Material Safety Data Sheet

MEDICAL NITROUS OXIDE, COMPRESSED (N2O)

Infosafe™ No.	6ACDZ	**Issue Date**	September 2006	**Status**	ISSUED by AIRLIQH	BS: 1.9.40

Not classified as hazardous

1. IDENTIFICATION OF THE SUBSTANCE/PREPARATION AND COMPANY/UNDERTAKING

Product Name MEDICAL NITROUS OXIDE, COMPRESSED (N2O)

Product Use Medical used as both an inhalation anaesthetic and an analgesic agent in combination with oxygen.

Company Name Air Liquide Healthcare Pty Limited (ABN 41002 653045)

Address Unit 5, 476 Gardeners Road Alexandria
NSW 2015

Emergency Tel. (AH) 1800 812 588

Telephone Number/Fax Tel: (02) 9364 7474
Fax: (02) 8338 9797

Other Names Not Available

2. COMPOSITION/INFORMATION ON INGREDIENTS

Ingredients	**Name**	**CAS**	**Proportion**
	Nitrous oxide	10024-97-2	99.5-100 %

3. HAZARDS IDENTIFICATION

Reproductive Toxicity Pregnant females may experience spontaneous abortion and low birth weight babies when exposed to this product with a lack of oxygen present.

Chronic Effects

Chronic exposure, such as in abuse, can inactivate vitamin B12 and may result in polyneuropathy, megaloblastic anemia, bone marrow depression

	and reproductive effects. Studies of operating room personnel chronically exposed to low concentrations of inhalation anesthetics show that pregnancies in female personnel and the wives of male personnel may be subject to increased incidences of spontaneous abortions, stillbirths and possible birth defects - other studies dispute these findings so they remain controversial. Large inhalation doses mixed with air or oxygen induces anesthesia. High concentrations inhaled for a few seconds may cause hysterical laughter or apparent intoxication. Nitrous Oxide alone may increase pulse rate and have depressant effects on respiration. Care should be taken with long term usage.
Inhalation	Inhalation of small amounts of Nitrous Oxide may produce euphoria. Asphyxiation (in the absence of oxygen) leading to death has been reported following intentional inhalation of nitrous oxide.
Ingestion	Not applicable to gas.
Skin	Contact with cold liquid can cause frostbite. May cause redness, itching and irritation.
Eye	Contact with cold liquid can cause frostbite. Contact with gas may cause eye irritation with discomfort, tearing or blurring of vision. The gas is not irritating.
Other Information	This product is a simple asphyxiant in the absence of oxygen.

4. FIRST AID MEASURES

Inhalation	Remove from exposure NOTE: Rescuers should not enter an oxygen deficient atmosphere without using self-contained full-face positive pressure breathing equipment. If inhaled, remove from contaminated area. Apply artificial respiration if not breathing preferably with an oxygen resuscitator. If symptoms develop seek medical attention.
Ingestion	Not applicable for a gas.
Skin	For frostbitten areas: As quickly as possible, flush contaminated area with lukewarm, gently running water for at least 20 minutes, by the clock. Under running water, carefully cut around clothing that sticks to damaged skin and remove rest of garment. Obtain medical attention immediately.
Eye	If frostbite occurs, immediately flush the contaminated eye (s) with lukewarm, gently flowing water for 20 minutes, by the clock, holding the eyelid's open. Seek medical attention.
First Aid Facilities	Eyewash and normal washroom facilities facilities. Oxygen resuscitator.
Advice to Doctor	Advise doctor that victim has been exposed to an oxygen deficient atmosphere and exposed to nitrous oxide which is a known anaesthetic.
Other Information	For advice, contact a Poisons Information Centre (Phone eg Australia 131 126).

5. FIRE FIGHTING MEASURES

Extinguishing Media	Use extinguishing media suitable for surrounding environment.

Specific Methods	Move cylinders from fire if safe to do so. Cool cylinders with water from a protected location. If unable to keep cylinders cool. Evacuate area. Notify Air Liquide Healthcare that you will be returning faulty/heat effected cylinders.
Specific Hazards	Nitrous oxide is non-flammable, but vigorously supports combustion. Container may rupture when heated.
Hazardous Combustion Products	Under fire conditions this product will emit toxic and/or irritating fumes.
Precautions in connection with Fire	Fire-fighters should wear full protective clothing and self contained breathing apparatus.
Flash Point	Non flammable
Flammable Limits UEL	Non flammable
Flammable Limits LEL	Non flammable
Flammability	Vigorously supports combustion of many materials which will not normally burn in air. Store away from flammable products. Never smoke or carry out hot work in nitrous oxide rich atmosphere. Never wear clothing saturated with nitrous oxide.

