Material Safety Data Sheet
Nitrogen, Gaseous (GAN)

SECTION 1: Identification

1.1. Product identifier

Product name : Nitrogen (compressed)

Chemical name : Nitrogen

CAS-No. : 7727-37-9

Synonyms : Nitrogen

1.2. Recommended use and restrictions on use

Recommended uses and restrictions : Test gas/Calibration gas/Special atmospheres for food.

SECTION 2: Hazard identification

2.1. Classification of the substance or mixture

Classification (GHS-CA)

Gases under pressure : Compressed gas : H280

Full text of H statements : see section 16

2.2. GHS Label elements, including precautionary statements GHS-CA labelling

Hazard pictograms (GHS-CA) :

GHS04

Signal word (GHS-CA) : Warning

Hazard statements (GHS-CA) : H280 - Contains gas under pressure; may explode if heated
OSHA-H01 - May displace oxygen and cause rapid suffocation

Precautionary statements (GHS-CA) : P501 - Dispose of contents/container in accordance with local/regional/national/international regulations.
P403 - Store in a well-ventilated place
P202 - Do not handle until all safety precautions have been read and understood
P308+P313 - IF exposed or concerned: Get medical advice/attention
P280 - Wear protective gloves/protective clothing/eye protection/face protection
P271 - Use only outdoors or in a well-ventilated area
P304+P340 - IF INHALED: Remove person to fresh air and keep comfortable for breathing
CGA-PG02 - Protect from sunlight when ambient temperature exceeds 52 °C/125 °F
CGA-PG05 - Use a back flow preventive device in the piping
CGA-PG06 - Close valve after each use and when empty
CGA-PG10 - Use only with equipment rated for cylinder pressure
CGA-PG14 - Approach suspected leak area with caution
CGA-PG21 - Open valve slowly

2.3. Other hazards

No additional information available

2.4. Unknown acute toxicity (GHS-CA)

No data available

SECTION 3: Composition/information on ingredients

3.1. Substances

Name : Nitrogen (compressed)

CAS-No. : 7727-37-9

Name	Chemical name/Synonyms	Product identifier	%	Classification (GHS-CA)
Nitrogen	Nitrogen gas / Nitrogen, compressed	(CAS-No.) 7727-37-9	100	Press. Gas (Comp.), H280

Full text of hazard classes and H-statements : see section 16

3.2. Mixtures

Not applicable

SECTION 4: First-aid measures

4.1. Description of first aid measures

First-aid measures after inhalation : Remove victim to fresh air and keep at rest in a position comfortable for breathing. If you feel unwell, seek medical advice.

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.

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

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

Symptoms/effects after inhalation : May displace oxygen and cause rapid suffocation. If you feel unwell, seek medical advice.

Symptoms/effects after skin contact : Adverse effects not expected from this product.

Symptoms/effects after eye contact : Adverse effects not expected from this product.

Symptoms/effects after ingestion : Ingestion is not considered a potential route of exposure.

Symptoms/effects upon intravenous administration: Not known.

Chronic symptoms : None known.

4.3. Immediate medical attention and special treatment, if necessary

Other medical advice or treatment : If breathing is difficult, give oxygen. Obtain medical attention if breathing difficulty persists.

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

Unsuitable extinguishing media : Do not use water jet to extinguish.

5.3. Specific hazards arising from the hazardous product

Fire hazard : The product is not flammable.

Explosion hazard : Product is not explosive. Heat may build pressure, rupturing closed containers, spreading fire and increasing risk of burns and injuries.

Hazardous combustion products : None known

5.4. Special protective equipment and precautions for fire-fighters

Firefighting instructions : In case of fire: Evacuate area. Fight fire remotely due to the risk of explosion. Use water spray or fog for cooling exposed containers. Exercise caution when fighting any chemical fire. Exposure to fire may cause containers to rupture/explode.

Protection during firefighting : Standard protective clothing and equipment (e.g, Self Contained Breathing Apparatus) for fire fighters. Do not enter fire area without proper protective equipment, including respiratory protection.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

General measures : Ensure adequate ventilation.

Personal Precautions, Protective Equipment and Emergency Procedures : EVACUATE ALL PERSONNEL FROM AFFECTED AREA. Use appropriate protective equipment If leak is on user's equipment, be certain to purge piping before attempting repairs. If leak is on a container or container valve contact the closest Gasal location.

6.2. Methods and materials for containment and cleaning up

For containment : Try to stop release if without risk.

Methods for cleaning up : Dispose of contents/container in accordance with local/regional/national/international regulations.

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 : Do not handle until all safety precautions have been read and understood. Use only outdoors or in a well-ventilated area.

