ChemicalBook

Chemical Safety Data Sheet MSDS / SDS

Nitrogen

Revision Date:2024-05-25 Revision Number:1

SECTION 1: Identification of the substance/mixture and of the company/undertaking

Product identifier

Product name	: Nitrogen
CBnumber	: CB2159243
CAS	: 7727-37-9
EINECS Number	: 231-783-9
Synonyms	: nitrogen,molecular nitrogen

Relevant identified uses of the substance or mixture and uses advised against

Relevant identified uses	: For R&D use only. Not for medicinal, household or other use.
Uses advised against	: none

Company Identification

Company	: Chemicalbook
Address	: Building 1, Huihuang International, Shangdi 10th Street, Haidian District, Beijing
Telephone	: 400-158-6606

SECTION 2: Hazards identification

Classification of the substance or mixture

Not classified.

Label elements

Pictogram(s)

Signal word	Warning

Hazard statement(s)

H280 Contains gas under pressure; may explode if heated

Precautionary statement(s)

P410+P403 Protect from sunlight. Store in a well-ventilated place.

Prevention

none

Response

none

Storage

none

Disposal

none

Other hazards

no data available

SECTION 3: Composition/information on ingredients

Substance

Product name	: Nitrogen
Synonyms	: nitrogen,molecular nitrogen
CAS	: 7727-37-9
EC number	: 231-783-9
MF	: N2
MW	: 28.01

SECTION 4: First aid measures

Description of first aid measures

If inhaled

Fresh air, rest. Artificial respiration may be needed. Refer for medical attention.

Following skin contact

ON FROSTBITE: rinse with plenty of water, do NOT remove clothes. Refer for medical attention .

Following eye contact

First rinse with plenty of water for several minutes (remove contact lenses if easily possible), then refer for medical attention.

Following ingestion

Rinse mouth with water. Do not induce vomiting. Never give anything by mouth to an unconscious person. Call a doctor or Poison Control Center immediately.

Most important symptoms and effects, both acute and delayed

Excerpt from ERG Guide 121 [Gases - Inert]: Vapors may cause dizziness or asphyxiation without warning. Vapors from liquefied gas are initially heavier than air and spread along ground. (ERG, 2016)

Inhalation can cause asphyxiation, if atmosphere does not contain oxygen; dizziness, unconsciousness, or even death can result. Contact of liquid with skin or eyes causes frostbite burns. (USCG, 1999)

Indication of any immediate medical attention and special treatment needed

Immediate first aid: Ensure that adequate decontamination has been carried out. If patient is not breathing, start artificial respiration, preferably with a demand-valve resuscitator, bag-valve-mask device, or pocket mask, as trained. Perform CPR as necessary. Immediately flush contaminated eyes with gently flowing water. Do not induce vomiting. If vomiting occurs, lean patient forward or place on left side (head-down position, if possible) to maintain an open airway and prevent aspiration. Keep patient quiet and maintain normal body temperature. Obtain medical attention. Simple asphyxiants and related compounds

SECTION 5: Firefighting measures

Extinguishing media

If material involved in fire: Extinguish fire using agent suitable for type of surrounding fire. (Material itself does not burn or burns with difficulty.)

Cool all affected containers with flooding quantiites of water. Apply water from as far a distance as possible. Nitrogen, compressed

Specific Hazards Arising from the Chemical

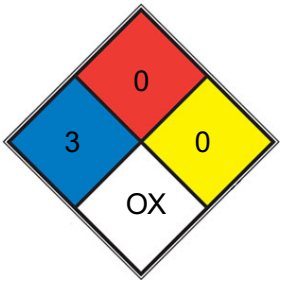
Excerpt from ERG Guide 121 [Gases - Inert]: Non-flammable gases. Containers may explode when heated. Ruptured cylinders may rocket. (ERG, 2016)

Behavior in Fire: Containers may explode when heated. (USCG, 1999)

Advice for firefighters

In case of fire in the surroundings, use appropriate extinguishing media.

NFPA 704



■	HEALTH	3	Short exposure could cause serious temporary or moderate residual injury (e.g. liquid hydrogen, sulfuric acid, calcium hypochlorite, hexafluorosilicic acid)
■	FIRE	0	Materials that will not burn under typical fire conditions, including intrinsically noncombustible materials such as concrete, stone, and sand. Materials that will not burn in air when exposed to a temperature of 820 °C (1,500 °F) for a period of 5 minutes.(e.g. Carbon tetrachloride)
■	REACT	0	Normally stable, even under fire exposure conditions, and is not reactive with water (e.g. helium,N2)
□	SPEC. HAZ.	OX	

SECTION 6: Accidental release measures

Personal precautions, protective equipment and emergency procedures

Ventilation. NEVER direct water jet on liquid. Personal protection: chemical protection suit including self-contained breathing apparatus.

