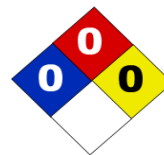


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Label 2.2: Non flammable, non toxic gas.



NFPA RATING

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

<b>Trade Name</b>	: Nitrogen, Compressed Gas
<b>Chemical Formula</b>	: N <sub>2</sub>
<b>MSDS No</b>	: DG002G
<b>Company Identification</b>	: Aldakheel Industrial Gases Plant ( <b>DIGAS</b> )
<b>Emergency Phone Number</b>	: 04-8455-101

### 2 COMPOSITION / INFORMATION ON INGREDIENTS

COMPONENT	CAS NUMBER	CONCENTRATION
Nitrogen	7727-37-9	>99%*

\*The symbol > means "greater than"

### 3 HAZARDS IDENTIFICATION

<b>Emergency Overview</b>	: Caution! High-pressure gas. Can cause rapid suffocation. May cause dizziness and drowsiness. Self-contained breathing apparatus and protective clothing may be required by rescue workers.
<b>Effects of a Single (Acute) Overexposure -Inhalation</b>	: Asphyxiant. Effects are due to lack of oxygen. Moderate concentrations may cause headache, drowsiness, dizziness, excitation, excess salivation, vomiting, and unconsciousness. Lack of oxygen can kill.
<b>Skin Contact</b>	: No harm expected.
<b>Swallowing</b>	: An unlikely route of exposure. This product is a gas at normal temperature and pressure.
<b>Eye Contact</b>	: No harm expected.
<b>Effects of Repeated (Chronic) Overexposure</b>	: No harm expected.
<b>Other Effects of Overexposure</b>	: Asphyxiant. Lack of oxygen can kill.
<b>Medical Conditions Aggravated by Overexposure</b>	: The toxicology and the physical and chemical properties of nitrogen suggest that overexposure is unlikely to aggravate existing medical conditions.
<b>Potential Environmental Effects</b>	: None known.

**Aldakheel Industrial Gases Plant**

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#### 4 FIRST AID MEASURES

<b>Inhalation</b>	: Remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, qualified personnel may give oxygen. Call a physician.
<b>Skin Contact</b>	: An unlikely route of exposure. This product is a gas at normal temperature and pressure.
<b>Swallowing</b>	: An unlikely route of exposure. This product is a gas at normal temperature and pressure.
<b>Eye Contact</b>	: An unlikely route of exposure. This product is a gas at normal temperature and pressure.
<b>Notes to Physician</b>	: There is no specific antidote. Treatment of overexposure should be directed at the control of symptoms and the clinical condition of the patient. Victim may not be aware of asphyxiation.

#### 5 FIRE-FIGHTING MEASURES

<b>Flammable Properties</b>	: Nitrogen cannot catch fire.
<b>Flammable Class</b>	: Non flammable.
<b>Extinguishing media</b> <b>Suitable extinguishing media</b>	: All known extinguishants can be used.
<b>Hazardous combustion products</b>	: None.
<b>Specific physical and chemical hazards</b>	: Heat of fire can build pressure in cylinder and cause it to rupture. No part of cylinder should be subjected to a temperature higher than 52°C (125°F). Nitrogen cylinders are equipped with a pressure relief device. (Exceptions may exist.)
<b>Specific methods</b>	: If possible, stop flow of product. Evacuate all personnel from danger area. Immediately deluge cylinders with water from maximum distance until cool; then move them away from fire area if without risk. Self-contained breathing apparatus may be required by rescue workers.
<b>Protective equipment and precautions for firefighters</b>	: Firefighters should wear self contained breathing apparatus and full fire-fighting turnout gear.

#### 6 ACCIDENTAL RELEASE MEASURES

<b>Personal precautions</b>	: Evacuate area. Wear self-contained breathing apparatus when entering area unless atmosphere is proved to be safe. Ensure adequate air ventilation.
<b>Environmental precautions</b>	: Try to stop release.
<b>Clean up methods</b>	: Ventilate area.

#### 7 HANDLING AND STORAGE

<b>Precautions to be taken in handling</b>	: Protect cylinders from damage. Use a suitable hand truck to move cylinders; do not drag, roll, slide, or drop. Never attempt to lift a cylinder by its cap; the cap is intended solely to protect the valve. 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. Open valve slowly. Close valve after each use; keep closed even when empty. If valve is hard to open, discontinue use and contact DIGAS.
<b>Precautions to be taken in storage</b>	: Store and use with adequate ventilation. Always secure cylinders upright to keep them from falling or being knocked over. Install valve protection cap, if provided, firmly in place by hand. Store only where temperature will not exceed 52°C (125°F). Store full and empty cylinders separately. Use a first-in, first-out inventory system to prevent storing full cylinders for long periods.

