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MATERIAL SAFETY DATA SHEET

Product Name:

**NITROGEN,
Refrigerated Liquid (N₂)**

Issued: May 2014

Revision: 9

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Label 2.2 : Non
flammable, non toxic
gas.

IDENTIFICATION

Chemical Name: Nitrogen
Synonyms: LIN
UN Number: 1977
Poisons Schedule Number: None allocated
G.T. EPG. (Group Text. Emergency Procedure Guide): AS 1678 2C3

Use: Inert gas widely used in chemical, food and beverage, petrochemical and metal industries.

HAZARDS IDENTIFICATION

Dangerous Goods Class and Subsidiary Risk: 2.2

HSNO Classification: Not Hazardous

Hazard Statement: Contains refrigerated gas; may cause cryogenic burns or injury.

Precautionary Statements: Read label before use.
Read Material Safety Data Sheets.
Wear cold insulating gloves, face shield and eye protection.
Thaw frosted parts with lukewarm water. Do not rub affected area.
Get immediate medical advice/attention.
Store in a well ventilated place.

COMPOSITION

Ingredients	CAS Number	Proportion
Chemical Entity		
Nitrogen	7727-37-9	99.9%

FIRST AID MEASURES

Health Effects

Acute

Swallowed: Not applicable to gases.
Eye: Can cause severe frostburn if brought in contact with eye.
Skin: Can cause severe frostburn if brought in contact with skin.

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Inhaled: Nitrogen is non-toxic at normal temperature and pressure. By diluting the oxygen concentration in air below the level necessary to support life, it can act as an asphyxiant. Effects of oxygen deficiency are: 12-16%: breathing and pulse rate increased, muscular coordination slightly disturbed; 10-14%: emotional upset, abnormal fatigue, disturbed respiration; 6-10%: nausea and vomiting, collapse or loss of consciousness; below 6%: convulsive movements, possible respiratory collapse and death.

Chronic

Long term exposure to nitrogen has no known health effects. Prolonged exposure to an oxygen deficient atmosphere (below 18% oxygen in air) may affect the heart and nervous system.

First AidInhalation:

Call doctor. Prompt medical attention is mandatory in all cases of overexposure to nitrogen. If victim conscious: Move to uncontaminated area to breathe fresh air. Keep warm and quiet. If victim is unconscious: Move to uncontaminated area and give assisted respiration. When normal breathing is restored, treatment as above. Continued treatment should be symptomatic and supportive.

Eye Contact

Immediately flush eyes thoroughly with water for at least 15 minutes. Obtain medical assistance.

Skin Contact

Liquid nitrogen can cause severe frostburn upon contact with skin. In case of frostburn spray with water for at least 15 minutes. Apply sterile dressing. Obtain medical assistance.

Advice to Doctor

Advise doctor that victim is experiencing (has experienced) hyperoxia. Specialist advice for treatment of cryogenic burns is available at a Burns Unit.

General:

Low air temperature due to close proximity of liquefied atmosphere gases can cause hypothermia and all persons at risk should be warmly clad. Avoid liquid spillage as cryogenic liquids embrittle many materials on contact.

FIRE FIGHTING MEASURES**Flammability:**

Non Flammable.

Fire/Explosion Hazard:

Nitrogen is non-flammable, but container may release large quantities of nitrogen if ruptured. Nitrogen may serve to extinguish fire.

Extinguishing Media:

Water fog or fine water spray. If possible, stop flow of product. Move away from the container and cool with water from a protected position. If leaking do not spray water onto container. Water surrounding area (from protected position) to contain fire. Persons in the immediate area of the incident should be evacuated.

Hazchem Code:

2T

Recommended Protective Clothing:

A full chemical protection suit and breathing apparatus should be worn.

ACCIDENTAL RELEASE MEASURES**Personal Protection:**

Personnel handling liquid nitrogen must be provided with safety footwear and leather or PVC gloves. Full cover overalls and safety glasses recommended. In areas where equipment failure may cause an immediate high concentration of nitrogen, approved self-contained full face respiratory equipment should be readily available.

Spills and Disposal:

Stop leak if it can be done without risk. Allow gas to dissipate to atmosphere. Ventilate area. Cold vapours are heavier than air. In case of large spillage evacuate nearby trenches, excavations, pits and the like.

Reference Guide:

Standard SNZ HB 76:2008 Dangerous Goods – Initial Emergency Response Guide.

General:

Low air temperature due to close proximity of liquefied atmosphere gases can cause hypothermia and all persons at risk should be warmly clad. Avoid liquid spillage as cryogenic liquids embrittle many materials on contact.

HANDLING AND STORAGE**Handling****Flammability:**

Non Flammable.