6. ACCIDENTAL RELEASE MEASURES

Restrict access to area until completion of clean-up. Ensure clean-up is conducted by trained personnel only. Wear adequate personal protective equipment. Ventilate area.
If a leak has occurred and cannot be stopped by closing the cylinder valve if safe do so so, use personal protective equipment, then where possible move cylinder to a well-ventilated area, preferably outside, and allow the gas to escape to atmosphere. Never attempt to repair a damaged or leaking cylinder valve. Leak checking may be done by pressure drop test or by using oxygen compatible leak detecting solution on joints and outlets. Mark empty cylinders 'defective'. Return all faulty cylinders to Air Liquide Healthcare.

7. HANDLING AND STORAGE

Handling

No smoking or naked lights. Check for leaks after pressurizing system and prior to starting any operating. Only experienced and properly trained people should use this product. Open cylinder valve slowly to avoid pressure shock and close when not in use. Move cylinders by hand-truck or cart designed for that purpose. DO NOT lift cylinders by their caps. DO NOT handle them with oily hands. Secure cylinders in place in an upright position at all times. DO NOT drop cylinders or permit them to bang against each other.
Connect all safety relief devices to a safe location having good ventilation. Cylinders valves must be closed and equipment depressurized prior to carrying out any maintenance/repairs.

Storage

Cylinders shall be stored in a cool, dry, well ventilated area out of direct sunlight and away from heat and ignition sources. Outside or detached storage is preferred. No part of cylinders shall be exposed to temperatures above 55°C. Cylinders shall be stored upright on a level,

fireproof floor, secure in position and protected from damage. Full cylinders shall be stored separately from empties. Keep cylinder valve cover on. Label empty cylinders and store full cylinders separately from empty ones. Comply with all applicable regulations for the storage and handling of compressed gases.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

National Exposure Standards	Name	STEL (mgm3)	STEL (ppm)	TWA (mgm3)	TWA (ppm)	FootNote
	Nitrous oxide			45	25	

Other Exposure Information TWA - the Time-Weighted Average airborne concentration over an eight-hour working day, for a five-day working week over an entire working life.
According to current knowledge these concentrations should neither impair the health of, nor cause undue discomfort to, nearly all workers.

Respiratory Protection If engineering controls are not effective in controlling airborne exposure then respiratory protective equipment should be used suitable for protecting against airborne contaminants. Final choice of appropriate breathing protection is dependant upon actual airborne concentrations and the type of breathing protection required will vary according to individual circumstances. Expert advice may be required to make this decision. Reference should be made to Australian Standards AS/NZS 1715, Selection, Use and maintenance of Respiratory Protective Devices; and AS/NZS 1716, Respiratory Protective Devices.

Eye Protection Safety glasses with side shields, goggles or full-face shield as appropriate recommended. Final choice of appropriate eye/face protection will vary according to individual circumstances i.e. methods of handling or engineering controls and according to risk assessments undertaken. Eye protection should conform with Australian/New Zealand Standard AS/NZS 1337 - Eye Protectors for Industrial Applications.

Hand Protection Wear gloves of impervious material such as leather. Final choice of appropriate gloves will vary according to individual circumstances i.e. methods of handling or according to risk assessments undertaken. Reference should be made to AS/NZS 2161.1: Occupational protective gloves - Selection, use and maintenance.

Body Protection Wear appropriate clothing including chemical resistant apron where clothing is likely to be contaminated. It is advisable that a local supplier of personal protective clothing is consulted regarding the choice of material.

Eng. Controls Before entering a confined space where nitrous oxide is present, check to make sure sufficient Oxygen (18%) exists. Use with good general ventilation. If gases are produced local exhaust ventilation should be used.

Other Information Always check for leaks after pressurizing system. Always open cylinder valves slowly and close when not in use.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance Colourless gas.

Odour Slightly sweet odour.

Melting Point Not available.

Boiling Point	- 88.5°C at 101.3 kPa
Solubility in Water	1.37 m3/kg at 0°C
Specific Gravity (H2O=1)	1.53 (gas)
Vapour Pressure	- 5700 kPa at 25°C
Vapour Density (Air=1)	1.53 @ 15°C (Air=1)
Flash Point	Non flammable
Flammability	Vigorously supports combustion of many materials which will not normally burn in air. Store away from flammable products. Never smoke or carry out hot work in nitrous oxide rich atmosphere. Never wear clothing saturated with nitrous oxide.
Flammable Limits LEL	Non flammable
Flammable Limits UEL	Non flammable
Molecular Weight	44.013
Other Information	Density of Gas (101.3 kPa, 15°C): 1.874 kg/m3 Critical Temperature: 36.41°C

10. STABILITY AND REACTIVITY

Stability	Stable under normal conditions of storage and handling.
Materials to Avoid	Not available.
Hazardous Decomposition Products	Not available.
Conditions to Avoid	Extremes of temperature and direct sunlight.

