SECTION 1: Identification

1.1. Product identifier

Product form: Substance
Name: Nitrogen
CAS No: 7727-37-9
Formula: N2
Other means of identification: Dinitrogen, Refrigerant R728, Nitrogen, Medipure® Nitrogen, Extendapak Nitrogen, Nitrogen - Diving Grade
Product group: Core Products

1.2. Recommended use and restrictions on use

Recommended uses and restrictions:
- Medical applications
- Industrial use
- Diving Gas (Underwater Breathing)

1.3. Supplier

Praxair Canada Inc.
1200 – 1 City Centre Drive
Mississauga - Canada L5B 1M2
T 1-905-803-1600 - F 1-905-803-1682
www.praxair.ca

1.4. Emergency telephone number

Emergency number: 1-800-363-0042
Call emergency number 24 hours a day only for spills, leaks, fire, exposure, or accidents involving this product.
For routine information, contact your supplier or Praxair sales representative.

SECTION 2: Hazard identification

2.1. Classification of the substance or mixture

GHS-CA classification
- Simple asphyxiant: H380
- Compressed gas: H280

2.2. GHS Label elements, including precautionary statements

GHS-CA labelling

Hazard pictograms: GHS04
Signal word: WARNING

Hazard statements: CONTAINS GAS UNDER PRESSURE; MAY EXPLODE IF HEATED
MAY DISPLACE OXYGEN AND CAUSE RAPID SUFFOCATION

Precautionary statements:
- Do not handle until all safety precautions have been read and understood
- Use and store only outdoors or in a well-ventilated area
- Protect from sunlight when ambient temperature exceeds 52°C (125°F)
- Use a back flow preventive device in the piping
- Close valve after each use and when empty
- Use only with equipment rated for cylinder pressure
- Obtain special instructions before use

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2.3. Other hazards

Other hazards not contributing to the classification: Asphyxiant in high concentrations. May cause suffocation by reducing oxygen available for breathing.

2.4. Unknown acute toxicity (GHS-CA)

No data available

SECTION 3: Composition/information on ingredients

3.1. Substances

<table>
<thead>
<tr>
<th>Name</th>
<th>CAS No.</th>
<th>% (Vol.)</th>
<th>Common Name (synonyms)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nitrogen (Main constituent)</td>
<td>(CAS No. 7727-37-9)</td>
<td>100</td>
<td>Nitrogen (liqified) / Nitrogen gas / Nitrogen, liquefied / Nitrogen, compressed / NITROGEN</td>
</tr>
</tbody>
</table>

3.2. Mixtures

Not applicable

SECTION 4: First-aid measures

4.1. Description of first aid measures

First-aid measures after inhalation: Immediately remove to fresh air. If not breathing, clear airways of any slurry or caked material and give artificial respiration. If breathing is difficult, qualified personnel may give oxygen. Call a physician.

First-aid measures after skin contact: Adverse effects not expected from this product.

First-aid measures after eye contact: Adverse effects not expected from this product. In case of eye irritation: Rinse immediately with plenty of water. Rinse immediately with plenty of water. Consult an ophthalmologist if irritation persists.

First-aid measures after ingestion: Ingestion is not considered a potential route of exposure.

4.2. Most important symptoms and effects (acute and delayed)

No additional information available

4.3. Immediate medical attention and special treatment, if necessary

Other medical advice or treatment: None.

SECTION 5: Fire-fighting measures

5.1. Suitable extinguishing media

Suitable extinguishing media: Use extinguishing media appropriate for surrounding fire.

5.2. Unsuitable extinguishing media

No additional information available

5.3. Specific hazards arising from the hazardous product

Explosion hazard: PRESSURISED CONTAINER: MAY BURST IF HEATED.

Reactivity: Under certain conditions, nitrogen can react violently with lithium, neodymium, titanium (above 1472°F/800°C), or magnesium to form nitrides. At high temperature, it can also combine with oxygen and hydrogen.

5.4. Special protective equipment and precautions for fire-fighters

Firefighting instructions: Evacuate all personnel from the danger area. Use self-contained breathing apparatus (SCBA) and protective clothing. Immediately cool containers with water from maximum distance. Stop flow of gas if safe to do so, while continuing cooling water spray. Remove ignition sources if safe to do so. Remove containers from area of fire if safe to do so. On-site fire brigades must comply with their provincial and local fire code regulations.

