

## Safety Data Sheet



### 1. Identification of the Substance/Mixture and the Supplier

Supplier : National Institute of Advanced Industrial Science and Technology (AIST)  
 Address : 1-3-1 Kasumigaseki, Chiyoda, Tokyo, Japan  
 Office in Charge : Reference Materials Office, Center for Quality Management of Metrology, National Metrology Institute of Japan  
 Person in Charge : Certified Reference Material Staff  
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 Emergency Contact : Same as above

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Reference No. : 3409003

Identity of Substance/Mixture : Certified reference material NMIJ CRM 3409-c  
 Nitrogen in Argon (100  $\mu\text{mol/mol}$ )  
 Recommended Use : This CRM is intended for use in the calibration of instruments.  
 of the Chemical and Restriction on Use : Do not use this reference material for other purposes than testing/research.  
 This CRM is a reference material (specified in the Japanese Industrial Standard (JIS) Q 0030).

### 2. Hazards Identification

GHS classification

Combustible / flammable gas	:	Not classified
Oxidizing gases	:	Not classified
Gas under pressure	:	High pressure gas
Self-reactive substances and mixtures	:	Not classified
Corrosive to metals	:	Not applicable
Acute toxicity (Oral)	:	Not applicable
Acute toxicity (Dermal)	:	Not applicable
Acute toxicity (Inhalation, gas)	:	Not applicable
Acute toxicity (Inhalation, vapor)	:	Not classified
Acute toxicity (Inhalation, dust/mist)	:	Not classified
Skin corrosivity/irritant	:	Not applicable
Severe eye damages/eye irritant	:	Not applicable
Respiratory sensitization	:	Not applicable
Skin sensitization	:	Not applicable

	Germ-cell mutagenicity	: Not applicable
	Carcinogenicity	: Not applicable
	Reproductive toxicity	: Not applicable
	Specific target organ toxicity/systemic toxicity (Single exposure)	: Not applicable
	Specific target organ toxicity /systemic toxicity (Repeated exposure)	: Not applicable
	Aspiration hazard	: Not classified
GHS label element	:	



Signal word	:	Caution
Hazard and toxicity	:	High pressure gas: May explode if heated
Precautionary statement	:	[Preventive Measures] Use it in a well-ventilated place. Wear personal protective equipment. [Response] If inhaled: Remove victim to fresh air and keep at rest in a position comfortable for breathing. Get medical advice/attention if you feel unwell. [Storage] Shield it from sunlight and keep it in a well-ventilated place This CRM should be stored in compliance with your country's regulation for high pressure gases. [Disposal] When disposing of the content, do it in a place with good ventilation with no flame and inflammable material around it, little by little to avoid danger. When this product is no longer necessary or passed the expiration date, do not dispose of the container and the remaining gas, but return them to the department in charge provided in the 1. Chemical Substances, etc. and The Manufacturer Information

Hazardous and toxic properties not specified in the above are not subject to the classification or not classifiable.

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### 3. Composition/Information on Ingredients

Substance or mixture	:	Mixture
Ingredient 1	:	
Chemical name	:	Argon
Synonym	:	-
Chemical formula	:	Ar
Molecular weight	:	39.95
CAS number	:	7440-37-1
Content	:	99.9 % or over

Reference Number in : Act on the Evaluation of Chemical Substances and Regulation  
Gazetted List in Japan of Their Manufacture, etc. : -  
Industrial Safety and Health Act :-

**Ingredient 1**

Chemical name : Nitrogen  
Synonym : -  
Chemical formula : N<sub>2</sub>  
Molecular weight : 28.01  
CAS number : 7727-37-9  
Content : About 100 μmol/mol(0.01%)  
Reference Number in : Act on the Evaluation of Chemical Substances and Regulation  
Gazetted List in Japan of Their Manufacture, etc. : -  
Industrial Safety and Health Act :-  
Hazardous Component : Argon (Simple asphygic gas)

**4. First-aid Measures**

If inhaled : Remove victim to fresh air and keep at rest in a position comfortable for breathing. Get medical advice/attention if you feel unwell.  
If on skin : If skin irritation occurs, get medical attention and treatment.  
If in eyes : If eye irritation persists, get medical advice / attention.  
If swallowed : Get medical advice/attention if you feel unwell.  
The most important characteristics and symptoms : No data  
Measures to be taken to protect the person applying first aid : No data

