BOC
A Member of The Linde Group

SAFETY DATA SHEET

 # 1278

Product Name **20 TO 50% OXYGEN, BALANCE NITROUS OXIDE**

1. IDENTIFICATION OF THE MATERIAL AND SUPPLIER

Supplier name	**BOC LIMITED (AUSTRALIA)**
Address	10 Julius Avenue, North Ryde, NSW, 2113, AUSTRALIA
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)	1278 - SDS NUMBER • PRODUCT CODES: 285, 288 • SPECIAL GAS MIXTURE
Use(s)	CALIBRATION • INDUSTRIAL APPLICATIONS
SDS date	15 March 2013

2. HAZARDS IDENTIFICATION

CLASSIFIED AS HAZARDOUS ACCORDING TO SAFE WORK AUSTRALIA CRITERIA

RISK PHRASES

R63 Possible risk of harm to the unborn child.

SAFETY PHRASES

S51 Use only in well ventilated areas.

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

UN number	3156	**DG division**	2.2
Packing group	None Allocated	**Subsidiary risk(s)**	5.1
Hazchem code	2S		

3. COMPOSITION/ INFORMATION ON INGREDIENTS

Ingredient	Identification	Classification	Content
OXYGEN	CAS: 7782-44-7 EC: 231-956-9	O;R8	20 to 50%
NITROUS OXIDE	CAS: 10024-97-2 EC: 233-032-0	Not Available	Remainder

4. FIRST AID MEASURES

Eye	None required.
Inhalation	If inhaled, remove from contaminated area. Apply artificial respiration if not breathing. For advice, contact a Poison 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.

5. FIRE FIGHTING MEASURES

Flammability Non flammable - oxidising agent. Supports combustion and may cause fire/explosion in contact with incompatible substances, strong acids, reducing agents, combustibles and flammables.

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. Remove cool cylinders from the path of the fire if safe to do so. Ensure working area is well ventilated before re-use Notify the nearest BOC centre that you will be returning a faulty cylinder. Residual product will be disposed of when the cylinder is returned.

Extinguishing Use water fog to cool containers from protected area.

Hazchem code 2S

2 Water Fog (or fine water spray if fog unavailable)
S Self Contained Breathing apparatus and protective gloves.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions If the cylinder is leaking, evacuate area of personnel. Inform manufacturer/supplier of leak. Use personal protective equipment as detailed in Section 8 of this SDS.

Environmental precautions Prevent from entering sewers, basements and workpits, or any place where its accumulation can be dangerous.

Methods of cleaning up Carefully move material to a well ventilated remote area, then allow to discharge if safe to do so. Do not attempt to repair leaking valve or cylinder safety devices.

References See Sections 8 and 13 for exposure controls and disposal.

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 Use of safe work practices are recommended to avoid inhalation. Do not drag, drop, slide or roll cylinders. The uncontrolled release of a gas under pressure may cause physical harm. Use a suitable hand truck for cylinder movement.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Exposure standards

Ingredient	Reference	TWA		STEL	
		ppm	mg/m³	ppm	mg/m³
Nitrous oxide	SWA (AUS)	25	45	--	--

Biological limits No biological limit allocated.

Engineering controls Avoid inhalation. Use in well ventilated areas. Where an inhalation risk exists, mechanical extraction ventilation is recommended. Maintain vapour levels below the recommended exposure standard.

PPE

Eye / Face Wear safety glasses.

Hands Wear leather gloves.

Body Wear safety boots.

Respiratory Where an inhalation risk exists, wear Self Contained Breathing Apparatus (SCBA) or an Air-line respirator.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance	COLOURLESS GAS
Odour	SLIGHT SWEET ODOUR
Flammability	NON FLAMMABLE
Flash point	NOT RELEVANT
Boiling point	NOT AVAILABLE
Melting point	NOT AVAILABLE
Evaporation rate	NOT APPLICABLE
pH	NOT APPLICABLE
Vapour density	NOT AVAILABLE
Specific gravity	NOT APPLICABLE
Solubility (water)	0.032 L/L (Oxygen)
Vapour pressure	NOT AVAILABLE
Upper explosion limit	NOT RELEVANT
Lower explosion limit	NOT RELEVANT
Cylinder pressure (when full)	3250 - 6500 kPa @ 15°C
% Volatiles	100 %

10. STABILITY AND REACTIVITY

Chemical stability	Stable under recommended conditions of storage.
Conditions to avoid	Avoid contact with incompatible substances.
Material to avoid	Combustible materials such as oil and grease can spontaneously ignite at low temperatures in oxygen enriched atmospheres. Materials which burn in air, will burn more vigorously in oxygen enriched atmospheres. Nitrous oxide will react with powerful reducing agents such as phosphine, stannous chloride and hydrogen. Ensure that all materials and lubricants in contact with this product are oxygen compatible.
Hazardous Decomposition Products	This material will not decompose to form hazardous products other than that already present.
Hazardous Reactions	Polymerization will not occur.