Protection during firefighting: Compressed gas: asphyxiant. Suffocation hazard by lack of oxygen.

Special protective equipment for fire fighters: Standard protective clothing and equipment (Self Contained Breathing Apparatus) for fire fighters.
Specific methods

Use fire control measures appropriate for the surrounding fire. Exposure to fire and heat radiation may cause gas containers to rupture. Cool endangered containers with water spray jet from a protected position. Prevent water used in emergency cases from entering sewers and drainage systems.

Stop flow of product if safe to do so.

Use water spray or fog to knock down fire fumes if possible.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

General measures

Evacuate area. Ensure adequate air ventilation. Wear self-contained breathing apparatus when entering area unless atmosphere is proven to be safe. Stop leak if safe to do so.

6.2. Methods and materials for containment and cleaning up

6.3. Reference to other sections

For further information refer to section 8: Exposure controls/personal protection

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Precautions for safe handling

Wear leather safety gloves and safety shoes when handling cylinders. Protect cylinders from physical damage; do not drag, roll, slide or drop. While moving cylinder, always keep in place removable valve cover. Never attempt to lift a cylinder by its cap; the cap is intended solely to protect the valve. When moving cylinders, even for short distances, use a cart (trolley, hand truck, etc.) designed to transport cylinders. Never insert an object (e.g., wrench, screwdriver, pry bar) into cap openings; doing so may damage the valve and cause a leak. Use an adjustable strap wrench to remove over-tight or rusted caps. Slowly open the valve. If the valve is hard to open, discontinue use and contact your supplier. Close the container valve after each use; keep closed even when empty. Never apply flame or localized heat directly to any part of the container. High temperatures may damage the container and could cause the pressure relief device to fail prematurely, venting the container contents. For other precautions in using this product, see section 16.

Safe use of the product

The suitability of this product as a component in underwater breathing gas mixtures is to be determined by or under the supervision of personnel experienced in the use of underwater breathing gas mixtures and familiar with the physiological effects, methods employed, frequency and duration of use, hazards, side effects, and precautions to be taken.

7.2. Conditions for safe storage, including any incompatibilities

Storage conditions

Store in a cool, well-ventilated place. Store and use with adequate ventilation. Store only where temperature will not exceed 125°F (52°C). Firmly secure containers upright to keep them from falling or being knocked over. Install valve protection cap, if provided, firmly in place by hand. Store full and empty containers separately. Use a first-in, first-out inventory system to prevent storing full containers for long periods

OTHER PRECAUTIONS FOR HANDLING, STORAGE, AND USE: When handling product under pressure, use piping and equipment adequately designed to withstand the pressures to be encountered. Never work on a pressurized system. Use a back flow preventive device in the piping. Gases can cause rapid suffocation because of oxygen deficiency; store and use with adequate ventilation. If a leak occurs, close the container valve and blow down the system in a safe and environmentally correct manner in compliance with all international, federal/national, state/provincial, and local laws; then repair the leak. Never place a container where it may become part of an electrical circuit.

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

No additional information available

8.2. Appropriate engineering controls

Appropriate engineering controls

Use a local exhaust system with sufficient flow velocity to maintain an adequate supply of air in the worker's breathing zone. Mechanical (general): General exhaust ventilation may be acceptable if it can maintain an adequate supply of air.
8.3. Individual protection measures/Personal protective equipment


Hand protection: Wear work gloves when handling containers. Wear heavy rubber gloves where contact with product may occur.

Eye protection: Wear goggles when transfilling or breaking transfer connections. Select in accordance with the current CSA standard Z94.3, "Industrial Eye and Face Protection", and any provincial regulations, local bylaws or guidelines.

Skin and body protection: As needed for welding, wear hand, head, and body protection to help prevent injury from radiation and sparks. (See ANSI Z94.1.) At a minimum, this includes welder’s gloves and protective goggles, and may include arm protectors, aprons, hats, and shoulder protection as well as substantial clothing.

Respiratory protection: Respiratory protection: Use respirable fume respirator or air supplied respirator when working in confined space or where local exhaust or ventilation does not keep exposure below TLV. Select in accordance with provincial regulations, local bylaws or guidelines. Selection should be based on the current CSA standard Z94.4, "Selection, Care, and Use of Respirators." Respirators should also be approved by NIOSH and MSHA. For emergencies or instances with unknown exposure levels, use a self-contained breathing apparatus (SCBA).