**5. Fire-fighting Measures**

Extinguishing Media : Water fog, Foam extinguishing agent, Dry chemical extinguisher, Carbon dioxide, Dry sands  
Unsuitable extinguishing media : Direct water jet  
Fire-Specific Hazards : Container may explode if heated.  
Burst container may fly.  
Specific Fire-Fighting Method : Move containers away from area of fire if this can be done without risk.  
Keep cooling container thoroughly with plenty of water even after extinction.  
Do not spray water directly to gas leaking point or safety device, which may make them frozen.  
Only experts are allowed to handle damaged container.  
Protection of Fire-Fighters : Fight fire upwind in order to avoid breathing hazardous gas.  
Use personal protective equipment such as fireproof clothing, heat-resistant clothing, protective clothing, compressed air open-circuit self-contained breathing apparatus, and compressed

oxygen closed-circuit self-contained breathing apparatus.

## 6. Accidental Release Measures

- Personal Precaution : Wear appropriate personal protective equipment (See “8. Exposure Controls/Personal Protection”) during the operation to avoid contact with eyes and skin and inhalation of gas.  
Immediately designate restricted leakage area with appropriate distance taken in every direction.  
Keep out unauthorized people.  
Stay upwind.  
Ventilate affected areas.  
Maintain the restricted area until gas diffuses.
- Personal Protective Equipment and Emergency Procedures : Ventilate affected areas thoroughly, if it is in an indoor environment, until the clean-up operation is completed.  
Wear appropriate personal protective equipment (See “8. Exposure Controls/Personal Protection”) during the operation to avoid contact with eyes and skin and inhalation.
- Environmental Precautions : No environmental effects
- Method and Tool for Confinement and Clean-up, Recovery and Neutralization : Stop leakage if safe to do so.
- Prevention of Secondary Disaster : Prevent leaked materials from entering sewers, drainage systems, basement rooms or confined space.  
Mark the restricted area with rope etc. to keep out unauthorized people.  
Carry out the clean-up operation from the upwind side and make people on the downwind side evacuate.

## 7. Handling and Storage

### Handling

- Engineering Precautions : Take the engineering precautions stipulated in “8. Exposure Controls/Personal Protection.”
- Local and General Ventilation : Provide local and general ventilation as necessary.
- Precautions for Safe Handling : Do not eat, drink or smoke when using this reference material.  
Wear personal protective equipment stipulated in “8. Exposure Controls/Personal Protection” as necessary.  
Provide ventilation, when using indoors, in order to prevent decline of oxygen concentration.  
Take out gas from container by using pressure regulator.  
Make it sure to close container valve after use.

### Storage

- Appropriate Storage Conditions : Store in accordance with the High Pressure Gas Safety Act, etc.  
Store in designated container storage area for flammable gas and toxic gas. Store fully-charged containers separately from containers with residual gas.

- Keep away from combustible materials.
- Strict ban on fire.
- Do not store in the vicinity of electric wires or ground wires.
- Store in a well-drained and well-ventilated dry place.
- Protect from rain, wind and direct sunlight and keep temperatures at 40 °C or below.
- Store locked up.
- Safe Container : Use container stipulated in the High Pressure Gas Safety Act and the United Nations Recommendations on the Transport of Dangerous Goods.
- Packaging Material

See the Certificate for the details on appropriate storage conditions and instructions for use as a reference material.

## 8. Exposure Controls/Personal Protection

Administrative levels

Not established

Occupational exposure limit(Nitrogen/Argon)

- ACGIH TLV-TWA : Not established
- Japan Society for Occupational Health : Not established

Occupational Health

Recommended

Reference Value

- OSHA PEL TWA : Not established

Facility engineering control

Ventilation, exhaust : Local ventilation equipment or general ventilation equipment.

Safety management, gas detection : Oxygen monitor

Storage precaution : Store in a well-ventilated place.

Keep it at a temperature of 40 ° C or less, avoiding wind and rain and direct sunlight.

Protective equipment

Respiratory organ : If necessary, air respirator, oxygen respirator, air supply mask.

Hand : Protective gloves

Eyes : Wear appropriate eye protection such as safety goggles.

Skin and body : Protective clothing, safety shoes

Hygiene Controls

Handle this reference material in accordance with industrial health and safety standards.

