SAFETY DATA SHEET

Nitrogen



Section 1. Identification

GHS product identifier : Nitrogen **Chemical name** : nitrogen

Other means of nitrogen (dot); nitrogen gas; Nitrogen NF, Nitrogen FG identification

Product type : Gas.

Product use : Synthetic/Analytical chemistry.

Synonym : nitrogen (dot); nitrogen gas; Nitrogen NF, Nitrogen FG

SDS#

Supplier's details : Airgas USA, LLC and its affiliates

259 North Radnor-Chester Road

Suite 100

Radnor, PA 19087-5283

1-610-687-5253

Inside the US: 1-800-424-9300 (Chemtrec, 24 hours) Outside the US: 1-703-527-3887 (Chemtrec, 24 hours)

24-hour telephone : Airgas Emergency Response Center 1-866-734-3438

Section 2. Hazards identification

OSHA/HCS status This material is considered hazardous by the OSHA Hazard Communication Standard

(29 CFR 1910.1200).

GASES UNDER PRESSURE - Compressed gas Classification of the SIMPLE ASPHYXIANTS substance or mixture

GHS label elements **Hazard pictograms**

Signal word

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

: Warning

May displace oxygen and cause rapid suffocation.

Precautionary statements

General : Read and follow all Safety Data Sheets (SDS'S) before use. Read label before use.

> Keep out of reach of children. If medical advice is needed, have product container or label at hand. Close valve after each use and when empty. Use equipment rated for cylinder pressure. Do not open valve until connected to equipment prepared for use. Use a back flow preventative device in the piping. Use only equipment of compatible

materials of construction.

: Not applicable. **Prevention** Response : Not applicable.

: Protect from sunlight. Store in a well-ventilated place. **Storage**

Disposal : Not applicable.

Supplemental label Keep container tightly closed. Use only with adequate ventilation. Do not enter storage elements

areas and confined spaces unless adequately ventilated.

Hazards not otherwise : In addition to any other important health or physical hazards, this product may displace classified

oxygen and cause rapid suffocation.

Date of issue/Date of revision : 9/13/2024 Date of previous issue : 7/19/2024 Version: 21.05 1/11

Section 3. Composition/information on ingredients

Substance/mixture : Substance
Chemical name : nitrogen

Other means of identification

: nitrogen (dot); nitrogen gas; Nitrogen NF, Nitrogen FG

Product code : 001040

CAS number/other identifiers

CAS number : 7727-37-9

Ingredient name	%	CAS number
Nitrogen	100	7727-37-9

Any concentration shown as a range is to protect confidentiality or is due to batch variation.

There are no additional ingredients present which, within the current knowledge of the supplier and in the concentrations applicable, are classified as hazardous to health or the environment and hence require reporting in this section.

Occupational exposure limits, if available, are listed in Section 8.

Section 4. First aid measures

Description of necessary first aid measures

Eye contact: Immediately flush eyes with plenty of water, occasionally lifting the upper and lower

eyelids. Check for and remove any contact lenses. Get medical attention if irritation

occurs.

Inhalation : Remove victim to fresh air and keep at rest in a position comfortable for breathing. If it

is suspected that fumes are still present, the rescuer should wear an appropriate mask or self-contained breathing apparatus. Get medical attention if adverse health effects persist or are severe. In case of inhalation of decomposition products in a fire,

symptoms may be delayed. The exposed person may need to be kept under medical

surveillance for 48 hours.

Skin contact : Flush contaminated skin with plenty of water. Remove contaminated clothing and

shoes. Get medical attention if symptoms occur.

Ingestion : As this product is a gas, refer to the inhalation section.

Most important symptoms/effects, acute and delayed

Potential acute health effects

Eye contact: Contact with rapidly expanding gas may cause burns or frostbite.

Inhalation : At very high concentrations, can displace the normal air and cause suffocation from lack

of oxygen.

Skin contact: Contact with rapidly expanding gas may cause burns or frostbite.

Frostbite : Try to warm up the frozen tissues and seek medical attention.

Ingestion: As this product is a gas, refer to the inhalation section.

Over-exposure signs/symptoms

Eye contact : No specific data.

Inhalation : No specific data.

Skin contact : No specific data.

Ingestion : No specific data.

