



NITROGEN

Safety Data Sheet

1. IDENTIFICATION

Product identifier

Product Name NITROGEN

Other means of identification

Safety data sheet number LIND-P086

UN/ID no. UN1066

Synonyms LASER Nitrogen, LASER Nitrogen Ultra, Nitrogen, compressed

Recommended use of the chemical and restrictions on use

Recommended Use Industrial and professional use.

Uses advised against Consumer use

Details of the supplier of the safety data sheet

Linde Gas Singapore Pte Ltd

50 Jurong Island Highway, Singapore 627877

Phone: +65 68678998

www.linde.com.sg

For additional product information contact your local customer service.

Emergency telephone number

Company Phone Number +65 68670860

2. HAZARDS IDENTIFICATION

Classification

OSHA Regulatory Status

This chemical is considered hazardous by the 2012 OSHA Hazard Communication Standard (29 CFR 1910.1200).

Gases under pressure	Compressed gas
Simple asphyxiants	Yes

Label elements

Signal word

Warning

Hazard Statements

Contains gas under pressure; may explode if heated
May displace oxygen and cause rapid suffocation

Precautionary Statements - Prevention

Do not handle until all safety precautions have been read and understood
Use and store only outdoors or in a well ventilated place
Use backflow preventive device in piping
Use only with equipment rated for cylinder pressure
Close valve after each use and when empty

Precautionary Statements - Response

IF INHALED: Remove person to fresh air and keep comfortable for breathing. Get medical attention/advice.

Precautionary Statements - Storage

Protect from sunlight when ambient temperature exceeds 52°C/125°F

Hazards not otherwise classified (HNOC)

Not applicable

Other Information**3. COMPOSITION/INFORMATION ON INGREDIENTS**

Chemical Name	CAS No.	Volume %	Chemical Formula
Nitrogen	7727-37-9	100	N ₂

4. FIRST AID MEASURESDescription of first aid measures

General advice

Show this safety data sheet to the doctor in attendance.

Inhalation

Remove to fresh air and keep comfortable for breathing. If breathing is difficult, give oxygen. If breathing has stopped, give artificial respiration. Get medical attention immediately.

Skin contact	None under normal use. Get medical attention if symptoms occur.
Eye contact	None under normal use. Get medical attention if symptoms occur.
Ingestion	Not an expected route of exposure.
Self-protection of the first aider	RESCUE PERSONNEL SHOULD BE EQUIPPED WITH SELF-CONTAINED BREATHING APPARATUS.

Most important symptoms and effects, both acute and delayed

Symptoms	Simple asphyxiant. May cause suffocation by displacing the oxygen in the air. Exposure to oxygen-deficient atmosphere (<19.5%) may cause dizziness, drowsiness, nausea, vomiting, excess salivation, diminished mental alertness, loss of consciousness and death. Exposure to atmospheres containing 8-10% or less oxygen will bring about unconsciousness without warning and so quickly that the individuals cannot help or protect themselves. Lack of sufficient oxygen may cause serious injury or death.
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Indication of any immediate medical attention and special treatment needed

Note to physicians	Treat symptomatically.
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5. FIRE-FIGHTING MEASURES

Suitable extinguishing media

Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.

Specific extinguishing methods

Continue to cool fire exposed cylinders until flames are extinguished. Damaged cylinders should be handled only by specialists.

Specific hazards arising from the chemical

Non-flammable gas. Cylinders may rupture under extreme heat.

Protective equipment and precautions for firefighters

As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures

Personal precautions	Evacuate personnel to safe areas. Ensure adequate ventilation, especially in confined areas. Monitor oxygen level. Wear self-contained breathing apparatus when entering area unless atmosphere is proved to be safe.
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Environmental precautions

Environmental precautions	Prevent spreading of vapors through sewers, ventilation systems and confined areas.
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Methods and material for containment and cleaning up

Methods for containment	Stop the flow of gas or remove cylinder to outdoor location if this can be done without risk. If leak is in container or container valve, contact the appropriate emergency telephone number in Section 1 or call your closest Linde location.
Methods for cleaning up	Return cylinder to Linde or an authorized distributor.

