

SAFETY DATA SHEET

MA3555

Product Name **NATURAL GAS STANDARD MA3555**

1. IDENTIFICATION OF THE MATERIAL AND SUPPLIER

Supplier Name BOC LIMITED (AUSTRALIA)
Address 10 Julius Avenue, North Ryde, NSW, AUSTRALIA, 2113
Telephone 131 262, (02) 8874 4400
Fax 132 427 (24 hours)
Emergency 1800 653 572 (24/7) (Australia only)
Web Site <http://www.boc.com.au/>
Synonym(s) BOC NATURAL GAS STANDARD • MA3555 - SDS NUMBER • MA83555 - RECIPE NUMBER
Use(s) CALIBRATION • STANDARD
SDS Date 26 Mar 2010

2. HAZARDS IDENTIFICATION

CLASSIFIED AS HAZARDOUS ACCORDING TO ASCC CRITERIA

RISK PHRASES

R12 Extremely Flammable.

SAFETY PHRASES

S16 Keep away from sources of ignition - No smoking.
S33 Take precautionary measures against static discharges.
S9 Keep container in a well ventilated place.

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

UN No.	1971	DG Class	2.1	Subsidiary Risk(s)	None Allocated
Packing Group	None Allocated	Hazchem Code	2SE	EPG	2A1

3. COMPOSITION/ INFORMATION ON INGREDIENTS

Ingredient	Formula	CAS No.	Content
METHANE	C-H4	74-82-8	>60%
ETHANE	C2-H6	74-84-0	8%
PROPANE	C3-H8	74-98-6	1.5%
BUTANE	C4-H10	106-97-8	0.25%
PENTANE	C5-H12	109-66-0	0.25%
N-HEXANE	C6-H14	110-54-3	<0.1%
CARBON DIOXIDE	CO2	124-38-9	7.5%
NITROGEN	N2	7727-37-9	3%

4. FIRST AID MEASURES

Eye	None required.
Inhalation	If inhaled, remove from contaminated area. To protect rescuer, use an Air-line respirator or Self Contained Breathing Apparatus (SCBA). Be aware of possible explosive atmospheres. Apply artificial respiration if not breathing. Give oxygen if available. For advice, contact a Poisons Information Centre on 13 11 26 (Australia Wide) or a doctor.
Skin	None required.
Ingestion	Due to product form and application, ingestion is considered unlikely.
Advice to Doctor	Treat symptomatically
First Aid Facilities	Eye wash facilities should be available.

5. FIRE FIGHTING MEASURES

Flammability	Highly flammable gas - potentially explosive. May form explosive mixtures with air. Combustion products include carbon dioxide, carbon monoxide, nitrogen and water vapour.
Fire and Explosion	Temperatures in a fire may cause cylinders to rupture and internal pressure relief devices to be activated. Cool cylinders or containers exposed to fire by applying water from a protected location. Do not approach cylinders or containers suspected of being hot. This material is capable of forming explosive mixtures in air.
Extinguishing	Stop flow of gas if safe to do so. If safe, extinguish fire using dry chemical. Contact manufacturer for further advice. 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	2SE

6. ACCIDENTAL RELEASE MEASURES

Spillage	If the cylinder is leaking, eliminate all potential ignition sources and evacuate area of personnel. Prevent spreading of vapours through drains and ventilation systems. Inform manufacturer/supplier of leak. Use personal protective equipment. Carefully move material 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, oxidising agents, poisons, flammable liquids or combustible materials. Cylinders should be stored: upright, prevented from falling, in a secure area; below 45°C, 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 Stds	Ingredient	Reference	TWA		STEL	
			ppm	mg/m3	ppm	mg/m3
	Butane	ASCC (AUS)	800	1900	--	--
	Carbon dioxide	ASCC (AUS)	5000	9000	30000	54000
	Carbon dioxide in coal mines	ASCC (AUS)	12500	22500	30000	54000
	Ethane	ASCC (AUS)	Asphyxiant			
	Methane	ASCC (AUS)	Asphyxiant			
	n-Hexane	ASCC (AUS)	20	72	--	--
	Nitrogen	ASCC (AUS)	Asphyxiant			
	Pentane	ASCC (AUS)	600	1770	750	2210
	Propane	ASCC (AUS)	Asphyxiant			