Indication of immediate medical attention and special treatment needed, if necessary

Notes to physician : In case of inhalation of decomposition products in a fire, symptoms may be delayed.

The exposed person may need to be kept under medical surveillance for 48 hours.

Specific treatments: No specific treatment.

Date of issue/Date of revision : 9/13/2024 Date of previous issue : 7/19/2024 Version : 21.05 2/11

Section 4. First aid measures

Protection of first-aiders

: No action shall be taken involving any personal risk or without suitable training. If it is suspected that fumes are still present, the rescuer should wear an appropriate mask or self-contained breathing apparatus.

See toxicological information (Section 11)

Section 5. Fire-fighting measures

Extinguishing media

Suitable extinguishing media

Unsuitable extinguishing media

: Use an extinguishing agent suitable for the surrounding fire.

: None known.

Specific hazards arising from the chemical

Hazardous thermal decomposition products : Contains gas under pressure. In a fire or if heated, a pressure increase will occur and the container may burst or explode.

: Decomposition products may include the following materials: nitrogen oxides

Special protective actions for fire-fighters

: Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training. Contact supplier immediately for specialist advice. Move containers from fire area if this can be done without risk. Use water spray to keep fire-exposed containers

Special protective equipment for fire-fighters Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.

Section 6. Accidental release measures

Personal precautions, protective equipment and emergency procedures

For non-emergency personnel

: No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Put on appropriate personal protective equipment.

For emergency responders

If specialized clothing is required to deal with the spillage, take note of any information in Section 8 on suitable and unsuitable materials. See also the information in "For nonemergency personnel".

Environmental precautions

: Ensure emergency procedures to deal with accidental gas releases are in place to avoid contamination of the environment. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air).

Methods and materials for containment and cleaning up

Small spill

: Immediately contact emergency personnel. Stop leak if without risk.

Large spill

: Immediately contact emergency personnel. Stop leak if without risk. Note: see Section 1 for emergency contact information and Section 13 for waste disposal.

Section 7. Handling and storage

Precautions for safe handling

Protective measures

Put on appropriate personal protective equipment (see Section 8). Contains gas under pressure. Avoid breathing gas. Use only with adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Do not puncture or incinerate container. Use equipment rated for cylinder pressure. Close valve after each use and when empty. Protect cylinders from physical damage; do not drag, roll, slide, or drop. Use a suitable hand truck for cylinder movement.

Avoid contact with eyes, skin and clothing. Empty containers retain product residue and can be hazardous.

: 9/13/2024 Version: 21.05 Date of issue/Date of revision : 7/19/2024 3/11 Date of previous issue

Section 7. Handling and storage

Advice on general occupational hygiene

Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking. Remove contaminated clothing and protective equipment before entering eating areas. See also Section 8 for additional information on hygiene measures.

Conditions for safe storage, including any incompatibilities

: Store in accordance with local regulations. Store in a segregated and approved area. Store away from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see Section 10). Cylinders should be stored upright, with valve protection cap in place, and firmly secured to prevent falling or being knocked over. Cylinder temperatures should not exceed 52 °C (125 °F). Keep container tightly closed and sealed until ready for use. See Section 10 for incompatible materials before handling or use.

Section 8. Exposure controls/personal protection

Control parameters

Occupational exposure limits

Ingredient name	Exposure limits	
	ACGIH TLV (United States, 1/2021). Oxygen Depletion [Asphyxiant].	

Biological exposure indices

No exposure indices known.

Appropriate engineering controls

: Use only with adequate ventilation. Use process enclosures, local exhaust ventilation or other engineering controls to keep worker exposure to airborne contaminants below any recommended or statutory limits.

Environmental exposure controls

: Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation. In some cases, fume scrubbers, filters or engineering modifications to the process equipment will be necessary to reduce emissions to acceptable levels.

Individual protection measures

Hygiene measures

: Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using the lavatory and at the end of the working period.

Appropriate techniques should be used to remove potentially contaminated clothing. Wash contaminated clothing before reusing. Ensure that eyewash stations and safety showers are close to the workstation location.

Eye/face protection

: Safety eyewear complying with an approved standard should be used when a risk assessment indicates this is necessary to avoid exposure to liquid splashes, mists, gases or dusts. If contact is possible, the following protection should be worn, unless the assessment indicates a higher degree of protection: safety glasses with sideshields.

