# Chemical Safety Data Sheet

## 1. IDENTIFICATION

**Product Name：**Nitric oxide

**Other Name：**

**Chemical formula:** NO

**Recommended use of the chemical and restrictions on use：**General Industrial

**Supplier's details：**

LINGGAS(TIANJIN),LIMITED

Hexiwu Town, Wuqing District, Tianjin 301714, P.R. China

Tel：022-29437740；Fax：022-29437745；Email：info@linggas.com

**Emergency phone number：**0532-3889090; 0532-3889191; 022-29437747

## 2. HAZARDS IDENTIFICATION

**Emergency Overview：**

Very toxic by inhalation.

High pressure, oxidizing gas.

Vigorously accelerates combustion.

Keep oil, grease, and combustibles away.

May react violently with combustible materials.

Extremely reactive.

May react violently with water.

Do not breathe gas.

Corrosive to eyes, respiratory system and skin.

Wear self-contained breathing apparatus and protective suit.

**GHS Label elements, including precautionary statements:**

**Potential Health Effects**

Inhalation: May be fatal if inhaled. Exposures to fatal concentrations could occur without any significant warning symptoms. Severe over-exposure may cause methemoglobinemia. Irritating to respiratory system. Can cause severe lung damage. Delayed adverse effects possible. Prolonged exposure to small concentrations may result in pulmonary edema. Delayed fatal pulmonary

Eye contact: Irritating to eyes. Causes severe eye burns.

Skin contact: Causes skin irritation. Causes skin burns.

## 3. COMPOSITION/INFORMATION ON INGREDIENTS

**component:**

| Components | CAS No. | Concentration(Volume) |
|---|---|---|
| NO | 10102-43-9 | 99.99% |

## 4. FIRST AID MEASURES

**General advice:**

Remove victim to uncontaminated area wearing self contained breathing apparatus. Keep victim warm and rested. Call a doctor. Apply artificial respiration if breathing stopped.

**Eye contact:**

In the case of contact with eyes, rinse immediately with plenty of water and seek medical advice. Keep eye wide open while rinsing.

**Skin contact:**

Immediate medical treatment is necessary as untreated wounds from corrosion of the skin heal slowly and badly. Flush with copious amounts of water until treatment is available.

**Ingestion:**

Ingestion is not considered a potential route of exposure.

**Inhalation:**

Move to fresh air. In case of shortness of breath, give oxygen. If breathing has stopped or is labored, give assisted respirations. Supplemental oxygen may be indicated. If the heart has stopped, trained personnel should begin cardiopulmonary resuscitation immediately. Mouth to mouth resuscitation is not recommended. If unconscious, place in recovery position and seek medical advice. Consult a doctor.

## 5. FIRE-FIGHTING MEASURES

**Suitable extinguishing media:**

All known extinguishing media can be used.

**Specific hazards:**

Upon exposure to intense heat or flame, cylinder will vent rapidly and or rupture violently. Oxidant. Strongly supports combustion. May react violently with combustible materials. Some materials which are noncombustible in air may burn in the presence of an oxidizer. Use of water may result in the formation of very toxic aqueous solutions. Move away from container and cool with water from a protected position. Keep adjacent cylinders cool by spraying with large amounts of water until the fire burns itself out.

**Special protective equipment for fire-fighters:**

Use self-contained breathing apparatus.

## 6. ACCIDENTAL RELEASE MEASURES

**Personal precautions:**

Evacuate personnel to safe areas. Use self-contained breathing apparatus or positive pressure air line with mask and escape pack in areas where concentration is unknown or above the exposure limits. Wear self-contained breathing apparatus when entering area unless atmosphere is proved to be safe. Ventilate the area.

**Environmental precautions:**

Should not be released into the environment. Prevent further leakage or spillage if safe to do so.

**Methods for cleaning up:**

Ventilate the area. Approach suspected leak areas with caution.

**Additional advice:**

If possible, stop flow of product. If leak is from cylinder or cylinder valve, call the Lingggas emergency telephone number. If the leak is in the user's system, close the cylinder valve, safely vent the pressure, and purge with an inert gas before attempting repairs. Increase ventilation to the release area and monitor concentrations.

## 7. HANDLING AND STORAGE

**Handling：**

Protect cylinders from physical damage; do not drag, roll, slide or drop. Do not allow storage area temperature to exceed 50°C (122°F). Only experienced and properly instructed persons should handle compressed gases. Before using the product, determine its identity by reading the label. Know and understand the properties and hazards of the product before use. When doubt exists as to the correct handling procedure for a particular gas, contact the supplier. Do not remove or deface labels provided by the supplier for the identification of the cylinder contents. When moving cylinders, even for short distances, use a cart (trolley, hand truck, etc.) designed to transport cylinders. Leave valve protection caps in place until the container has been secured against either a wall or bench or placed in a container stand and is ready for use.