General:

Low air temperature due to close proximity of liquefied atmosphere gases can cause hypothermia and all persons at risk should be warmly clad. Avoid liquid spillage as cryogenic liquids embrittle many materials on contact.

Approved Handlers:

Approved handlers are not required, non hazardous gas (HSNO).

Storage**Separation:**

Supplied in portable cryogenic liquid containers or by bulk road tanker to cryogenic storage vessels installed at users' premises.

Spills and Disposal:

Stop leak if it can be done without risk. Allow gas to dissipate to atmosphere. Ventilate area. Cold vapours are heavier than air. In case of large spillage evacuate nearby trenches, excavations, pits and the like.

EXPOSURE CONTROLS / PERSONAL PROTECTION**Exposure Standards:**

Simple asphyxiant.

Engineering Controls:

Provide adequate local exhaust and dilution (general) ventilation and supply sufficient replacement air to maintain oxygen concentration above 18%.

Personal Protection:

Personnel handling liquid nitrogen must be provided with safety footwear and leather or PVC gloves. Full cover overalls and safety glasses recommended. In areas where equipment failure may cause an immediate high concentration of nitrogen, approved self-contained full face respiratory equipment should be readily available.

PHYSICAL AND CHEMICAL PROPERTIES**Physical Properties**

Appearance:	Colourless, odourless, tasteless	Flashpoint:	non flammable
Boiling Point:	-195.8°C	Flammability Limits:	non flammable
Vapour Pressure:	Not applicable	Solubility in Water (at 0°C):	0.0235 m ³ /kg

Other Properties

Relative Density (at 15°C) (Air = 1):	0.967	Density of Liquid (B.P.):	808.6 kg/m ³
Molecular Weight:	28.013	Critical Temperature:	-146.95°C

STABILITY AND REACTIVITY**Flammability:**

Non Flammable. Contains refrigerated gas; may cause cryogenic burns or injury

Materials Compatibility:

Stable under normal conditions. Liquid spillages can cause embrittlement of structural materials.

TOXICOLOGY INFORMATION

No known toxicological effects from this product.

ECOLOGICAL INFORMATION

Can cause frost damage to vegetation.

DISPOSAL CONSIDERATIONS

Do not discharge into any place where its accumulation could be dangerous.

TRANSPORT INFORMATION

UN Number:	1977
Proper Shipping Name:	NITROGEN, REFRIGERATED LIQUID
Dangerous Goods Class and Subsidiary Risk:	2.2
Packing Group:	Not applicable
Hazchem Code:	2T
Other Information:	Avoid transport on vehicles where the load is not separated from the driver's compartment. Ensure vehicle driver is aware of the potential hazards of the load and knows what to do in the event of an accident or an emergency. Before transporting product containers: <ul style="list-style-type: none">• Ensure that containers are firmly secured.• Ensure cylinder valve is closed and not leaking.• Ensure there is adequate ventilation.• Compliance with applicable regulations.

REGULATORY INFORMATION**ERMA Register Approval No:** HSR001027**HSNO Controls:** Hazardous Substances (Compressed Gases) Regulations 2004.
Hazardous Substances (Tank Wagon and Transportable Containers) Regulations 2004**Approved Handlers:**

Approved handlers are not required, non hazardous gas (HSNO).

OTHER INFORMATION**Colour:** Metallic silver or white bony with AS2700 N63 pewter bands.
Outlets: CSA type 295 or AS2473 Type 10.**References:**

- . L'Air Liquide Gas Encyclopaedia - Elsevier Scientific Publishing Co. Amsterdam
- . Cheminfo Database
- . New Zealand Code for the Transport of Dangerous Goods by Road and Rail
- . NHMRC Threshold Limit Values - Commonwealth Dept Health
- . SAA Safe Storage and Handling Information Cards
- . SAA Emergency Procedure Cards
- . Matheson Gas Data Book, 6th Edition, Matheson 1980
- . Canadian Liquid Air Montreal, Canada - Gas Products Safety Data Sheets
- . AS 1894 Code of Practice for Safe Handling of Cryogenic fluids
- . NZCIC Code of Practice – Preparation of Safety Data Sheets

END MSDS

This MSDS summarises our best knowledge of the health and safety hazard information of the product and how to safely handle and use the product in the workplace. Each user should read this MSDS and consider the information in the context of how the product will be handled and used in the workplace in conjunction with other products.

If clarification or further information is needed to ensure that an appropriate risk assessment can be made, the user should contact this company.

Our responsibility for products sold is subject to our standard terms and conditions, a copy of which is sent to our customers and is also available on request.

This MSDS has been prepared in accordance with NZCIC Code of Practice – Preparation of Safety Data Sheets

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