

## SAFETY DATA SHEET

# 114

Product Name **MEDICAL NITROUS OXIDE, COMPRESSED**

### 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)** 114 - SDS NUMBER • NITROUS OXIDE (FORMERLY) • PRODUCT CODE: 610  
**Use(s)** ANAESTHETIC • MEDICAL APPLICATIONS  
**SDS Date** 26 Mar 2010

### 2. HAZARDS IDENTIFICATION

CLASSIFIED AS HAZARDOUS ACCORDING TO ASCC CRITERIA

#### RISK PHRASES

R63 Possible risk of harm to the unborn child.  
R8 Contact with combustible material may cause fire.

#### SAFETY PHRASES

S17 Keep away from combustible material.  
S51 Use only in well ventilated areas.  
S9 Keep container in a well ventilated place.

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

<b>UN No.</b>	1070	<b>DG Class</b>	2.2	<b>Subsidiary Risk(s)</b>	5.1
<b>Packing Group</b>	None Allocated	<b>Hazchem Code</b>	2P	<b>EPG</b>	2C8

### 3. COMPOSITION/ INFORMATION ON INGREDIENTS

Ingredient	Formula	CAS No.	Content
NITROUS OXIDE	N2O	10024-97-2	>99.5%

### 4. FIRST AID MEASURES

**Eye** Cold burns: Immediately flush with tepid water or with sterile saline solution. Hold eyelids apart and irrigate for 15 minutes. Seek medical attention.

**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** 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** Due to product form and application, ingestion is considered unlikely.

**Product Name**      **MEDICAL NITROUS OXIDE, COMPRESSED**

**Advice to Doctor**    Treat symptomatically

## 5. FIRE FIGHTING MEASURES

<b>Flammability</b>	Non flammable - oxidising agent. Supports combustion and may cause fire/explosion in contact with incompatible substances, strong acids, reducing agents, combustibles and flammables.
<b>Fire and Explosion</b>	Temperatures in a fire may cause cylinders to rupture. Cool cylinders or containers exposed to fire by applying water from a protected location. Do not approach cylinders or containers suspected of being hot.
<b>Extinguishing</b>	Use water fog to cool containers from protected area.
<b>Hazchem Code</b>	2P

## 6. ACCIDENTAL RELEASE MEASURES

<b>Spillage</b>	If the cylinder is leaking, evacuate area of personnel. 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

<b>Storage</b>	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.
<b>Handling</b>	Use of safe work practices are recommended to avoid eye or skin contact and 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.

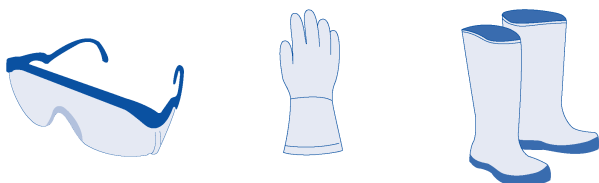
## 8. EXPOSURE CONTROLS/ PERSONAL PROTECTION

Exposure Stds	Ingredient	Reference	TWA		STEL	
			ppm	mg/m3	ppm	mg/m3
	Nitrous oxide	ASCC (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**    Wear safety boots, insulated or leather gloves and safety glasses. Where an inhalation risk exists, wear: a Type NO (Nitrogen Oxides) respirator. At high vapour levels, wear: an Air-line respirator or self Contained Breathing Apparatus (SCBA).



## 9. PHYSICAL AND CHEMICAL PROPERTIES

<b>Appearance</b>	COLOURLESS GAS	<b>Solubility (Water)</b>	0.59 L/L
<b>Odour</b>	SLIGHT SWEET ODOUR	<b>Specific Gravity</b>	NOT APPLICABLE
<b>pH</b>	NOT APPLICABLE	<b>% Volatiles</b>	100 %
<b>Vapour Pressure</b>	5700 kPa @ 25°C	<b>Flammability</b>	NON FLAMMABLE
<b>Vapour Density</b>	NOT AVAILABLE	<b>Flash Point</b>	NOT RELEVANT
<b>Boiling Point</b>	-88.5°C	<b>Upper Explosion Limit</b>	NOT RELEVANT
<b>Melting Point</b>	NOT AVAILABLE	<b>Lower Explosion Limit</b>	NOT RELEVANT
<b>Evaporation Rate</b>	NOT APPLICABLE		
<b>Critical Pressure</b>	7254 kPa	<b>Critical Temperature</b>	36.4°C
<b>Density</b>	1.53 (Air = 1)		

## 10. STABILITY AND REACTIVITY

<b>Chemical Stability</b>	Stable under recommended conditions of storage.
<b>Conditions to Avoid</b>	Avoid heat, sparks, open flames and other ignition sources.
<b>Material to Avoid</b>	Incompatible with powerful reducing agents such as phosphine, stannous chloride and hydrogen. Ensure that all materials/lubricants in contact with this product are oxygen compatible. Rust and scale may cause ignitions.
<b>Decomposition</b>	May evolve toxic gases if heated to decomposition.
<b>Hazardous Reactions</b>	Polymerization will not occur.

## 11. TOXICOLOGICAL INFORMATION

<b>Health Hazard Summary</b>	Asphyxiant gas - anaesthetic. 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. 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.
<b>Eye</b>	Non irritant. However, direct contact with evaporating liquid may result in severe cold burns with possible permanent damage.
<b>Inhalation</b>	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.
<b>Skin</b>	Non irritant. However, direct contact with the liquefied material or escaping compressed gas may cause frostbite injury.
<b>Ingestion</b>	Ingestion is considered unlikely due to product form.
<b>Toxicity Data</b>	NITROUS OXIDE (10024-97-2) LC50 (Inhalation): 1068 mg/m3 (rat) TCLo (Inhalation): 1 pph/8 hours (rat - reproductive effects)

## 12. ECOLOGICAL INFORMATION

<b>Environment</b>	ATMOSPHERE: Nitrous oxide is toxic and is considered an air pollutant. Fairly stable in the atmosphere. May be toxic to terrestrial animals. SOIL: Due to its very low boiling point it is expected to quickly evaporate if released on soil. WATER: May dissolve in water, although evaporation will be a major removal factor.
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## 13. DISPOSAL CONSIDERATIONS

<b>Waste Disposal</b>	Cylinders should be returned to the manufacturer or supplier for disposal of contents.
<b>Legislation</b>	Dispose of in accordance with relevant local legislation.

## 14. TRANSPORT INFORMATION

<b>Transport</b>	Ensure cylinder is separated from driver and that outlet of relief device is not obstructed. Refer to Commonwealth, State and Territory Dangerous Goods Legislation which contain requirements which affect gas storage and transport.
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<b>UN No.</b>	1070	<b>DG Class</b>	2.2	<b>Subsidiary Risk(s)</b>	5.1
<b>Packing Group</b>	None Allocated	<b>Hazchem Code</b>	2P	<b>EPG</b>	2C8

## 15. REGULATORY INFORMATION

<b>Poison Schedule</b>	Classified as a Schedule 4 (S4) Poison using the criteria in the Standard for the Uniform Scheduling of Drugs and Poisons (SUSDP).
<b>AICS</b>	All chemicals listed on the Australian Inventory of Chemical Substances (AICS).

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**16. OTHER INFORMATION**

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**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 and demand flow control to mask or mouthpiece.

**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/m<sup>3</sup> - 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 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**