LES GAZ INDUSTRIELS LTD.
UNE VALEUR SÛRE
Est. 1952

MATERIAL SAFETY DATA SHEET (MSDS)
NITROGEN

DATE: November 2018 Version 3

Ref. No.: MS095

1 PRODUCT AND COMPANY IDENTIFICATION

Product Name	Nitrogen
Chemical Formula	N_2
Trade Names	Nitrogen, Compressed Nitrogen, Instrument Grade Nitrogen, Pharmaceutical Grade Nitrogen, ELCAP
Colour coding	Compressed, Instrument, ultra high purity & Pharmaceutical Grades have French Grey (H.30) bodies with black shoulders. Relevant decals/stencilling shall be on bodies of cylinders. ELCAP shall have a Protea Pink (A.58) body, with "ELCAP" stencilled on body of the cylinder.
Valve	ELCAP No. 2 type-Brass 5/8inch BSP right hand female. All the other grades shall be fitted with 3 SN – Brass, ¾ inch BSP right hand female valves.
Company Identification	Les Gaz Industriels Ltd Pailles Road G.R.N.W. Republic of Mauritius Tel No: (+230) 212-8306 Fax No: (+230) 212-0235
EMERGENCY NUMBER	(+230) 800 1133

2 COMPOSITION/INFORMATION ON INGREDIENTS

Chemical Name	Nitrogen
Chemical Family	Inert gas
CAS No.	7727-37-9
UN No.	1066
ERG No.	121
Hazchem Warning	2 C Non-flammable Gas

3 HAZARDS IDENTIFICATION

Main Hazards
All cylinders are portable gas containers, and must be regarded as pressure vessels at all times. Nitrogen does not support life. It can act as a simple asphyxiant by diluting the concentration of oxygen in air below the levels necessary to support life.
Adverse Health Effects
Inhalation of nitrogen in excessive concentrations can result in dizziness, nausea, vomiting, loss of consciousness and death.
Chemical Hazards
Nitrogen is relatively inert to most materials under ordinary conditions. It becomes more reactive at elevated temperatures, and combines with hydrogen, oxygen and some metals.
Biological Hazards No known effect.
Vapour Inhalation
As nitrogen acts as a simple asphyxiant death may result from errors in judgement, confusion, or loss of consciousness which prevents self-rescue. At low oxygen concentrations, unconsciousness and death may occur in seconds without warning.

4 FIRST AID MEASURES

Eye/Skin Contact No known effect.
Ingestion (See Section 3 above)
Inhalation
Prompt medical attention is mandatory in all cases of overexposure to Nitrogen. Rescue personnel should be equipped with self-contained breathing apparatus. Conscious persons should be assisted to an uncontaminated area and inhale fresh air. Quick removal from the contaminated area is most important. Unconscious persons should be removed to an uncontaminated area, and given mouth-to-mouth resuscitation and supplemental oxygen.

5 FIRE FIGHTING MEASURES

Extinguishing Media
As Nitrogen is an inert gas, it does not contribute to a fire, but could help with the extinguishing by reducing the oxygen content of the air by dilution to below the level to support combustion.
Specific Hazards
Nitrogen does not support life. It can act as a simple asphyxiant by diluting the concentration of oxygen in the air below the levels to support life.
Emergency Actions
If possible, shut off the source of excess Nitrogen. Evacuate area. All cylinders should be removed from the vicinity of the fire. Cylinders that cannot be removed should be cooled with water from a safe distance. Cylinders which have been exposed to excessive heat should be clearly identified and returned to supplier. CONTACT THE NEAREST AFROX BRANCH.
Protective Clothing
Self-contained breathing apparatus. Safety gloves and shoes, or boots, should be worn when handling cylinders.
Environmental Precautions
Nitrogen is lighter than air and disperses rapidly in the atmosphere. Care should be taken when entering a potentially oxygen-deficient environment. If possible, ventilate the affected area.

6 ACCIDENTAL RELEASE MEASURES

Personal Precautions
Do not enter any area where nitrogen has been spilled unless tests have shown that it is safe to do so.
Environmental Precautions
Nitrogen does not pose a hazard to the environment.
Small Spills
Shut off the source of escaping nitrogen. Ventilate the area.
Large Spills
Evacuate the area. Shut off the source of the spill if this can be done without risk. Restrict access to the area until completion of the clean-up procedure. Ventilate the area using forced-draught if necessary.