**8 EXPOSURE CONTROLS / PERSONAL PROTECTION**
**Engineering controls**
**Local exhaust**

: Use a local exhaust system, if necessary, to prevent oxygen deficiency.

**Mechanical (General)**

: General exhaust ventilation may be acceptable if it can maintain an adequate supply of

**Special**

: None.

**Other**

: None.

**Personal protective equipment**
**Skin Protection**

: Wear work gloves when handling cylinders and metatarsal shoes for cylinder handling.

**Eye/Face Protection**

: Wear safety glasses when handling cylinders.

**Respiratory Protection**

: None required under normal use. Air-supplied respirators must be used in confined spaces or in an oxygen-deficient atmosphere.

**9 PHYSICAL AND CHEMICAL PROPERTIES**
**Appearance**

: Colorless gas.

**Odor**

: Odorless.

**Odor Threshold**

: Not available.

**Physical State**

: Gas at normal temperature and pressure.

**pH**

: Not applicable.

**Melting Point at 1 atm**

: -210°C (-346°F)

**Boiling Point at 1 atm**

: -195.80°C(-320.44°F)

**Flash Point (test method)**

: Not applicable.

**Evaporation Rate (Butyl Acetate = 1)**

: Not applicable.

**Flammability**

: Nonflammable.

**Flammable Limits In Air, % by volume**

: **Lower** Not applicable **Upper** Not applicable

**Vapor Pressure at 20°C (68°F)**

: Not applicable.

**Vapor Density at 21.1°C (70°F) at 1atm**

: 0.0724 lb/ft3 (1.160 kg/m3)

**Liquid Density at boiling point and 1 atm**

: 50.7 lb/ft3 (808.5 kg/m3)

**Specific Gravity (H2O = 1) at -7°C (19.4°F)**

: Not available.

**Specific Gravity (Air = 1) at 21.1°C (70°F) and 1 atm**

: 0.967

**Solubility In Water, vol/vol at 0°C (32°F)**

: 0.023

**Partition Coefficient: n-octanol/water**

: Not available.

**Autoignition Temperature**

: Not applicable.

**Decomposition Temperature**

: Not available.

**Percent Volatiles By Volume**

: 100

**Molecular Weight**

: 28.01

**Molecular Formula**

: N2



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**Nitrogen**

**DG002G**

## 10 STABILITY AND REACTIVITY

**Chemical Stability**

Unstable  Stable

**Conditions to Avoid**

: High temperatures, exposure to lithium, neodymium, titanium and magnesium

**Incompatible Materials**

: None known.

**Hazardous Decomposition Products**

: None known.

**Possibility Of Hazardous Reactions**

May Occur  Will Not Occur

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

## 11 TOXICOLOGICAL INFORMATION

**Acute Dose Effect**

: Nitrogen is a simple asphyxiant.

**Study Results**

: No known effects.

## 12 ECOLOGICAL INFORMATION

**Ecotoxicity**

: No adverse ecological effects expected.

**Other Adverse Effects**

: Nitrogen does not contain any Class I or Class II ozone-depleting chemicals.

## 13 DISPOSAL CONSIDERATION

**Waste Disposal Method**

: Do not attempt to dispose of residual or unused quantities. Return cylinder to supplier.

## 14 TRANSPORT INFORMATION

**Transport Information**

: Avoid transport on vehicles where the load space 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:

- Ensure that containers are firmly secured.
- Ensure cylinder valve is closed and not leaking.
- Ensure valve outlet cap nut or plug (where provided) is correctly fitted.
- Ensure valve protection device (where provided) is correctly fitted.
- Ensure there is adequate ventilation.
- Compliance with applicable regulations.

## 15 OTHER INFORMATION

**Asphyxiant in high concentrations.**

**Keep container in a well-ventilated place.**

**Do not breathe the gas.**

**The hazard of asphyxiation is often overlooked and must be stressed during operator training.**

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**15 OTHER INFORMATION (Continued)**

**HAZARD RATING SYSTEMS:**

**NFPA Ratings:**

Health =0  
 Flammability =0  
 Instability =0  
 Special = SA (CGA recommends this to designate Simple Asphyxiant).

**HMS Ratings:**

Health =0  
 Flammability =0  
 Physical Hazard =3

**STANDARD VALVE CONNECTIONS:**

**THREADED** : CGA-580  
**PIN-INDEX YOKE** : CGA-960 (Medical Use)

Use the proper CGA connections. **DO NOT USE ADAPTERS.**

This Material Safety Data Sheet has been established for the best knowledge of DIGAS.

Details given in this document are believed to be correct at the best of DIGAS knowledge. Whilst proper care has been taken in the preparation of this document, no liability for injury or damage resulting from its use can be accepted.

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**End of Documents.**