Product Name **NATURAL GAS STANDARD MA3555**

Biological Limits

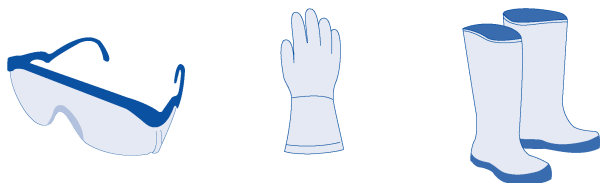
Ingredient	Reference	Determinant	Sampling Time	BEI
N-HEXANE	ACGIH BEI	2,5-Hexanedione in urine (without hydrolysis)	End of shift at end of workweek	0.4 mg/L

Engineering Controls

Avoid inhalation. Use in well ventilated areas. Generally no vapour hazard exists unless accidental discharge occurs. Gas is lighter than air & will disperse readily in well ventilated areas. Use explosion proof extraction ventilation where required. Maintain vapour levels below the recommended exposure standard.

PPE

Wear safety boots, leather gloves and safety glasses.



9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance	COLOURLESS GAS	Solubility (Water)	INSOLUBLE
Odour	MERCAPTAN ODOUR WHEN ODOURISED (OTHERWISE ODOURLESS)	Specific Gravity	NOT APPLICABLE
pH	NOT APPLICABLE	% Volatiles	100 %
Vapour Pressure	NOT AVAILABLE	Flammability	HIGHLY FLAMMABLE
Vapour Density	NOT AVAILABLE	Flash Point	-218°C
Boiling Point	-162°C	Upper Explosion Limit	15 % (Methane)
Melting Point	-182°C	Lower Explosion Limit	5 % (Methane)
Evaporation Rate	NOT APPLICABLE		

10. STABILITY AND REACTIVITY

Chemical Stability	Stable under recommended conditions of storage.
Conditions to Avoid	Avoid heat, sparks, open flames and other ignition sources.
Material to Avoid	Incompatible with oxidising agents (eg. hypochlorites), halogens, heat and ignition sources.
Decomposition	May evolve toxic gases if heated to decomposition.
Hazardous Reactions	Polymerization will not occur.

11. TOXICOLOGICAL INFORMATION

Health Hazard Summary	Asphyxiant. Symptoms of exposure are directly related to displacement of oxygen. As the amount of oxygen inhaled is reduced from 21-14% volume, the pulse rate may accelerate and the rate and volume of breathing may 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 result in no pain. Muscular effort may lead to rapid fatigue. Further reduction to 6% may result in 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 may follow in minutes.
Eye	Non irritant.
Inhalation	Non irritant - Asphyxiant. Effects are proportional to oxygen displacement.
Skin	Non irritant.
Ingestion	Exposure is considered unlikely.
Toxicity Data	PENTANE (109-66-0) LC50 (Inhalation): 364 g/m3/4 hours (rat) LCLo (Inhalation): 325 g/m3/2 hours (mouse) LD50 (Intravenous): 446 mg/kg (mouse) N-HEXANE (110-54-3) LC50 (Inhalation): 48000 ppm/4 hours (rat) LD50 (Ingestion): 25 g/kg (rat)

Product Name**NATURAL GAS STANDARD MA3555**

LD50 (Skin): 3000 mg/kg (rabbit)
CARBON DIOXIDE (124-38-9)
LC50 (Inhalation): 470000 ppm/30M (rat)
LCLo (Inhalation): 9 pph/5M (human)

12. ECOLOGICAL INFORMATION

Environment Limited ecotoxicity data was available for this product at the time this report was prepared. Ensure appropriate measures are taken to prevent this product from entering the environment.

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

Shipping Name	METHANE, COMPRESSED or NATURAL GAS, COMPRESSED with high methane content				
UN No.	1971	DG Class	2.1	Subsidiary Risk(s)	None Allocated
Packing Group	None Allocated	Hazchem Code	2SE	EPG	2A1

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 The storage of significant quantities of gas cylinders must comply with AS4332 The storage and handling of gases in cylinders.

ABBREVIATIONS:

ADB - Air-Dry Basis.

BEI - Biological Exposure Indice(s)

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

CNS - Central Nervous System.

EINECS - European INventory of Existing Commercial chemical Substances.

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.

NTP - National Toxicology Program.

OSHA - Occupational Safety and Health Administration.

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

ppm - Parts Per Million.

RTECS - Registry of Toxic Effects of Chemical Substances.

TWA/ES - Time Weighted Average or Exposure Standard.

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.

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

Product Name **NATURAL GAS STANDARD MA3555**

availability of engineering controls should be considered before final selection of personal protective equipment is made.

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

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 SDS, 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 SDS.

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SDS Date: 26 Mar 2010

End of Report