Skin protection

Hand protection

: Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary. Considering the parameters specified by the glove manufacturer, check during use that the gloves are still retaining their protective properties. It should be noted that the time to breakthrough for any glove material may be different for different glove manufacturers. In the case of mixtures, consisting of several substances, the protection time of the gloves cannot be accurately estimated.

Body protection

: Personal protective equipment for the body should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.

Other skin protection

: Appropriate footwear and any additional skin protection measures should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.

Date of issue/Date of revision : 9/13/2024 Date of previous issue : 7/19/2024 Version : 21.05 4/11

Section 8. Exposure controls/personal protection

Respiratory protection

: The gas can cause asphyxiation without warning by replacing the oxygen in the air. Based on the hazard and potential for exposure, select a respirator that meets the appropriate standard or certification. If operating conditions cause high gas concentrations to be produced or any recommended or statutory exposure limit is exceeded, use an air-fed respirator or self-contained breathing apparatus. Respirators must be used according to a respiratory protection program to ensure proper fitting, training, and other important aspects of use. Respirator selection must be based on known or anticipated exposure levels, the hazards of the product and the safe working limits of the selected respirator.

Section 9. Physical and chemical properties

Appearance

Physical state : Gas. [Compressed gas.]

Color : Colorless.

Odor : Odorless.

Odor threshold : Not available.

pH : Not applicable.

Melting point : -210.01°C (-346°F)

Boiling point : -196°C (-320.8°F)

Critical temperature : -146.95°C (-232.5°F)

Flash point : [Product does not sustain combustion.]

Evaporation rate : Not available.
Flammability (solid, gas) : Not available.
Lower and upper explosive : Not available.

(flammable) limits

Vapor pressure : Not available.
Vapor density : 0.97 (Air = 1)
Specific Volume (ft ³/lb) : 13.8889
Gas Density (lb/ft ³) : 0.072

Relative density : Not applicable.

Solubility in water : Not available.

Partition coefficient: n-

octanol/water

: 0.67

Auto-ignition temperature : Not available.

Decomposition temperature : Not available.

Flow time (ISO 2431) : Not available.

Molecular weight : 28.02 g/mole

Section 10. Stability and reactivity

Reactivity: No specific test data related to reactivity available for this product or its ingredients.

Chemical stability: The product is stable.

Possibility of hazardous reactions

: Under normal conditions of storage and use, hazardous reactions will not occur.

Conditions to avoid : Do not allow gas to accumulate in low or confined areas.

Incompatible materials: No specific data.

Hazardous decomposition products

: Under normal conditions of storage and use, hazardous decomposition products should not be produced.

Date of issue/Date of revision : 9/13/2024 Date of previous issue : 7/19/2024 Version : 21.05 5/11

Section 10. Stability and reactivity

Hazardous polymerization: Under normal conditions of storage and use, hazardous polymerization will not occur.

Section 11. Toxicological information

Information on toxicological effects

Acute toxicity

Not available.

Irritation/Corrosion

Not available.

Sensitization

Not available.

Mutagenicity

Not available.

Carcinogenicity

Not available.

Reproductive toxicity

Not available.

Teratogenicity

Not available.

Specific target organ toxicity (single exposure)

Not available.

Specific target organ toxicity (repeated exposure)

Not available.

Aspiration hazard

Not available.

Information on the likely

routes of exposure

: Not available.

Potential acute health effects

Eye contact : Contact with rapidly expanding gas may cause burns or frostbite.

Inhalation : At very high concentrations, can displace the normal air and cause suffocation from lack

of oxygen.

Skin contact : Contact with rapidly expanding gas may cause burns or frostbite.

Ingestion: As this product is a gas, refer to the inhalation section.

Symptoms related to the physical, chemical and toxicological characteristics

Eye contact : No specific data.
Inhalation : No specific data.
Skin contact : No specific data.
Ingestion : No specific data.

Delayed and immediate effects and also chronic effects from short and long term exposure

Short term exposure

Potential immediate

: Not available.

effects

Date of issue/Date of revision : 9/13/2024 Date of previous issue : 7/19/2024 Version : 21.05 6/11

Section 11. Toxicological information

Potential delayed effects : Not available.

