on Cancer.

M - moles per litre, a unit of concentration.

mg/m³ - Milligrams per cubic metre.

NOS - Not Otherwise Specified.

pH - relates to hydrogen ion concentration using a scale of 0 (high acidic) to 14 (highly alkaline).

ppm - Parts Per Million.

TWA/ES - Time Weighted Average or Exposure Standard.

PERSONAL PROTECTIVE EQUIPMENT GUIDELINES:

The recommendation for protective equipment contained within this Chem Alert report is provided as a guide only. Factors such as method of application, working environment, quantity used, product concentration and the availability of engineering controls should be considered before final selection of personal protective equipment is made.

HEALTH EFFECTS FROM EXPOSURE:

It should be noted that the effects from exposure to this product will depend on several factors including: frequency and duration of use; quantity used; effectiveness of control measures; protective equipment used and method of application. Given that it is impractical to prepare a Chem Alert report which would encompass all possible scenarios, it is anticipated that users will assess the risks and apply control methods where appropriate.

Report Status This document has been compiled by RMT on behalf of the manufacturer of the product and serves as the manufacturer's Material Safety Data Sheet ('MSDS').

It is based on information concerning the product which has been provided to RMT by the manufacturer or obtained from third party sources and is believed to represent the current state of knowledge as to the appropriate safety and handling precautions for the product at the time of issue. Further clarification regarding any aspect of the product should be obtained directly from the manufacturer.

While RMT has taken all due care to include accurate and up-to-date information in this MSDS, it does not provide any warranty as to accuracy or completeness. As far as lawfully possible, RMT accepts no liability for any loss, injury or damage (including consequential loss) which may be suffered or incurred by any person as a consequence of their reliance on the information contained in this MSDS.

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End of Report