7. HANDLING AND STORAGE

Precautions for safe handling

Advice on safe handling

Protect cylinders from physical damage; do not drag, roll, slide or drop. When moving cylinders, even for short distance, use a cart designed to transport cylinders. Never attempt to lift a cylinder by its valve protection cap. Never insert an object (e.g. wrench, screwdriver, pry bar, etc.) into valve cap openings. Doing so may damage valve, causing leak to occur. Use an adjustable strap wrench to remove over-tight or rusted caps. Use only with adequate ventilation. Use equipment rated for cylinder pressure. Use backflow preventive device in piping. Close valve after each use and when empty. If user experiences any difficulty operating cylinder valve discontinue use and contact supplier. Ensure the complete gas system has been checked for leaks before use.

Never put cylinders into trunks of cars or unventilated areas of passenger vehicles. Never attempt to refill a compressed gas cylinder without the owner's written consent. Never strike an arc on a compressed gas cylinder or make a cylinder a part of an electrical circuit.

Only experienced and properly instructed persons should handle gases under pressure. Always store and handle compressed gas cylinders in accordance with Compressed Gas Association, pamphlet CGA-P1, Safe Handling of Compressed Gases in Containers.

For additional recommendations consult Compressed Gas Association's (CGA) Safety Bulletin SB-2, Oxygen-Deficient Atmospheres.

Conditions for safe storage, including any incompatibilities

Storage Conditions

Store in cool, dry, well-ventilated area of non-combustible construction away from heavily trafficked areas and emergency exits. Keep at temperatures below 52°C / 125°F. Cylinders should be stored upright with valve protection cap in place and firmly secured to prevent falling. Full and empty cylinders should be segregated. Use a "first in-first out" inventory system to prevent full cylinders from being stored for excessive periods of time. Stored containers should be periodically checked for general condition and leakage.

Incompatible materials

None known.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Control parameters

Exposure Guidelines

This product, as supplied, does not contain any hazardous materials with occupational exposure limits established by the region specific regulatory bodies.

Appropriate engineering controls

Engineering Controls

Local exhaust ventilation to prevent accumulation of high concentrations and maintain air-oxygen levels at or above 19.5%. Oxygen detectors should be used when asphyxiating gases may be released. Systems under pressure should be regularly checked for leakages.

Individual protection measures, such as personal protective equipment

Eye/face protection

Wear safety glasses with side shields (or goggles).

Skin and body protection

Work gloves and safety shoes are recommended when handling cylinders.

Respiratory protection

Use positive pressure airline respirator with escape cylinder or self contained breathing apparatus for oxygen-deficient atmospheres (<19.5%).

General Hygiene Considerations

Handle in accordance with good industrial hygiene and safety practice.

9. PHYSICAL AND CHEMICAL PROPERTIES

Information on basic physical and chemical properties

Physical state	Compressed gas
Appearance	Colorless.
Odor	Odorless.
Odor threshold	Not applicable
pH	No data available
Melting point	-209.9 °C / -345.9 °F
Evaporation rate	Not applicable
Lower flammability limit:	Not applicable
Upper flammability limit:	Not applicable
Flash point	Not applicable
Autoignition temperature	No data available
Decomposition temperature	No data available
Water solubility	Slightly soluble
Partition coefficient	No data available
Kinematic viscosity	Not applicable

Chemical Name	Molecular weight	Boiling point	Vapor Pressure	Vapor density (air =1)	Gas Density Kg/m ³ @20°C	Critical Temperature
Nitrogen	28.01	-196 °C	Above critical temperature	0.97	1.153	-146.9 °C

10. STABILITY AND REACTIVITYReactivity

Not reactive under normal conditions.

Chemical stability

Stable under normal conditions.

Explosion data

Sensitivity to Mechanical Impact	None.
Sensitivity to Static Discharge	None.