11. TOXICOLOGICAL INFORMATION

Toxicology Information	No toxicity data available for this product.
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Ingestion	Not applicable to gas.
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The gas is not irritating.

Chronic Effects Chronic exposure, such as in abuse, can inactivate vitamin B12 and may result in polyneuropathy, megaloblastic anemia, bone marrow depression and reproductive effects. Studies of operating room personnel chronically exposed to low concentrations of inhalation anesthetics show that pregnancies in female personnel and the wives of male personnel may be subject to increased incidences of spontaneous abortions, stillbirths and possible birth defects - other studies dispute these findings so they remain controversial.
Large inhalation doses mixed with air or oxygen induces anesthesia. High concentrations inhaled for a few seconds may cause hysterical laughter or apparent intoxication. Nitrous Oxide alone may increase pulse rate and have depressant effects on respiration. Care should be taken with long term usage.

Reproductive Toxicity Pregnant females may experience spontaneous abortion and low birth weight babies when exposed to this product with a lack of oxygen present.

12. ECOLOGICAL INFORMATION

Environment Protection Do not allow product to enter drains, waterways or sewers.

Mobility Not available.

Persistence / Degradability Not available.

Ecotoxicity No ecological data available for this product.

13. DISPOSAL CONSIDERATIONS

Dispose of waste according to federal, EPA and state regulations. Alternately, return properly labelled cylinders to the supplier with all valve outlet plugs, caps and protection caps secured, for proper disposal.

14. TRANSPORT INFORMATION

This material is classified as a Class 2.2 (Non-flammable Non-toxic Gas) Dangerous Good according to the Australian Code for the Transport of Dangerous Goods by Road and Rail. Dangerous goods of Class 2.2 (Non-flammable Non-toxic Gas) are incompatible in a placard load with any of the following:
- Class 1, Explosive
- Class 4.2, Spontaneously Combustible Substance
- Class 5.2, Organic Peroxide

U.N. Number 1070

Proper Shipping Name NITROUS OXIDE

DG Class 2.2

Sub.Risk 5.1

Hazchem Code	2P
Packaging Method	3.8.2
Packing Group	
EPG Number	2C8
IERG Number	10

15. REGULATORY INFORMATION

Risk Phrase	
Safety Phrase	S51 Use only in well ventilated areas.
Poisons Schedule	S4

16. OTHER INFORMATION

Contact Person/Point

24 HOUR EMERGENCY CONTACT: The Operator: 1800 812 588

Regional Offices:
Victoria
40 Bunnett Street, North Sunshine 3020. Tel. (03) 9290 1100 Fax (03) 9290 1199
New South Wales
43-47 Pine Road, Fairfield 2165. Tel. (02) 9892 9777 Fax (02) 9892 1454

4 Kullara Close, Beresfield. 2322. Tel (02) 4949 1700 Fax (02) 4949 1750
Lot 5, Shellharbour Road, Port Kembla 2505. Tel. (02) 4274 4044 Fax (02) 4276 3879
South Australia
164 Philip Highway, Elizabeth 5112. Tel. (08) 8209 3600 Fax (08) 8255 9885
Queensland
759 Progress Road, Wacol 4076. Tel. (07) 3246 6363 Fax (07) 3271 2589
Ingham Road, Cnr. Dundee Street,
Bohle, Townsville, 4818
Tel. (07) 4774 8276 Fax (07) 4774 8313
Featherstone Street, Parkhurst
Rockhampton, 4702. Tel. (07) 4936 1066 Fax (07) 4936 1024
68 Bunda Street, Cairns 4870. Tel. (07) 4031 1566 Fax (07) 4051 4293
Tasmania
11 Windsor Street, Invermay 7248. Tel. (03) 6334 9666 Fax (03) 6334 9600
Air Liquide W.A. Pty Ltd
A.B.N. 52 008 694 166
Wesfarmers Energy Building, Campus Drive (off Murdoch Drive), Murdoch, WA 6150
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SDS History

MSDS Reviewed: September 2006
MSDS Created: September 2001

Poisons Schedule S4

Molecular Weight 44.013

End of MSDS