Hygiene measures : Do not eat, drink or smoke when using this product.

Additional hazards when processed : Pressurized container: Do not pierce or burn, even after use. Use only with equipment rated for cylinder pressure.

7.2. Conditions for safe storage, including any incompatibilities

Technical measures : Comply with applicable regulations.

Storage conditions : Do not expose to temperatures exceeding 52 °C/ 125 °F. Keep container closed when not in use. Protect cylinders from physical damage; do not drag, roll, slide or drop.

Incompatible products : None known.

Incompatible materials	:	None known.

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

No additional information available

8.2. Appropriate engineering controls

Appropriate engineering controls	:	Ensure exposure is below occupational exposure limits (where available). Provide adequate general and local exhaust ventilation. Systems under pressure should be regularly checked for leakages. Oxygen detectors should be used when asphyxiating gases may be released. Consider the use of a work permit system e.g. for maintenance activities.
Environmental exposure controls	:	Refer to local regulations for restriction of emissions to the atmosphere. See section 13 for specific methods for waste gas treatment.

8.3. Individual protection measures/Personal protective equipment

Personal protective equipment:

Gloves. Safety glasses. Protective clothing. Safety shoes.

Hand protection:

Wear working gloves when handling gas containers.

Eye protection:

Wear safety glasses with side shields.

Skin and body protection:

Wear suitable protective clothing, e.g. lab coats, coveralls or flame resistant clothing.

Respiratory protection:

None necessary during routine operations.

Thermal hazard protection:

None necessary during routine operations.

Other information:

Wear safety shoes while handling containers.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical state	:	Gas
Appearance	:	Clear, colorless gas.
Color	:	Colorless
Odor	:	Odorless
Odor threshold	:	No data available
pH	:	No data available
Relative evaporation rate (butyl acetate=1)	:	No data available
Relative evaporation rate (ether=1)	:	Not applicable for gas mixtures.
Molecular mass	:	28.0134 g/mol
Melting point	:	-210 °C
Freezing point	:	No data available
Boiling point	:	-195.5 °C
Flash point	:	No data available
Auto-ignition temperature	:	No data available
Decomposition temperature	:	No data available
Flammability (solid, gas)	:	See Section 2.1 and 2.2
Vapor pressure	:	760
Vapor pressure at 50 °C	:	No data available
Relative vapor density at 20 °C	:	0.967

Relative density	:	No data available
Density	:	1.2506 g/l
Relative gas density	:	Similar to air.
Solubility	:	Water: 1.485 g/100cm³
Log Pow	:	No data available
Viscosity, kinematic	:	No data available
Oxidizing properties	:	None.
Explosive limits	:	Not applicable - not flammable

9.2. Other information

Additional information : None

SECTION 10: Stability and reactivity

10.1. Reactivity

Reactivity	:	None known.
Chemical stability	:	Stable under normal conditions.
Possibility of hazardous reactions	:	None known.
Conditions to avoid	:	None under recommended storage and handling conditions (see section 7).
Incompatible materials	:	None known.
Hazardous decomposition products	:	Under normal conditions of storage and use hazardous decomposition products should not be produced.

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)	:	Inhalation: gas: Not classified.

Nitrogen (compressed) (\f)7727-37-9

LC50 inhalation rat (ppm)	:	820000 ppm/4h
ATE CA (gases)	:	820000.00000000 ppmv/4h

Nitrogen (7727-37-9)

LC50 inhalation rat (ppm)	:	820000 ppm/4h
Skin corrosion/irritation	:	Not classified
Serious eye damage/irritation	:	Not classified
Respiratory or skin sensitization	:	Not classified
Germ cell mutagenicity	:	Not classified
Carcinogenicity	:	Not classified
Reproductive toxicity	:	Not classified
STOT-single exposure	:	Not classified
STOT-repeated exposure	:	Not classified
Aspiration hazard	:	Not classified

Nitrogen (compressed) (7727-37-9)

Viscosity, kinematic (calculated value) (40 °C) : 14.28914121 mm²/s

SECTION 12: Ecological information

12.1. Toxicity

No additional information available

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 for inorganic gases.

Bioaccumulative potential : No ecological damage caused by this product.

12.4. Mobility in soil

Nitrogen (7727-37-9)

Log Pow : Not applicable for inorganic gases.

Ecology – soil : No ecological damage caused by this product.

12.5. Other adverse effects

GWPmix comment : No known effects from this product.

SECTION 13: Disposal considerations

13.1. Disposal methods

Waste treatment methods : Contact supplier if guidance is required. Do not discharge into any place where its accumulation could be dangerous. Ensure that the emission levels from local regulations or operating permits are not exceeded.