Possibility of Hazardous Reactions

None under normal processing.

Conditions to avoid

None under recommended storage and handling conditions (see Section 7).

Incompatible materials

None known.

Hazardous Decomposition Products

None known.

11. TOXICOLOGICAL INFORMATIONInformation on likely routes of exposure

Inhalation	Product is a simple asphyxiant.
Skin contact	No data available.
Eye contact	No data available.

Ingestion Not an expected route of exposure.

Information on toxicological effects

Symptoms No information available.

Delayed and immediate effects as well as chronic effects from short and long-term exposure

Irritation	Not classified.
Sensitization	Not classified.
Germ cell mutagenicity	Not classified.
Carcinogenicity	This product does not contain any carcinogens or potential carcinogens listed by OSHA, IARC or NTP.
Reproductive toxicity	Not classified.
Developmental Toxicity	Not classified.
STOT - single exposure	Not classified.
STOT - repeated exposure	Not classified.
Chronic toxicity	None known.
Aspiration hazard	Not applicable.

Numerical measures of toxicity

Product Information	
Oral LD50	No information available
Dermal LD50	No information available
Inhalation LC50	No information available
Inhalation LC50	No information available.

12. ECOLOGICAL INFORMATION

Ecotoxicity

No known acute aquatic toxicity.

Persistence and degradability

Not applicable.

Bioaccumulation

No information available.

13. DISPOSAL CONSIDERATIONS

Waste treatment methods

Disposal of wastes Do not attempt to dispose of residual waste or unused quantities. Return in the shipping container PROPERLY LABELED WITH ANY VALVE OUTLET PLUGS OR CAPS SECURED AND VALVE PROTECTION CAP IN PLACE to Linde for proper disposal.

14. TRANSPORT INFORMATION

DOT

UN/ID no.	UN1066
Proper shipping name	Nitrogen, compressed
Hazard Class	2.2
Description	UN1066, Nitrogen, compressed
Emergency Response Guide Number	121

TDG

UN/ID no.	UN1066
Proper shipping name	Nitrogen, compressed
Hazard Class	2.2
Description	UN1066, Nitrogen, compressed

MEX

UN/ID no.	UN1066
Proper shipping name	Nitrogen, compressed
Hazard Class	2.2
Description	UN1066, Nitrogen, compressed

IATA

UN/ID no.	UN1066
Proper shipping name	Nitrogen, compressed
Hazard Class	2.2
ERG Code	2L
Special Provisions	A69
Description	UN1066, Nitrogen, compressed

IMDG

UN/ID no.	UN1066
Proper shipping name	Nitrogen, compressed
Hazard Class	2.2
EmS-No.	F-C, S-V
Description	UN1066, Nitrogen, compressed, 2.2

ADR

UN/ID no.	UN1066
Proper shipping name	Nitrogen, compressed
Hazard Class	2.2
Classification code	1A
Tunnel restriction code	(E)
Special Provisions	653
Description	UN1066, Nitrogen, compressed

15. REGULATORY INFORMATION

International Inventories

TSCA	Complies
DSL	Complies
EINECS/ELINCS	Complies

Legend:

TSCA - United States Toxic Substances Control Act Section 8(b) Inventory

DSL/NDL - Canadian Domestic Substances List/Non-Domestic Substances List

EINECS/ELINCS - European Inventory of Existing Chemical Substances/European List of Notified Chemical Substances

16. OTHER INFORMATION

<u>NFPA</u>	Health hazards 0	Flammability 0	Instability 0	Physical and Chemical Properties Simple asphyxiant
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Note: Ratings were assigned in accordance with Compressed Gas Association (CGA) guidelines as published in CGA Pamphlet P-19-2009, CGA Recommended Hazard Ratings for Compressed Gases, 3rd Edition.

Issue Date	17-Feb-2015
Revision Date	17-Feb-2015
Revision Note	Initial Release.

General Disclaimer

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End of Safety Data Sheet