







# Safety Data Sheet

## NITROGEN, Refrigerated Liquid (N<sub>2</sub>)

### 8.1 Control parameters

OEL  
(Occupational Exposure Limits) No data available

DNEL  
(Derived-No Effect Level) No data available

PNEC  
(Predicted No-Effect Concentration) No data available

### 8.2 Exposure controls

Exposure Standards: Simple asphyxiant.

Engineering Controls: Avoid inhalation. Use in well ventilated areas. Provide adequate general and local exhaust ventilation. Systems under pressure should be regularly checked for leakages.

### 8.3 Individual protection measures

A risk assessment should be conducted and documented in each work area to assess the risks related to the use of the product and to select the PPE that matches the relevant risk. The following recommendations should be considered.



Personal Protection: Compliant to EN/ISO standards should be selected.

Eye / Face Protection: Wear safety glasses to protect the eyes when handling Liquid Nitrogen, When transferring Liquid Nitrogen from one vessel to another and when immersing objects.

Skin Protection: Wear cold insulating, or leather gloves that can be easily removed in the event of splashes entering a glove. These gloves are not designed for immersion into the liquid nitrogen.

Respiratory Protection: Wear covered shoes when handling product and containers.

Where an inhalation risk exists, wear Self Contained Breathing Apparatus (SCBA)

### 8.4 Environmental exposure controls

None necessary.

## SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

### 9.1 Information on basic physical and chemical properties

Physical State: Gas  
Appearance: Colourless, Liquid  
Odour: Odourless  
Flammability: Non-flammable  
Melting Point: -210°C  
Boiling Point: -195.8°C  
Flash Point: Not applicable  
PH: Not applicable  
Specific gravity: Not applicable  
Vapour density: Not available  
Partition coefficient: Not available  
Autoignition temperature: Not available

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Decomposition temperature:	Not available
Viscosity:	Not available
Explosive properties:	Not available
Oxidising properties:	Not available
Odour threshold:	Not available

### **9.2 Other Information**

% Volatiles	100 %
	Gas / Vapour heavier than air. May accumulate in confined spaces, particularly at or below ground level.

## **SECTION 10: STABILITY AND REACTIVITY**

### **10.1 Reactivity**

No reactivity hazard other than the effects described in subsections below.

### **10.2 Chemical stability**

Stable under recommended conditions of storage.

### **10.3 Possibility of hazardous reactions**

None.

### **10.4 Conditions to avoid**

Avoid heat, sparks, open flames and other ignition sources.

### **10.5 Incompatible materials**

Compatible with most commonly used materials.

### **10.6 Hazardous decomposition products**

May evolve toxic gases if heated to decomposition.

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## **SECTION 11: TOXICOLOGY INFORMATION**

### **11.1 Information on toxicological effects**

Acute toxicity	Based on available data; the classification criteria are not met.
Skin corrosion / irritation	Not classified as a skin irritant. Contact with liquified material may cause frostbite injury.
Eye damage / irritation	Not classified as an eye irritant. Contact with liquified material may cause frostbite injury.
Sensitisation	Not classified as causing skin or respiratory sensitisation.
Mutagenicity	Not classified as a mutagen.
Carcinogenicity	Not classified as a carcinogen.
Reproductive	Not classified as a reproductive toxin.
STOT – Single exposure	Asphyxiant. Effects are proportional to oxygen displacement.
Specific Target Organ Toxicity	
STOT – Repeated exposure	Not classified as causing organ damage from repeated exposure.
Specific Target Organ Toxicity	
Aspiration	Not classified as causing aspiration.

## **SECTION 12: ECOLOGICAL INFORMATION**

### **12.1 Toxicity**

No ecological damage caused by this product.

### **12.2 Persistence and degradability**

No ecological damage caused by this product.

### **12.3 Bio accumulative potential**

No ecological damage caused by this product.

### **12.4 Mobility in soil**

No ecological damage caused by this product.