11. TOXICOLOGICAL INFORMATION

Health Hazard Summary	Anaesthetic - non irritating gas. Nitrous oxide passes into all gas containing spaces in the body faster than nitrogen passes out, thus it should not be used with any condition where its expansion might be dangerous. May induce vomiting in susceptible individuals. Epidemiological studies suggest an increased risk of spontaneous abortion and low birth weight in off-spring in female workers employed in operating theatres and dental surgeries. These findings are controversial. An analgesic and a weak anaesthetic. Pain reduction is achieved at a concentration of around 25% and 70% is required to produce unconsciousness.
Eye	Non irritant.
Inhalation	Non irritant - anaesthetic. After prolonged use nitrous oxide may inactivate vitamin B12, resulting in megaloblastic changes in bone marrow. Exceptionally heavy occupational exposure and addiction may result in myeloneuropathy and sub-acute combined degeneration. This would require levels in excess of 5,000ppm to frequent (more than once every two days) exposure to analgesic concentrations.
Skin	Non irritant.
Ingestion	Ingestion is considered unlikely due to product form.
Toxicity data	NITROUS OXIDE (10024-97-2) LC50 (inhalation) 1068 mg/m³ (rat) TCLo (inhalation) 1 pph/8 hours (rat - reproductive effects)

12. ECOLOGICAL INFORMATION

Toxicity	No information provided.
Persistence and degradability	No information provided.
Bioaccumulative potential	No information provided.

Mobility in soil No information provided.

Other adverse effects No information provided.

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

	LAND TRANSPORT (ADG)	SEA TRANSPORT (IMDG / IMO)	AIR TRANSPORT (IATA / ICAO)
UN number	3156	-	-
Proper shipping name	COMPRESSED GAS, OXIDIZING, N.O.S.	-	-
DG class/ Division	2.2	-	-
Subsidiary risk(s)	5.1	-	-
Packing group	None Allocated	-	-
GTEPG	2B1		

Hazchem code 2S

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

15. REGULATORY INFORMATION

Poison schedule Classified as a Schedule 4 (S4) Standard for the Uniform Scheduling of Medicines and Poisons (SUSMP).

Inventory Listing(s) **AUSTRALIA: AICS (Australian Inventory of Chemical Substances)**
All components are listed on AICS, or are exempt.

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.

Application Method: Gas regulator of suitable pressure and flow rating fitted to cylinder valve or manifold with low pressure gas distribution to equipment.

PERSONAL PROTECTIVE EQUIPMENT GUIDELINES:
The recommendation for protective equipment contained within this 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 ChemAlert report which would encompass all possible scenarios, it is anticipated that users will assess the risks and apply control methods where appropriate.

Product Name **20 TO 50% OXYGEN, BALANCE NITROUS OXIDE**

Abbreviations

ACGIH	American Conference of Governmental Industrial Hygienists
CAS #	Chemical Abstract Service number - used to uniquely identify chemical compounds
CNS	Central Nervous System
EC No.	EC No - European Community Number
GHS	Globally Harmonized System
IARC	International Agency for Research on Cancer
LD50	Lethal Dose, 50% / Median Lethal Dose
mg/m^3	Milligrams per Cubic Metre
PEL	Permissible Exposure Limit
pH	relates to hydrogen ion concentration using a scale of 0 (high acidic) to 14 (highly alkaline).
ppm	Parts Per Million
REACH	Regulation on Registration, Evaluation, Authorisation and Restriction of Chemicals
STOT-RE	Specific target organ toxicity (repeated exposure)
STOT-SE	Specific target organ toxicity (single exposure)
SUSMP	Standard for the Uniform Scheduling of Medicines and Poisons
TLV	Threshold Limit Value
TWA/OEL	Time Weighted Average or Occupational Exposure Limit

Revision history

Revision	Description
2.0	Standard SDS Review.
1.0	Initial SDS creation

Report status

This document has been compiled by RMT on behalf of the manufacturer, importer or supplier of the product and serves as their Safety Data Sheet ('SDS').

It is based on information concerning the product which has been provided to RMT by the manufacturer, importer or supplier 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, importer or supplier.

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.

Prepared by

Risk Management Technologies
5 Ventnor Ave, West Perth
Western Australia 6005
Phone: +61 8 9322 1711
Fax: +61 8 9322 1794
Email: info@rmt.com.au
Web: www.rmt.com.au

Revision: 2
SDS Date: 15 March 2013

End of SDS