Environmental exposure controls: Refer to local regulations for restriction of emissions to the atmosphere.

Other information: Other protection: Safety shoes for general handling at customer sites. Metatarsal shoes and cuffless trousers for cylinder handling at packaging and filling plants. Select in accordance with the current CSA standard Z195, "Protective Foot Wear", and any provincial regulations, local bylaws or guidelines. For working with flammable and oxidizing materials, consider the use of flame resistant anti-static safety clothing.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical state: Gas
Appearance: Colourless gas.
Molecular mass: 28 g/mol
Colour: Colourless.
Odour: No odour warning properties.
Odour threshold: No data available
pH: Not applicable.
pH solution: No data available
Relative evaporation rate (butylacetate=1): No data available
Relative evaporation rate (ether=1): Not applicable.
Melting point: -210 °C
Freezing point: No data available
Boiling point: -195.8 °C
Flash point: No data available
Critical temperature: -149.9 °C
Auto-ignition temperature: Not applicable.
Decomposition temperature: No data available
Vapour pressure: Not applicable.
Vapour pressure at 50 °C: No data available
Critical pressure: 3390 kPa
Relative vapour density at 20 °C: 0.00115 (≥ 21.1)
Relative density: No data available
Relative density of saturated gas/air mixture: No data available
Density: 1.16 kg/m³
Relative gas density: 0.97
### Solubility
- Water: 20 mg/l

### Log Pow
- Not applicable.

### Log Kow
- Not applicable.

### Viscosity, kinematic
- Not applicable.

### Viscosity, dynamic
- Not applicable.

### Viscosity, kinematic (calculated value) (40 °C)
- No data available

### Explosive properties
- Not applicable.

### Oxidizing properties
- None.

### Flammability (solid, gas)
- Non flammable

### 9.2. Other information
- Gas group: Compressed gas
- Additional information: None

### SECTION 10: Stability and reactivity

#### 10.1. Reactivity
- Reactivity: Under certain conditions, nitrogen can react violently with lithium, neodymium, titanium (above 1472°F/800°C), or magnesium to form nitrides. At high temperature, it can also combine with oxygen and hydrogen.

  - Chemical stability: Stable under normal conditions.
  - Possibility of hazardous reactions: May occur.
  - Conditions to avoid: None under recommended storage and handling conditions (see section 7).
  - Incompatible materials: None.
  - Hazardous decomposition products: None.

### SECTION 11: Toxicological information

#### Likely routes of exposure
- Inhalation.

#### 11.1. Information on toxicological effects
- Acute toxicity (oral): Not classified
- Acute toxicity (dermal): Not classified
- Acute toxicity (inhalation): Not classified

  - Skin corrosion/irritation: Not classified
    - pH: Not applicable.
  - Serious eye damage/irritation: Not classified
    - pH: Not applicable.
  - Respiratory or skin sensitization: Not classified
  - Germ cell mutagenicity: Not classified
  - Carcinogenicity: Not classified
  - Reproductive toxicity: Not classified
  - Specific target organ toxicity (single exposure): Not classified
  - Specific target organ toxicity (repeated exposure): Not classified
  - Aspiration hazard: Not classified
SECTION 12: Ecological information

12.1. Toxicity
Ecology - general : No ecological damage caused by this product.

12.2. Persistence and degradability
Nitrogen (7727-37-9)
Persistence and degradability : No ecological damage caused by this product.

12.3. Bioaccumulative potential
Nitrogen (7727-37-9)
Log Pow Not applicable.
Log Kow Not applicable.
Bioaccumulative potential : No ecological damage caused by this product.

12.4. Mobility in soil
Nitrogen (7727-37-9)
Mobility in soil : No data available.
Log Pow Not applicable.
Log Kow Not applicable.
Ecology - soil : No ecological damage caused by this product.

12.5. Other adverse effects
Effect on the ozone layer : None
Effect on global warming : None

SECTION 13: Disposal considerations

13.1. Disposal methods
Waste disposal recommendations : Dispose of contents/container in accordance with local/regional/national/international regulations. Contact supplier for any special requirements.