Long term exposure

Potential immediate

effects

: Not available.

Potential delayed effects : Not available.

Potential chronic health effects

Not available.

General : No known significant effects or critical hazards.
 Carcinogenicity : No known significant effects or critical hazards.
 Mutagenicity : No known significant effects or critical hazards.
 Teratogenicity : No known significant effects or critical hazards.
 Developmental effects : No known significant effects or critical hazards.
 Fertility effects : No known significant effects or critical hazards.

Numerical measures of toxicity

Acute toxicity estimates

Not available.

Section 12. Ecological information

Toxicity

Not available.

Persistence and degradability

Not available.

Bioaccumulative potential

Product/ingredient name	LogPow	BCF	Potential
Nitrogen	0.67	-	Low

Mobility in soil

Soil/water partition coefficient (Koc)

: Not available.

Other adverse effects : No known significant effects or critical hazards.

Section 13. Disposal considerations

Disposal methods

: The generation of waste should be avoided or minimized wherever possible. Disposal of this product, solutions and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. Waste should not be disposed of untreated to the sewer unless fully compliant with the requirements of all authorities with jurisdiction. Empty pressure vessels should be returned to the supplier. Waste packaging should be recycled. Incineration or landfill should only be considered when recycling is not feasible. This material and its container must be disposed of in a safe way. Empty containers or liners may retain some product residues. Do not puncture or incinerate container.

Date of issue/Date of revision : 9/13/2024 Date of previous issue : 7/19/2024 Version : 21.05 7/11

Section 14. Transport information

	DOT	TDG	Mexico	IMDG	IATA
UN number	UN1066	UN1066	UN1066	UN1066	UN1066
UN proper shipping name	Nitrogen, compressed	NITROGEN, COMPRESSED	NITROGEN, COMPRESSED	NITROGEN, COMPRESSED	Nitrogen, compressed
Transport hazard class(es)	2.2	2.2	2.2	2.2	2.2
Packing group	-	-	-	-	-
Environmental hazards	No.	No.	No.	No.	No.

[&]quot;Refer to CFR 49 (or authority having jurisdiction) to determine the information required for shipment of the product."

Additional information

DOT Classification : Limited quantity Yes.

> Packaging instruction Exceptions: 306, 307. Non-bulk: 302. Bulk: 314, 315. Quantity limitation Passenger aircraft/rail: 75 kg. Cargo aircraft: 150 kg.

TDG Classification

: Product classified as per the following sections of the Transportation of Dangerous

Goods Regulations: 2.13-2.17 (Class 2).

Explosive Limit and Limited Quantity Index 0.125

Passenger Carrying Road or Rail Index 75

Special provisions 148

: Emergency schedules F-C, S-V **IMDG**

Special provisions 378, 392

IATA : Quantity limitation Passenger and Cargo Aircraft: 75 kg. Packaging instructions: 200.

Cargo Aircraft Only: 150 kg. Packaging instructions: 200. Limited Quantities -

Passenger Aircraft: Forbidden. Packaging instructions: Forbidden.

Special provisions A69, A202

Special precautions for user : Transport within user's premises: always transport in closed containers that are

upright and secure. Ensure that persons transporting the product know what to do in the

event of an accident or spillage.

Transport in bulk according : Not available.

to IMO instruments

Section 15. Regulatory information

U.S. Federal regulations

TSCA 8(a) CDR Exempt/Partial exemption: This material is listed or exempted.

Clean Air Act Section 112

(b) Hazardous Air **Pollutants (HAPs)** : Not listed

Clean Air Act Section 602

Class I Substances

: Not listed

Clean Air Act Section 602

: Not listed

Class II Substances

DEA List I Chemicals (Precursor Chemicals) : Not listed

Date of issue/Date of revision : 9/13/2024 Version: 21.05 : 7/19/2024 8/11 Date of previous issue

Section 15. Regulatory information

DEA List II Chemicals

Not listed

(Essential Chemicals)

SARA 302/304

Composition/information on ingredients

No products were found.

SARA 304 RQ : Not applicable.

SARA 311/312

Classification: Refer to Section 2: Hazards Identification of this SDS for classification of substance.

State regulations

Massachusetts: This material is listed.New York: This material is not listed.New Jersey: This material is listed.Pennsylvania: This material is listed.

