

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
 Telephone No. : +81-29-861-4059 Fax No. : +81-29-861-4009
 Emergency Contact : Same as above

Prepared on : June 14, 2018
 Revised on : August 31, 2022
 Reference No. : 3410001

Identity of : Certified reference material NMIJ CRM 3410-a
 Substance/Mixture : Nitrogen for LNG analysis
 Recommended Use of : The CRM is intended for use in the calibration of instruments and source
 the Chemical and material of nitrogen reference gas mixtures for liquefied natural gas (LNG)
 Restriction on Use : analysis. 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
Acute toxicity (Oral)	:	Not applicable
Acute toxicity (Dermal)	:	Not applicable
Acute toxicity (Inhalation, gas)	:	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

GHS label element :



Signal word :

Caution

Hazard and toxicity :

High pressure gas: May explode if heated

Other hazard and toxicity :

Inhalation of high concentration nitrogen gas may cause death by oxygen deficiency.

If gas blows vigorously from the high-pressure gas container and enters the eyes, there is a risk of eye damage or loss of vision.

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.

3. Composition/Information on Ingredients

Substance or mixture :

Single substance

Chemical name :

Nitrogen

Synonym :

-

Chemical formula :

N₂

Molecular weight :

28.01

CAS number :

7727-37-9

Content :

About 99.9 %

Reference Number in Gazetted List in Japan :

Act on the Evaluation of Chemical Substances and Regulation of Their Manufacture, etc. : -
Industrial Safety and Health Act : -

Hazardous Component :

Nitrogen(Simple asphygic gas)

4. First-aid Measures

If Inhaled :

Remove victim to fresh air and keep at rest and warm.

If you feel unwell: Get medical advice/attention.

- If on Skin : Even if exposed to atmospheric-pressure nitrogen gas: No need to get medical advice/attention in particular.
If skin irritation occurs: Get medical advice/attention.
- If in Eyes : If exposed to blown-out gas: Keep eyes cool and immediately get medical advice/attention.
If eye irritation persists: Get medical advice/attention.
- If swallowed : Rinse mouth.
If you feel unwell: Get medical advice/attention.
- The Most Critical Characteristics and Symptoms of Expected Acute Symptoms and Delayed Symptoms : If inhaled (compressed gas) : Loss of consciousness, Sense of physical weakness, Suffocation
In case of high concentration in air: Deficiency of oxygen induces risks of loss of consciousness or death.
- Protection of First-Aid Provider : Measure oxygen concentration before entering affected area.
Since oxygen concentration in air may be decreased, ventilation must be provided and personal protective equipment for breathing such as compressed air open-circuit self-contained breathing apparatus must be used as necessary.

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.
Do not touch or walk in leaked materials
Immediately designate restricted leakage area with appropriate distance taken in every direction.
Keep out unauthorized people.
Stay upwind.

Personal Protective Equipment and Emergency Procedures	: Ventilates leakage area. Maintain the restricted area until gas diffuses. : Ventilates 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
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 and make people on the downwind side evacuate.

7. Handling and Storage

Handling

Engineering Precautions	: Strict ban on fire. Keep away from hot surfaces and sparks and avoid contact with strong oxidizers. Use local ventilation equipment.
Local and General Ventilation	: Provide local and general ventilation stipulated in “8. Exposure Controls/Personal Protection.”
Precautions for Safe Handling	: Avoid rough handling such as knocking over, dropping, giving a shock to and dragging container. Keep container tightly closed after using this reference material. Take off removable protection cap before use. Keep removable protection cap firmly in place when not in use Restrict drinking, eating and smoking to a designated area. Make a place handling this reference material a restricted area to keep out unauthorized people. Use local ventilation equipment in indoor handling areas.

Storage

Appropriate Storage Conditions	: 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. Store in a well-ventilated place. Keep away from flame and sparks. Protect from fire flakes. Do not store in the vicinity of electric wires or ground wires. Store in a well-drained and well-ventilated dry place. Protect from exposure to corrosive ambience or continuous vibration. Protect from direct sunlight and keep temperatures at 40 °C or below. Store locked up.
Incompatible Substances	: -
Safe Container	: Use container stipulated in the High Pressure Gas Safety Act and the

Packaging Material United Nations Recommendations on the Transport of Dangerous Goods.

※ 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

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

Facility engineering control

- Ventilation, exhaust : Local ventilation equipment or general ventilation equipment.
- Safety management, gas detection : Oxygen monitor

detection

- Storage precaution : Keep away from direct sunlight in a well-drained, well-ventilated area.

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 and face mask.
- 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

- Appearance, etc. : Gas
- Color : Colorless
- Odor : No odor
- pH : No data
- Melting point : -210 °C
- Boiling point : -196 °C
- Flashing point : Nonflammable
- Explosive range : Nonflammable
- Vapor pressure : No data
- Relative vapor density(Air=1) : 0.967
- Specific gravity or bulk specific gravity : 1.25 kg/m³ (0 °C, 101.3 kPa)
- Solubility : 1.52 mL/100 mL H₂O (20 °C, 101.3 kPa)
- n*-Octanol/water partition coefficient (Log Po/w) : log P = 0.67
- Auto-ignition temperature : Nonflammable
- Decomposition temperature : No data

Flammability : Nonflammable

10. Stability and Reactivity

Stability : Stable under normal condition
Reactivity : Stable under normal condition
Conditions to avoid : High temperature
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

Contaminated Container and Package	: Safety of General High Pressure Gas of the High Pressure Gas Safety Act. 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	: 1066 (Nitrogen)
UN Classification	: Class 2.2 (Nitrogen)
Material name	: NITROGEN COMPRESSED
Container grade	: -
ICAO/IATA	: Class 2.2 (Nitrogen)
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.

15. Applicable Laws and Regulations

- ◇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 (Article21-2)
- ◇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.**

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.