### **12.5 Other adverse effects**

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No further information provided.

### SECTION 13: DISPOSAL CONSIDERATIONS

#### 13.1 Waste treatment methods

Waste disposal: Cylinders should be returned to the manufacturer for disposal of contents.  
Legislation: Dispose of in accordance with relevant local legislation.

#### 13.2 Additional information

Vent to atmosphere in a well-ventilated place. Do not discharge into any place where its accumulation could be dangerous. Discharge to atmosphere in larger quantities should be avoided.

### SECTION 14: TRANSPORT INFORMATION

**CLASSIFIED AS A DANGEROUS GOOD ACCORDING TO LAND TRANSPORT RULE: DANGEROUS GOODS 2005; NZS 5433:2012, UN, IMDG OR IATA**



2.2 Non-flammable, Non-toxic gas

#### 14.1 Land transport

Land Transport Rule: Dangerous Goods 2005: NZS 5433:2012  
UN Number: 1977  
UN Proper Shipping Name: NITROGEN, REFRIGERATED LIQUID  
Transport hazard class: 2.2  
Transport restrictions: C/E – Tank carriage: Passage forbidden through tunnels of category C, D and E.  
Other carriage: Passage forbidden through tunnels of category E  
Packing Group: Not applicable  
Environmental hazards: None

#### 14.2 Transport by Sea

IMDG: International Maritime Dangerous Goods  
UN Number: 1977  
UN Proper Shipping Name: NITROGEN, REFRIGERATED LIQUID  
Transport hazard class: 2.2  
Packing Group: Not applicable  
Environmental hazards: None  
Emergency Schedule (EmS): Fire F-C  
Spillage S-V

#### 14.3 Transport by Air

ICAO / IATA: International Civil Aviation Organisation / International Air Transport Association  
UN Number: 1977  
UN Proper Shipping Name: NITROGEN, REFRIGERATED LIQUID  
Transport hazard class: 2.2  
Packing Group: Not applicable  
Environmental hazards: None

#### 14.4 Special precautions for user

Hazchem code: 2T

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Special transport information: Avoid transport on vehicles where the load space is not separate from the drivers 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:

- Ensure there is adequate ventilation.
- Ensure that containers are firmly secured.
- Ensure the cylinder valve outlet is closed and not leaking.
- Ensure valve protection device (where provided) is correctly fitted.

### SECTION 15: REGULATORY INFORMATION

#### 15.1 Safety, health and environmental regulation/legislation specific for the substance or mixture

HSNO Approved code: HSR001027  
Listed on the New Zealand Inventory of Chemicals (NZIoC)

#### 15.2 Chemical safety assessment

A chemical safety assessment does not need to be carried out for this product.

### SECTION 16: OTHER INFORMATION

#### 16.1 Additional Information

##### Personal Protective Equipment Guidelines:

The recommendation for protective equipment contained within this Safety Data Sheet is provided as a guide only. These gloves are not designed for immersion into the liquid nitrogen. Factors such as form of product, method of application, working environment, quantity used, and product concentration should be considered before final selection of personal protective equipment is made. A risk assessment should be conducted and documented in each work area to assess the risk related to the use of the product and to select the PPE that matches the relevant risk.

##### Health effects from exposure:

It should be noted that the effects from exposure to this product will depend on several factors including: form of product; frequency and duration of use; quantity used; effectiveness of control measures; protective equipment used and method of application. It is required that users will assess the risks and apply control measures as appropriate. The hazard of asphyxiation is often overlooked and must be stressed during operator training.

##### Disclaimer of liability:

This SDS has been prepared by Nitrogenx and serves as their Safety Data Sheet (SDS). Before using this product in any new process or experiment, a thorough material compatibility and safety study should be carried out. Details given in this document are believed to be correct at the time of printing however they are not guaranteed. While proper care has been taken in the preparation of this document, 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 within this SDS can be accepted.

Each user should read this SDS 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 Nitrogenx directly.