## 9. Physical and Chemical Properties (as Argon)

- Appearance, etc. : Gas
- Color : Colorless
- Odor : No odor
- pH : No data
- Melting point : -189.3 °C
- Boiling point : -185.8 °C
- Flashing point : Nonflammable

Explosive range	: Nonflammable
Vapor pressure	: No data
Relative vapor density(Air=1)	: 1.38
Specific gravity or bulk specific gravity	: 0.00178 g/cm <sup>3</sup>
Solubility	: 30 mg/L(25 °C)
<i>n</i> -Octanol/water partition coefficient (Log Po/w)	: 0.94
Auto-ignition temperature	: Nonflammable
Decomposition temperature	: No data
Flammability	: Nonflammable

## 10. Stability and Reactivity

Stability	: Stable under normal preservation conditions.
Reactivity	: Stable under normal preservation conditions.
Hazardous Reactivity	: Cause pressure rise with risk of burst if heated. Simple-asphyxiant gas This gas is heavier than air. It may get stagnant to cause deficiency of oxygen in a low-ceilinged place.
Conditions to avoid	: No data
Incompatible materials	: No data
Hazardous decomposition products	: No data

## 11. Toxicological information

Acute toxicity	
Acute toxicity(Skin)	: No data
Acute toxicity(Oral)	: No data
Acute toxicity (Inhalation, gas)	: Not classified Asphyxiant gas
Skin corrosivity/irritation	: No data
Severe damage to eyes/ eye irritation	: No data
Respiratory sensitization	: No data
Skin sensitization	: No data
Germ cell mutagenicity	: No data

Carcinogenicity	: No data
Reproductive toxicity	: No data
Specific organ toxicity/(single exposure)	: No data Asphyxiant gas
Specific organ toxicity/(repeated exposure)	: No data
Aspiration hazard	: Not classified

## 12. Ecological Information

Hazardous to the aquatic environment, short-term (Acute)	: No data
Hazardous to the aquatic environment, long-term (Chronic)	: No data
Ecotoxicity	: No data
Persistence and Degradability	: No data
Bioaccumulation	: No data
Mobility in soil	: No data
Ozone depletion potential	: No data

## 13. Disposal Consideration

Residual Waste	: Dispose of gas under pressure in accordance with the Regulation on Safety of General High Pressure Gas of the High Pressure Gas Safety Act.
Contaminated Container and Package	: Return this reference material back to the function in charge given in “1. Identification of the Substance/Mixture and the Supplier” when it becomes no longer necessary to use it or when it becomes beyond its shelf life. Container must be disposed of by its owner in accordance with relevant legislation. User of container, therefore, must not dispose of it by his/her discretion.

## 14. Transport Information

UN Number	: 1006
UN Classification	: Class 2.2
Material name	: ARGONCOMPRESSED
Container grade	: -
ICAO/IATA	: Class 2.2
Marine pollutant	: -
Precautions	: Transport this reference material carefully while keeping it away from direct sunlight and fire and preventing accidental release due to falling,

overturning, etc.

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## 15. Applicable Laws and Regulations

◇Act on Confirmation, etc. of Release Amounts of Specific Chemical Substances in the Environment and Promotion of Improvements to the Management Thereof

- Not applicable

◇High Pressure Gas Safety Act

- Compressed gas (Article 2-1)
- Inert gas (general high pressure gas safety regulation Article 2-4)

◇Civil Aeronautical Act:

- High Pressure Gas (Regulation Article 194 Notification of dangerous goods Appendix No. 1)

◇Ship Safety Law:

- High Pressure Gas (Regulation Article 3 Notification of dangerous goods Appendix No. 1)

◇Act on Port Regulations:

- Other dangerous goods / high pressure gas (Article 21-2)

◇Road act:

- Restriction on the passage of vehicles (Article 19-13 of the Enforcement Order, Public Notice of Japan Highway Ownership and Debt Repayment Organization No. 12, Appended Table 2)

◎ **This SDS is originally prepared for the use of the material in Japan, thus the stated laws and regulations are stipulated and carried out in Japan. The use of the material in other countries should be referred to and by application of the relevant laws and regulations of the country in which the material will be used.**

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## 16. Other Information

Others

The information in this document is not intended to be exhaustive and is based on currently available information and data. The measures given in this document are applicable only to normal handling conditions. When handling this reference material under special conditions etc., it is recommended to take safety measures appropriate to each specific application and context of use. This document is intended to provide information and not intended to guarantee anything in handling this reference material.

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