Product/Packaging disposal recommendations : Refer to the CGA Pamphlet P-63 "Disposal of Gases" available at www.cganet.com for more guidance on suitable disposal methods.

Additional information : None.

SECTION 14: Transport information

14.1. Basic shipping description

In accordance with TDG

Transportation of Dangerous Goods

UN-No. (TDG) : UN1066

TDG Primary Hazard Classes : 2.2 - Class 2.2 - Non-Flammable, Non-Toxic Gas.

Transport Document Description : UN1066 NITROGEN, COMPRESSED, 2.2 Proper

Shipping Name : NITROGEN, COMPRESSED

Hazard labels (TDG) : 2.2 - Non-flammable, non-toxic gases

TDG Special Provisions : 148 - (1) Part 5 (Means of Containment) does not apply to radiation detectors that contain these dangerous goods in non-refillable pressure receptacles if (a)the working pressure in each receptacle is less than 5 000 KPa; (b)the capacity of each receptacle is less than 12 L; (c)each receptacle has a minimum burst pressure of (i)at least 3 times the working pressure, when the receptacle is fitted with a relief device, or (ii)at least 4 times the working pressure, when the receptacle is not fitted with a relief device; (d)each receptacle is manufactured from material that will not fragment upon rupture; (e)each detector is manufactured under a quality assurance program; ISO 9001:2008 is an example of a quality assurance program. (f)the detectors are transported in strong outer means of containment; and (g)a detector in its outer means of containment is capable of withstanding a 1.2 m drop test without breakage of the detector or rupture of the outer means of containment. (2)Part 5 (Means of Containment) does not apply to radiation detectors that contain these dangerous goods in non-refillable pressure receptacles and that are included in equipment, if (a)the conditions set out in paragraphs (1)(a) to (e) are met; and (b)the equipment is contained in a strong outer means of containment or the equipment affords the detectors with protection that is equivalent to that provided by a strong outer means of containment. (3)These Regulations, except for Part 1 (Coming into Force, Repeal, Interpretation, General Provisions and Special Cases) and Part 2 (Classification), do not apply to radiation detectors that contain these dangerous goods in non-refillable pressure receptacles, including detectors in radiation detection systems, if the detectors meet the requirements of subsection (1) or (2), as applicable, and the capacity of the receptacles that contain the detectors is less than 50 mL. SOR/2014-306

Explosive Limit and Limited Quantity Index : 0.125 L

Excepted quantities (TDG) : E1

Passenger Carrying Road Vehicle or Passenger Carrying Railway Vehicle Index : 75 L

14.2. Transport information/DOT - USA

Department of Transport

DOT NA no. : UN1066

UN-No.(DOT) : 1066

Material Safety Data Sheet
Nitrogen, Gaseous (GAN)

Transport Document Description	:	UN1066 Nitrogen, compressed, 2.2
Proper Shipping Name (DOT)	:	Nitrogen, compressed
Contains Statement Field Selection (DOT)	:	DOT_TECHNICAL - Proper Shipping Name - Technical (DOT)
Class (DOT)	:	2.2 - Class 2.2 - Non-flammable compressed gas 49 CFR 173.115
Division (DOT)	:	2.2
Hazard labels (DOT)	:	2.2 - Non-flammable gas

Dangerous for the environment	:	No
DOT Packaging Exceptions (49 CFR 173.xxx)	:	306;307
DOT Packaging Non Bulk (49 CFR 173.xxx)	:	302
DOT Packaging Bulk (49 CFR 173.xxx)	:	314;315
DOT Quantity Limitations Passenger aircraft/rail (49 CFR 173.27)	:	75 kg
DOT Quantity Limitations Cargo aircraft only (49 CFR 175.75)	:	150 kg

DOT Vessel Stowage Location	:	A - The material may be stowed ‘‘on deck’’ or ‘‘under deck’’ on a cargo vessel and on a passenger vessel.
Other information	:	No supplementary information available.

14.3. Air and sea transport

IMDG

UN-No. (IMDG)	:	1066
Proper Shipping Name (IMDG)	:	COMPRESSED GAS, N.O.S.
Transport Document Description (IMDG)	:	UN 1066 COMPRESSED GAS, N.O.S., 2.2
Class (IMDG)	:	2.2 - Non-flammable, non-toxic gases

IATA

UN-No. (IATA)	:	1066
Proper Shipping Name (IATA)	:	COMPRESSED GAS, N.O.S.
Transport Document Description (IATA)	:	UN 1066 COMPRESSED GAS, N.O.S., 2.2
Class (IATA)	:	2

SECTION 15: Regulatory information

15.1. 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

Full text of H-statements:

H280	Contains gas under pressure; may explode if heated