7 HANDLING AND STORAGE

Do not allow cylinders to slide or come into contact with sharp edges. Nitrogen cylinders may be stacked horizontally provided that they are firmly secured at each end to prevent rolling. Use a "first in - first out" inventory system to prevent full cylinders from being stored for excessive periods of time. Keep out of reach of children.

8 EXPOSURE CONTROLS/PERSONAL PROTECTION

Occupational Exposure Hazards
As nitrogen is a simple asphyxiant, avoid any areas where spillage has taken place. Only enter once testing has proved the atmosphere to be safe.
Engineering Control Measures
Engineering control measures are preferred to reduce exposure to Oxygen-depleted atmospheres. General methods include forced-draught ventilation, separate from other exhaust ventilation systems. Ensure that sufficient fresh air enters at, or near floor level.
Personal Protection
Self-contained breathing apparatus should always be worn when entering area where oxygen depletion may have occurred. Safety goggles, gloves and shoes or boots should be worn when handling cylinders.
Skin No known effect.

9 PHYSICAL AND CHEMICAL PROPERTIES

PHYSICAL DATA

Chemical Symbol	N_2
Molecular Weight	28,013
Specific Volume @ 20°C & 101,325 kPa	861,5ml/g
Density, gas @ 101,325 kPa and 20°C	1,25 kg/m^3
Relative density (Air = 1) @ 101,325 kPa	0,967
Colour	None
Taste	None
Odour	None

10 STABILITY AND REACTIVITY

Conditions to avoid
The dilution of the oxygen concentration in the atmosphere to levels which cannot support life. Never use cylinders as rollers or supports,

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NITROGEN

Ref. No.: MS095

or for any other purpose than the storage of Nitrogen. Never expose cylinders to excessive heat, as this may cause sufficient build-up of pressure to rupture the cylinders.

Incompatible Materials

As Nitrogen is inert it may be contained in systems constructed of any of the common metals which have been designed to safely withstand the pressures involved.

Hazardous Decomposition Products

None

11 TOXICOLOGICAL INFORMATION

Acute Toxicity	No known effect
Skin & eye contact	No known effect
Chronic Toxicity	No known effect
Carcinogenicity	No known effect
Mutagenicity	No known effect
Reproductive Hazards	No known effect

(For further information see Section 3. Adverse Health effects)

12 ECOLOGICAL INFORMATION

Nitrogen is lighter than air and can cause pockets of oxygen depleted atmosphere in low-lying areas. It does not pose a hazard to the ecology.

13 DISPOSAL CONSIDERATIONS

Disposal Methods

Small amounts may be blown to the atmosphere under controlled conditions. Large amounts should only be handled by the gas supplier.

Disposal of Packaging

The disposal of cylinders must only be handled by the gas supplier.

14 TRANSPORT INFORMATION

ROAD TRANSPORTATION

UN No	1066
ERG No	121
Hazchem warning	2C Non-flammable Gas

SEA TRANSPORTATION

IMDG	1066
Class	
Packaging group	
label	Non-flammable gas

AIR TRANSPORTATION

ICAO/IATA Code	1066
Class	2.2
Packaging group	
Packaging instructions	
- Cargo	200
- Passenger	200
Maximum quantity allowed	
- Cargo	150kg
- Passenger	75kg

15 REGULATORY INFORMATION

EEC Hazard class Non-flammable

Risk Phrase	Description	Safety Phrase	Description
R20	Harmful by inhalation	S2	Keep out of reach of Children
R44	Risk of explosion if heated under confinement	S9	Keep container in a well-ventilated place
		S15	Keep way from heat
		S37	Wear suitable gloves
		S38	In case of insufficient ventilation, wear suitable respiratory equipment
		S51	Use only in well-ventilated areas

National legislation None

Refer to SABS 0265 for explanation of the above.

16 OTHER INFORMATION

Bibliography

Compressed Gas Association, Arlington, Virginia
Handbook of Compressed Gases – 3rd Edition
Matheson. Matheson Gas Data Book – 6th Edition
SABS 0265 - Labelling of Dangerous Substances

17 EXCLUSION OF LIABILITY

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