California Prop. 65

This product does not require a Safe Harbor warning under California Prop. 65.

International regulations

Chemical Weapon Convention List Schedules I, II & III Chemicals

Not listed.

Montreal Protocol

Not listed.

Stockholm Convention on Persistent Organic Pollutants

Not listed.

Rotterdam Convention on Prior Informed Consent (PIC)

Not listed.

UNECE Aarhus Protocol on POPs and Heavy Metals

Not listed.

Inventory list

Australia : This material is listed or exempted.

Canada : This material is listed or exempted.

China : This material is listed or exempted.

Eurasian Economic Union : Russian Federation inventory: Not determined.

Japan : Japan inventory (CSCL): Not determined.

Japan inventory (ISHL): Not determined.

New Zealand: This material is listed or exempted.Philippines: This material is listed or exempted.Republic of Korea: This material is listed or exempted.Taiwan: This material is listed or exempted.Thailand: This material is listed or exempted.

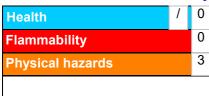
Turkey: Not determined.

United States : This material is active or exempted.Viet Nam : This material is listed or exempted.

Date of issue/Date of revision : 9/13/2024 Date of previous issue : 7/19/2024 Version : 21.05 9/11

Section 16. Other information

Hazardous Material Information System (U.S.A.)



Caution: HMIS® ratings are based on a 0-4 rating scale, with 0 representing minimal hazards or risks, and 4 representing significant hazards or risks. Although HMIS® ratings and the associated label are not required on SDSs or products leaving a facility under 29 CFR 1910.1200, the preparer may choose to provide them. HMIS® ratings are to be used with a fully implemented HMIS® program. HMIS® is a registered trademark and service mark of the American Coatings Association, Inc.

The customer is responsible for determining the PPE code for this material. For more information on HMIS® Personal Protective Equipment (PPE) codes, consult the HMIS® Implementation Manual.

National Fire Protection Association (U.S.A.)



Reprinted with permission from NFPA 704-2001, Identification of the Hazards of Materials for Emergency Response Copyright ©1997, National Fire Protection Association, Quincy, MA 02269. This reprinted material is not the complete and official position of the National Fire Protection Association, on the referenced subject which is represented only by the standard in its entirety.

Copyright ©2001, National Fire Protection Association, Quincy, MA 02269. This warning system is intended to be interpreted and applied only by properly trained individuals to identify fire, health and reactivity hazards of chemicals. The user is referred to certain limited number of chemicals with recommended classifications in NFPA 49 and NFPA 325, which would be used as a guideline only. Whether the chemicals are classified by NFPA or not, anyone using the 704 systems to classify chemicals does so at their own risk.

Procedure used to derive the classification

Classification	Justification
, · · · · · · · · · · · · · · · · · · ·	Expert judgment Expert judgment

History

Date of printing 9/13/2024 Date of issue/Date of 9/13/2024 revision

Date of previous issue : 7/19/2024 **Version** : 21.05

Key to abbreviations : ATE = Acute Toxicity Estimate

BCF = Bioconcentration Factor

GHS = Globally Harmonized System of Classification and Labelling of Chemicals

IATA = International Air Transport Association

IBC = Intermediate Bulk Container

IMDG = International Maritime Dangerous Goods

LogPow = logarithm of the octanol/water partition coefficient

MARPOL = International Convention for the Prevention of Pollution From Ships, 1973

as modified by the Protocol of 1978. ("Marpol" = marine pollution)

UN = United Nations

: Not available. References

Notice to reader

Date of issue/Date of revision Version: 21.05 : 9/13/2024 : 7/19/2024 10/11 Date of previous issue

Section 16. Other information

To the best of our knowledge, the information contained herein is accurate. However, neither the above-named supplier, nor any of its subsidiaries, assumes any liability whatsoever for the accuracy or completeness of the information contained herein.

Final determination of suitability of any material is the sole responsibility of the user. All materials may present unknown hazards and should be used with caution. Although certain hazards are described herein, we cannot guarantee that these are the only hazards that exist.

Date of issue/Date of revision : 9/13/2024 Date of previous issue : 7/19/2024 Version : 21.05 11/11