

# SAFETY DATA SHEET

**Product Name:**  
**NITROGEN, Refrigerated Liquid (N<sup>2</sup>)**



## 1. PRODUCT IDENTIFICATION

**Chemical Name:** Nitrogen, Liquid  
**UN Number:** 1977  
**Poisons Schedule Number:** None allocated  
**Use:** Inert gas widely used in chemical, food and beverage, petrochemical and metal industries.

## 2. HAZARDS IDENTIFICATION

**Dangerous Goods Class:** 2.2  
**HSNO Classification:** Not Hazardous  
**Hazchem Code:** 2T  
**Hazard Statement:** Contains refrigerated gas; may cause cryogenic burns or injury.  
**Precautionary Statements:** Read label before use.  
 Read Safety Data Sheet.  
 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 area.

## 3. COMPOSITION AND INFORMATION ON INGREDIENTS

| Chemical name    | CAS number | Proportion (vol %) |
|------------------|------------|--------------------|
| Nitrogen, Liquid | 7727-37-9  | 99.9%              |

## 4. FIRST-AID MEASURES

### Health Effects (Chronic)

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

### Health Effects (Acute)

**Swallowed:** Not applicable to gases.  
**Eyes:** Can cause severe frost burn if in contact with eyes.  
**Skin:** Can cause severe frost burn if in contact with skin.  
**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.

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| <b>Effects of oxygen deficiency are:</b>        |   |
| <b>12-16%</b>                                   | breathing and pulse rate increased.   |
| <b>10-12%</b>                                   | emotional upset, abnormal fatigue, disturbed respiration.   |
| <b>6-10%</b>                                    | nausea and vomiting, collapse or loss of consciousness.   |
| <b>Below 6%</b>                                 | convulsive movements, possible respiratory collapse and death.  |
| <b>First-Aid</b>                                |   |
| <b>Eye Contact:</b>                             | Immediately flush eyes thoroughly with water for at least 15 minutes. Obtain medical assistance.  |
| <b>Skin Contact:</b>                            | Liquid nitrogen can cause severe frost burn upon contact with skin. In case of frost burn spray with water for at least 15 minutes. Apply sterile dressing. Obtain medical assistance.  |
| <b>Inhalation:</b>                              | Call Doctor, Prompt medical attention is mandatory in all cases of overexposure to nitrogen.  |
| <b>If victim is conscious:</b>                  | Move to uncontaminated area to breathe fresh air.   |
| <b>If victim is unconscious:</b>                | Move to uncontaminated area and give assisted respiration. When normal breathing is restored, treat as above. Continued treatment should be symptomatic and supportive.   |
| <b>Advice to doctor:</b>                        | Advise doctor that victim is experiencing (has experienced) hyperoxia. Specialist advice for treatment of cryogenic burns is available at a burns unit.   |
| <b>General:</b>                                 | Low air temperature due to close proximity can cause Hypothermia and all persons at risk should be warmly clad. Avoid liquid spillage as cryogenic liquids embrittle many materials on contact.   |
| <b>5. FIRE-FIGHTING MEASURES</b>                |   |
| <b>Flammability:</b>                            | Non Flammable.  |
| <b>Fire / Explosion Hazard:</b>                 | Nitrogen is non-flammable, but the container may release large quantities of nitrogen if ruptured. Nitrogen may serve to extinguish fire.   |
| <b>Extinguishing Media:</b>                     | 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.      |
| <b>Hazchem Code:</b>                            | 2T  |
| <b>Recommended Protective:</b>                  | A full chemical protection suit and breathing apparatus should be worn.   |
| <b>6. SPILLAGE, ACCIDENTAL RELEASE MEASURES</b> |   |
| <b>Personal Protection:</b>                     | 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 faced respiratory equipment should be readily available. |
| <b>Spills and Disposal:</b>                     | 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 low lying areas.   |