**Storage：**

Containers should be stored in a purpose build compound which should be well ventilated, preferably in the open air. Full containers should be stored so that oldest stock is used first. Observe all regulations and local requirements regarding storage of containers. Stored

containers should be periodically checked for general condition and leakage. Protect containers stored in the open against rusting and extremes of weather.

Containers should not be stored in conditions likely to encourage corrosion. Containers should be stored in the vertical position and properly secured to prevent toppling. The container valves should be tightly closed and where appropriate valve outlets should be capped or plugged. Container valve guards or caps should be in place.

## 8. EXPOSURE CONTROLS / PERSONAL PROTECTION

| | | | |
|---|---|---|---|
| Nitric oxide | Time Weighted Average (TWA): ACGIH | 25 ppm | -- |
| Nitric oxide | Recommended exposure limit (REL): NIOSH | 25 ppm | 30 mg/m3 |
| Nitric oxide | PEL: OSHA Z1 | 25 ppm | 30 mg/m3 |

**Engineering measures：**

Provide natural or explosion-proof ventilation adequate to ensure concentrations are kept below exposure limits.

**Personal protective equipment：**

**Respiratory protection:** Use self-contained breathing apparatus or positive pressure air line with mask and escape pack in areas where concentration is unknown or above the exposure limits. Users of breathing apparatus must be trained.

**Hand protection:** Sturdy work gloves are recommended for handling cylinders. The breakthrough time of the selected glove(s) must be greater than the intended use period.

**Eye protection:** Safety glasses recommended when handling cylinders. A full faceshield should be worn in addition to safety glasses when connecting, disconnecting or opening cylinders.

**Skin and body protection:** Safety shoes are recommended when handling cylinders. Encapsulated chemical protective suit in emergency situations.

## 9. PHYSICAL AND CHEMICAL PROPERTIES

| | |
|---|---|
| Form: | Compressed gas. |
| Color: | Colorless gas |
| Odor: | Poor warning properties at low concentrations. |
| Molecular Weight: | 30g/mol |
| Relative vapor density: | 1 (air = 1) |
| Relative density: | 1.3 (water = 1) |
| Density: | 0.075 lb/ft3 (0.0012 g/cm3) at |
| Boiling point/range: | -242 °F (-152 °C) |
| Critical temperature: | -135 °F (-93 °C) |

Melting point/range: -263 °F (-164 °C)

## 10. STABILITY AND REACTIVITY

**Stability:** Stable under normal conditions.

**Materials to avoid:** Oxygen. Flammable materials. Organic materials. Avoid oil, grease and all other combustible materials.

**Hazardous decomposition products:** Decomposes at room temperature to other nitrogen oxides and nitrogen. Oxidises in air to form nitrogen dioxide which is extremely reactive.

## 11. TOXICOLOGICAL INFORMATION

**Acute Health Hazard:**

Ingestion: No data is available on the product itself.

Inhalation: LC50 (1 h) : 115 ppm Species : Rat.

Skin: No data is available on the product itself.

**Chronic Health Hazard:**

This material was mutagenic in a bacterial assay and in a cultured mammalian cell assay.

## 12. ECOLOGICAL INFORMATION

**Ecotoxicity effects**

Aquatic toxicity: May cause pH changes in aqueous ecological systems.

Toxicity to other organisms: No data available.

**Persistence and degradability**

Mobility: No data available.

Bioaccumulation: No data is available on the product itself.

## 13. DISPOSAL CONSIDERATIONS

**Waste from residues / unusedproducts:** In accordance with local and national regulations. Contact supplier if guidance is required. Return unused product in orginal cylinder to supplier. Must not be discharged to atmosphere.

**Contaminated packaging:** Return cylinder to supplier.

## 14. TRANSPORT INFORMATION

**UN No：**1660

**Proper shipping name：**Nitric oxide

**Class：**2.3

**Risk label：** toxic gas;


**Packing**：gas cylinder

**Further Information**：Avoid transport on vehicles where the load space is not separated from the driver's compartment. Ensure vehicle driver is aware of the potential hazards of the load and knows what to do in the event of an accident or an emergency.

## 15. REGULATORY INFORMATION

The following laws, regulations and standardshave made theclear legal provisions to the safe use, storage, transportation, loading and unloading, classification and markingof chemicals.

Production safety law of the People's Republic of China;

Occupational Disease Prevention and Treatment of the People's Republic of China;

Environmental Protection Law of the People's Republic of China;

Hazardous Chemicals Control Ordinance;

The list of dangerous chemicals;

The general principles of the classification of dangerous chemicals and the risk of the public（GB 13690-2009）

## 16. OTHER INFORMATION

**Reference:**

UN RTDG

Globally Harmonized System of Classification and Labeling of Chemicals

ICSC

**Apply date:**2013-2-25

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**Edit department:** Safety and Environmental Protection Department

**Data audit unit:** LINGGAS TIANJIN LIMITED.

**Edit Description**: Modify when policies change or every 3 years.