SECTION 14: Transport information

14.1. Basic shipping description
In accordance with TDG
TDG
UN-No. (TDG) : UN1066
TDG Primary Hazard Classes : 2.2 - Class 2.2 - Non-Flammable, Non-Toxic Gas.
Proper shipping name : NITROGEN, COMPRESSED
Explosive Limit and Limited Quantity Index : 0.125 L
Passenger Carrying Road Vehicle or Passenger Carrying Railway Vehicle Index : 75 L

14.3. Air and sea transport
IMDG
UN-No. (IMDG) : 1066
Proper Shipping Name (IMDG) : NITROGEN, COMPRESSED
Class (IMDG) : 2 - Gases
MFAG-No : 121
IATA
UN-No. (IATA) : 1066
Proper Shipping Name (IATA) : Nitrogen, compressed
Class (IATA) : 2

SECTION 15: Regulatory information

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Nitrogen
Safety Data Sheet E-4631
according to the Hazardous Products Regulation (February 11, 2015)
Date of issue: 10-15-1979 Revision date: 08-03-2016 Supersedes: 10-15-2013

15.1. National regulations
Nitrogen (7727-37-9)
[Listed on the Canadian DSL (Domestic Substances List)]

15.2. International regulations
Nitrogen (7727-37-9)
[Listed on the AICS (Australian Inventory of Chemical Substances)
Listed on IECSC (Inventory of Existing Chemical Substances Produced or Imported in China)
Listed on the EEC inventory EINECS (European Inventory of Existing Commercial Chemical Substances)
Listed on the Korean ECL (Existing Chemicals List)
Listed on NZIoC (New Zealand Inventory of Chemicals)
Listed on PICCS (Philippines Inventory of Chemicals and Chemical Substances)
Listed on the United States TSCA (Toxic Substances Control Act) inventory
Listed on INSQ (Mexican national Inventory of Chemical Substances)

SECTION 16: Other information

Date of issue: 15/10/1979
Revision date: 03/08/2016
Supersedes: 15/10/2013

Indication of changes:
Training advice: The hazard of asphyxiation is often overlooked and must be stressed during operator training.
Other information: Praxair asks users of this product to study this SDS and become aware of the product hazards and safety information. To promote safe use of this product, a user should (1) notify employees, agents, and contractors of the information in this SDS and of any other known product hazards and safety information, (2) furnish this information to each purchaser of the product, and (3) ask each purchaser to notify its employees and customers of the product hazards and safety information.

The opinions expressed herein are those of qualified experts within Praxair Canada Inc. We believe that the information contained herein is current as of the date of this Safety Data Sheet. Since the use of this information and the conditions of use are not within the control of Praxair Canada Inc, it is the user's obligation to determine the conditions of safe use of the product. Praxair Canada Inc, SDSs are furnished on sale or delivery by Praxair Canada Inc, or the independent distributors and suppliers who package and sell our products. To obtain current SDSs for these products, contact your Praxair sales representative, local distributor, or supplier, or download from www.praxair.ca. If you have questions regarding Praxair SDSs, would like the document number and date of the latest SDS, or would like the names of the Praxair suppliers in your area, phone or write Praxair Canada Inc, (Phone: 1-888-257-5149; Address: Praxair Canada Inc, 1 City Centre Drive, Suite 1200, Mississauga, Ontario, L5B 1M2).

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NFPA health hazard: 0 - Exposure under fire conditions would offer no hazard beyond that of ordinary combustible materials.
NFPA fire hazard: 0 - Materials that will not burn.
NFPA reactivity: 0 - Normally stable, even under fire exposure conditions, and are not reactive with water.
NFPA specific hazard: SA - This denotes gases which are simple asphyxiants.

HMIS III Rating
Health: 0 Minimal Hazard - No significant risk to health
Flammability: 0 Minimal Hazard - Materials that will not burn
Physical: 3 Serious Hazard - Materials that may form explosive mixtures with water and are capable of detonation or explosive reaction in the presence of a strong initiating source. Materials may polymerize, decompose, self-react, or undergo other chemical change at normal temperature and pressure with moderate risk of explosion

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SDS Canada (GHS) - Praxair

This information is based on our current knowledge and is intended to describe the product for the purposes of health, safety and environmental requirements only. It should not therefore be construed as guaranteeing any specific property of the product.