|   |   |                                  |
|---|---|----------------------------------|
| <b>Reference Guide:</b>                             | Standard SNZ HB 76:2008 Dangerous Goods - Initial Emergency Response Guide.   |                                  |
| <b>General:</b>                                     | 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.   |                                  |
| <b>7. HANDLING AND STORAGE</b>                      |   |                                  |
| <b>Handling</b>                                     |   |                                  |
| <b>Flammability:</b>                                | Non Flammable.  |                                  |
| <b>General:</b>                                     | 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.   |                                  |
| <b>Approved Handlers:</b>                           | Approved handlers are not required, non-hazardous (HSNO)  |                                  |
| <b>Storage</b>                                      |   |                                  |
| <b>Separation:</b>                                  | Supplied in portable cryogenic liquid containers or by bulk road vessel to cryogenic storage vessels at users' premises.  |                                  |
| <b>Spills and Disposal:</b>                         | 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 low lying areas.   |                                  |
| <b>8. EXPOSURE CONTROLS AND PERSONAL PROTECTION</b> |   |                                  |
| <b>Exposure Standards:</b>                          | Simple asphyxiant.  |                                  |
| <b>Engineering Controls:</b>                        | Provide adequate local exhaust and dilution, Ventilation (general) and supply sufficient replacement air to maintain oxygen concentration above 18%.  |                                  |
| <b>Personal Protection:</b>                         | Personnel handling liquid nitrogen must be provided with safety footwear and leather or PVC gloves. Full length 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. |                                  |
| <b>9. PHYSICAL AND CHEMICAL PROPERTIES</b>          |   |                                  |
| <b>Physical Properties:</b>                         | Appearance:   | Colourless, odourless, tasteless |
|   | Boiling Point:  | -195.8 degrees Celsius           |
|   | Vapour Pressure:  | Not applicable                   |
|   | Flashpoint:   | Non flammable                    |
|   | Flammability Limits:  | Non flammable                    |
|   | Solubility in Water:  | 0.00235 m <sup>3</sup> /kg       |
| <b>Other Properties:</b>                            | Relative Density (at 15 degrees Celsius) (Air = 1):   | 0.967                            |
|   | Molecular Weight:   | 28.013                           |
|   | Density of Liquid:  | 808.6kg/m <sup>3</sup>           |
|   | Critical Temperature:   | -146.95 degrees Celsius          |

| <b>10. STABILITY AND REACTIVITY</b>  |   |
|--|---|
| <b>Flammability:</b>   | Non-flammable. Contains refrigerated gas; may cause cryogenic burns or injury.  |
| <b>Materials Compatibility:</b>  | Stable under normal conditions. Liquid spillages can cause embrittlement of structural materials.   |
| <b>11. TOXICOLOGY INFORMATION</b>  |   |
| No known toxicological effects from this product.  |   |
| <b>12. ECOLOGICAL INFORMATION</b>  |   |
| Can cause frost damage to vegetation.  |   |
| <b>13. DISPOSAL CONSIDERATIONS</b>   |   |
| Do not discharge into any place where its accumulation could be dangerous.   |   |
| <b>14. TRANSPORT INFORMATION</b>   |   |
| <b>UN Number:</b>  | 1977  |
| <b>Proper Shipping Name:</b>   | NITROGEN, REFRIGERATED LIQUID   |
| <b>Dangerous Goods Class:</b>  | 2.2   |
| <b>Packing Group:</b>  | Not applicable  |
| <b>Hazchem Code:</b>   | 2T  |
| <b>Other Information:</b>  | Avoid transport on vehicles where the load is not separated from the drivers compartment.<br>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.<br>Before transporting product containers: <ul style="list-style-type: none"> <li>• Ensure the containers are firmly secured.</li> <li>• Ensure cylinder valve is closed and not leaking.</li> <li>• Ensure there is adequate ventilation.</li> <li>• Comply with applicable regulations.</li> </ul> |
| <b>15. REGULATORY INFORMATION</b>  |   |
| <b>HSNO Controls:</b>  | Hazardous Substances (Compressed Gases) Regulations 2004.<br>Hazardous Substances (Tank Wagon and Transportable Containers) Regulations 2004  |
| <b>Approved Handlers:</b>  | Not required, non-hazardous gas (HSNO)  |
| <b>16. OTHER INFORMATION</b>   |   |
| <p>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.</p> <p>Although details given in this document are believed to be correct at the time of printing they are not guaranteed. Whilst due and proper care has been taken in its preparation, no liability for loss, injury or damage incurred directly or indirectly from its use can be accepted.</p> <p>If clarification or further information is needed to ensure that an appropriate risk assessment can be made, the user should contact this company.</p> |   |