

Product Name **NITRIC OXIDE**

1. IDENTIFICATION OF THE MATERIAL AND SUPPLIER

Supplier Name **COREGAS PTY LTD**
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Synonym(s) 30831004 - MSDS NUMBER

Use(s) CHEMICAL REAGENT
MSDS Date 21 Nov 2008

2. HAZARDS IDENTIFICATION

CLASSIFIED AS HAZARDOUS ACCORDING TO ASCC CRITERIA

RISK PHRASES

R23 Toxic by inhalation.
R36/37/38 Irritating to eyes, respiratory system and skin.

SAFETY PHRASES

S26 In case of contact with eyes, rinse immediately with plenty of water and seek medical advice
S36/39 Wear suitable protective clothing and eye/face protection.
S44 If you feel unwell, contact a doctor or Poisons Information Centre immediately (show label where possible).
S7/9 Keep container tightly closed and in a well ventilated place.

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

UN No.	1660	DG Class	2.3	Subsidiary Risk(s)	5.1 / 8
Packing Group	None Allocated	Hazchem Code	2PE	EPG	2B5

3. COMPOSITION/ INFORMATION ON INGREDIENTS

Ingredient	Formula	CAS No.	Content
NITRIC OXIDE	N-O	10102-43-9	100%

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4. FIRST AID MEASURES

Eye	If in eyes, hold eyelids apart and flush the eye continuously with running water. Continue flushing until advised to stop by the Poison Information Centre or a doctor, or for at least 15 minutes.
Inhalation	If inhaled, remove from contaminated area. To protect rescuer, use an Air-line respirator or Self Contained Breathing Apparatus (SCBA). Apply artificial respiration if not breathing. Give oxygen if available.
Skin	If skin or hair contact occurs, remove contaminated clothing and flush skin and hair with running water. Continue flushing with water until advised to stop by the Poisons Information Centre or a doctor.
Ingestion	For advice, contact a Poison Information Centre on 13 11 26 (Australia Wide) or a doctor (at once). 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	Non flammable.
Fire and Explosion	Non flammable. Temperatures in a fire may cause cylinders to rupture. Call fire brigade. Cool cylinders exposed to fire by applying water from a protected location. Do not approach cylinders suspected of being hot.
Extinguishing	Non flammable. Use water fog to cool containers from protected area.
Hazchem Code	2PE

6. ACCIDENTAL RELEASE MEASURES

Spillage	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.

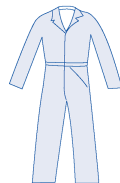
8. EXPOSURE CONTROLS/ PERSONAL PROTECTION

Exposure Stds	Ingredient	Reference	TWA		STEL	
			ppm	mg/m3	ppm	mg/m3
	Nitric oxide	ASCC (AUS)	25.0	31.0	--	--

Biological Limits No biological limit allocated.

Engineering Controls Do not inhale gas. Maintain well ventilated areas. In poorly ventilated areas, mechanical extraction or dilution ventilation is recommended. Maintain vapour levels below the recommended exposure standard.

PPE Wear leather gloves, safety boots, coveralls and safety glasses. Where an inhalation risk exists, wear: a Type NO (Nitrogen Oxides) respirator. At high vapour levels, wear: self Contained Breathing Apparatus (SCBA) or an Air-line respirator.



9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance	COLOURLESS GAS	Solubility (Water)	SLIGHTLY SOLUBLE
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Odour	ODOURLESS	Specific Gravity	NOT AVAILABLE
pH	NOT AVAILABLE	% Volatiles	NOT AVAILABLE
Vapour Pressure	NOT AVAILABLE	Flammability	NON FLAMMABLE
Vapour Density	NOT AVAILABLE	Flash Point	NOT RELEVANT
Boiling Point	NOT AVAILABLE	Upper Explosion Limit	NOT RELEVANT
Melting Point	NOT AVAILABLE	Lower Explosion Limit	NOT RELEVANT
Evaporation Rate	NOT AVAILABLE		

10. STABILITY AND REACTIVITY

Material to Avoid Nitric oxide reacts in air to form nitrogen dioxide which is highly oxidising and reacts violently with fluorine and chlorine in the presence of moisture.

Decomposition May evolve toxic gases if heated to decomposition.

11. TOXICOLOGICAL INFORMATION

Health Hazard Summary Toxic - irritant. Immediate effect is irritation of the nose and throat. Symptoms may be slight at first. Headache, dizziness, lassitude, nausea and vomiting may occur in some cases. Some 6 to 24 hours after exposure further symptoms develop: lips become blue and soon breathing becomes difficult, accelerated and irregular choking, cyanosis and tightness of the chest follow and palpitations may occur. If untreated the onset of pulmonary oedema may result in death. Brief exposure to high concentrations causes sudden onset of pulmonary oedema which can be rapidly fatal. There may be some formation of methaemoglobin.

Eye Corrosive - irritant. Contact may result in severe irritation, lacrimation, conjunctivitis and possible burns.

Inhalation Irritant - toxic. Results in chronic irritation of the respiratory tract in low doses.

Skin Corrosive. Contact may result in irritation, redness, itching, pain, rash and possible burns.

Ingestion Ingestion is considered unlikely due to product form. However, ingestion of liquid may result in burns to the mouth and throat.

Toxicity Data NITRIC OXIDE (10102-43-9)
LC50 (Inhalation): 1068 mg/m³/4 hours (rat)
LCLo (Inhalation): 320 ppm (mouse)
TCLo (Inhalation): 160 ppm/6 hours/4 weeks intermittently (rat)

12. ECOLOGICAL INFORMATION

Environment ATMOSPHERE: Nitrogen oxides react with volatile organic compounds to produce ozone, a principal factor in photochemical smog. WATER: Will form nitric acid in contact with water. Nitrates can persist for prolonged periods in water. BIOLOGICAL: Not expected to concentrate in the food chain.

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.



PRODUCT NAME NITRIC OXIDE

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

Shipping Name	NITRIC OXIDE, COMPRESSED				
UN No.	1660	DG Class	2.3	Subsidiary Risk(s)	5.1 / 8
Packing Group	None Allocated	Hazchem Code	2PE	EPG	2B5

IATA

Shipping Name	NITRIC OXIDE, COMPRESSED				
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IMDG

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Packing Group	None Allocated				

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.

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 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 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.

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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