Environmental precautions

Ventilation. Personal protection: self-contained breathing apparatus.

Methods and materials for containment and cleaning up

Soak up with inert absorbent material and dispose of as hazardous waste. Keep in suitable, closed containers for disposal.

SECTION 7: Handling and storage

Precautions for safe handling

Handling in a well ventilated place. Wear suitable protective clothing. Avoid contact with skin and eyes. Avoid formation of dust and aerosols. Use non-sparking tools. Prevent fire caused by electrostatic discharge steam.

Conditions for safe storage, including any incompatibilities

Fireproof if in building. Cool. Keep in a well-ventilated room.Keep container tightly closed in a dry and well-ventilated place. Containers which are opened must be carefully resealed and kept upright to prevent leakage.

SECTION 8: Exposure controls/personal protection

Control parameters

Occupational Exposure limit values

Component	Nitrogen			
CAS No.	7727-37-9			
	Limit value - Eight hours		**Limit value - Short term**	
	ppm	**mg/m^3**	**ppm**	**mg/m^3**
Canada - Ontario	(1)	?	?	?
New Zealand	(1)	?	?	?
	Remarks			
Canada - Ontario	(1) Simple asphyxiant			
New Zealand	(1) Simple asphyxiant			

Biological limit values

no data available

Exposure controls

Ensure adequate ventilation. Handle in accordance with good industrial hygiene and safety practice. Set up emergency exits and the risk-elimination area.

Individual protection measures

Eye/face protection

Wear safety goggles.

Skin protection

Cold-insulating gloves.

Respiratory protection

Use ventilation.

Thermal hazards

no data available

SECTION 9: Physical and chemical properties

Information on basic physicochemical properties

Physical state	colorless gas
Colour	Colorless gas
Odour	Odorless gas
Melting point/freezing point	-210°C
Boiling point or initial boiling point and boiling range	?196°C(lit.)
Flammability	Not combustible. Heating will cause rise in pressure with risk of bursting.
Lower and upper explosion limit/flammability limit	no data available
Flash point	no data available
Auto-ignition temperature	no data available
Decomposition temperature	no data available
pH	no data available
Kinematic viscosity	7.0 at 100 K; 12.0 at 200 K; 17.9 at 300 K; 22.2 at 400 K; 26.1 at 500 K; 29.6 at 600 K (all in uPa.s; N2)
Solubility	At 20 °C and at a pressure of 101 kPa, 1 volume dissolves in about 62 volumes of water and about 10 volumes of ethanol (96 per cent).
Partition coefficient n-octanol/water	log Kow = 0.67
Vapour pressure	-236 deg C at 1Pa (solid); -232 deg C at 10Pa (solid); -226.8 deg C at 100Pa (solid); -220.2 deg C at 1kPa (solid); -211.1 deg C at 10kPa (solid); -195.9 deg C at 100kPa (N2)
Density and/or relative density	1.2506
Relative vapour density	0.97 (vs air)
Particle characteristics	no data available

SECTION 10: Stability and reactivity

Reactivity

Slightly soluble in water.

Chemical stability

Incombustible and unreactive.

Possibility of hazardous reactions

Nonflammable gas.The gas is heavier than air and may accumulate in lowered spaces causing a deficiency of oxygen.These substances undergo no chemical reactions under any known circumstances except those under extreme conditions (liquid nitrogen reacts violently in mixture with magnesium powder when a fuse is lit. Due to formation of magnesium nitride). Otherwise, they are nonflammable, noncombustible and nontoxic. They can asphyxiate.

Conditions to avoid

no data available

Incompatible materials

Can react violently with lithium, neodymium, titanium under the proper conditions.

Hazardous decomposition products

Hazardous decomposition products formed under fire conditions - Carbon oxides.

SECTION 11: Toxicological information

Acute toxicity

- Oral: no data available
- Inhalation: no data available
- Dermal: no data available

Skin corrosion/irritation

no data available

Serious eye damage/irritation

no data available

Respiratory or skin sensitization

no data available

Germ cell mutagenicity

no data available

Carcinogenicity

no data available

Reproductive toxicity

no data available

STOT-single exposure

The liquid may cause frostbite.

STOT-repeated exposure

no data available

Aspiration hazard

On loss of containment this substance can cause serious risk of suffocation when in confined areas. See Notes.

SECTION 12: Ecological information

Toxicity

Toxicity to fish: no data available

Toxicity to daphnia and other aquatic invertebrates: no data available

Toxicity to algae: no data available

Toxicity to microorganisms: no data available

Persistence and degradability

no data available

Bioaccumulative potential

no data available

Mobility in soil

no data available

Other adverse effects

no data available

SECTION 13: Disposal considerations

Disposal methods

Product

The material can be disposed of by removal to a licensed chemical destruction plant or by controlled incineration with flue gas scrubbing. Do not contaminate water, foodstuffs, feed or seed by storage or disposal. Do not discharge to sewer systems.

Contaminated packaging

Containers can be triply rinsed (or equivalent) and offered for recycling or reconditioning. Alternatively, the packaging can be punctured to make it unusable for other purposes and then be disposed of in a sanitary landfill. Controlled incineration with flue gas scrubbing is possible for combustible packaging materials.

SECTION 14: Transport information

UN Number

ADR/RID: UN1066 (For reference only, please check.)

IMDG: UN1066 (For reference only, please check.)

IATA: UN1066 (For reference only, please check.)

UN Proper Shipping Name

ADR/RID: NITROGEN, COMPRESSED (For reference only, please check.)

IMDG: NITROGEN, COMPRESSED (For reference only, please check.)

IATA: NITROGEN, COMPRESSED (For reference only, please check.)

Transport hazard class(es)

ADR/RID: 2.2 (For reference only, please check.)

IMDG: 2.2 (For reference only, please check.)

IATA: 2.2 (For reference only, please check.)

Packing group, if applicable

ADR/RID: (For reference only, please check.)

IMDG: (For reference only, please check.)

IATA: (For reference only, please check.)

Environmental hazards

ADR/RID: No

IMDG: No

IATA: No

Special precautions for user

no data available

Transport in bulk according to IMO instruments

no data available

SECTION 15: Regulatory information

Safety, health and environmental regulations specific for the product in question

European Inventory of Existing Commercial Chemical Substances (EINECS)

Listed.

EC Inventory

Listed.

United States Toxic Substances Control Act (TSCA) Inventory

Listed.

China Catalog of Hazardous chemicals 2015

Listed.

New Zealand Inventory of Chemicals (NZIoC)

Listed.

PICCS

Listed.

Vietnam National Chemical Inventory

Listed.

IECSC

Listed.

Korea Existing Chemicals List (KECL)

Listed.

SECTION 16: Other information

Abbreviations and acronyms

CAS: Chemical Abstracts Service

ADR: European Agreement concerning the International Carriage of Dangerous Goods by Road

RID: Regulation concerning the International Carriage of Dangerous Goods by Rail

IMDG: International Maritime Dangerous Goods

IATA: International Air Transportation Association

TWA: Time Weighted Average

STEL: Short term exposure limit

LC50: Lethal Concentration 50%

LD50: Lethal Dose 50%

EC50: Effective Concentration 50%

References

IPCS - The International Chemical Safety Cards (ICSC), website: http://www.ilo.org/dyn/icsc/showcard.home

HSDB - Hazardous Substances Data Bank, website: https://toxnet.nlm.nih.gov/newtoxnet/hsdb.htm

IARC - International Agency for Research on Cancer, website: http://www.iarc.fr/

eChemPortal - The Global Portal to Information on Chemical Substances by OECD, website: http://www.echemportal.org/echemportal/index?pageID=0&request_locale=en

CAMEO Chemicals, website: http://cameochemicals.noaa.gov/search/simple

ChemIDplus, website: http://chem.sis.nlm.nih.gov/chemidplus/chemidlite.jsp

ERG - Emergency Response Guidebook by U.S. Department of Transportation, website: http://www.phmsa.dot.gov/hazmat/library/erg

Germany GESTIS-database on hazard substance, website: http://www.dguv.de/ifa/gestis/gestis-stoffdatenbank/index-2.jsp

ECHA - European Chemicals Agency, website: https://echa.europa.eu/

Other Information

High concentrations in the air cause a deficiency of oxygen with the risk of unconsciousness or death.Check oxygen content before entering area.