

## Chemical Safety Data Sheet

### 1. IDENTIFICATION

**Product Name :** Nitrous oxide

**Other Name :** laughing gas

**Chemical formula:** N<sub>2</sub>O

**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 :** 0530-7632686

### 2. HAZARDS IDENTIFICATION

**Emergency Overview :**

Vigorously accelerates combustion.

Keep oil, grease, and combustibles away.

May react violently with combustible materials.

Compressed liquefied gas.

Direct contact with liquid can cause frostbite.

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



**Potential Health Effects**

Inhalation: In high concentrations may cause asphyxiation. Symptoms may include loss of mobility/consciousness. Victim may not be aware of asphyxiation. Asphyxiation may bring about unconsciousness without warning and so rapidly that victim may be unable to protect themselves.

Eye contact: Contact with liquid may cause cold burns/frost bite. No adverse effect.

Skin contact: Contact with liquid may cause cold burns/frost bite.

Ingestion: Ingestion is not considered a potential route of exposure.

### 3. COMPOSITION/INFORMATION ON INGREDIENTS

**component:**

| Components       | CAS No.    | Concentration(Volume) |
|------------------|------------|-----------------------|
| N <sub>2</sub> O | 10024-97-2 | 99.9995%              |

#### 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:**

Seek medical advice.

**Skin contact:**

Wash with water and soap as a precaution.

**Ingestion:**

Ingestion is not considered a potential route of exposure.

**Inhalation:**

Move to fresh air. 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. In case of shortness of breath, give oxygen. 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. Gas is heavier than air and may collect in low areas or travel along the ground where there may be an ignition source present. Move away from container and cool with water from a protected position. If possible, stop flow of product. Keep adjacent cylinders cool by spraying with large amounts of water until the fire burns itself out. Most cylinders are designed to vent contents when exposed to elevated temperatures.

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

Wear self contained breathing apparatus for fire fighting if necessary.

## 6. ACCIDENTAL RELEASE MEASURES

### **Personal precautions:**

Evacuate personnel to safe areas. Wear self-contained breathing apparatus when entering area unless atmosphere is proved to be safe. Ventilate the area.

### **Environmental precautions:**

Do not discharge into any place where its accumulation could be dangerous. Prevent further leakage or spillage if safe to do so.

### **Methods for cleaning up:**

Ventilate the area.

### **Additional advice:**

If possible, stop flow of product. Increase ventilation to the release area and monitor concentrations. If leak is from cylinder or cylinder valve, call the Air Products 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.

## 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      | 50 ppm | --                   |
| Nitric oxide | Recommended exposure limit (REL): NIOSH | 25 ppm | 46 mg/m <sup>3</sup> |

### Personal protective equipment :

**Respiratory protection:** Keep self contained breathing apparatus readily available for emergency use. Users of breathing apparatus must be trained.

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

**Eye protection:** Safety glasses recommended when handling cylinders. Polycarbonate full faceshield over safety glasses when connecting, disconnecting or opening cylinders.

**Skin and body protection:** Safety shoes are recommended when handling cylinders.

**Special instructions for protection and hygiene:** Ensure adequate ventilation, especially in confined areas. Gloves must be clean and free of oil and grease.

## 9. PHYSICAL AND CHEMICAL PROPERTIES

|                         |   |
|-------------------------|---|
| Form:                   | Liquefied gas.  |
| Color:                  | Colorless gas   |
| Odor:                   | Sweet. Poor warning properties at high concentrations.                                    |
| Molecular Weight:       | 44g/mol   |
| Relative vapor density: | 1.5 (air = 1)   |
| Relative density:       | 1.2 (water = 1)   |
| Vapor pressure:         | 736.77 psia (50.80 bar) at 68 °F (20 °C)  |
| Density:                | 0.112 lb/ft <sup>3</sup> (0.0018 g/cm <sup>3</sup> ) at 70 °F (21 °C)<br>Note: (as vapor) |
| Boiling point/range:    | -127 °F (-88.5 °C)  |
| Critical temperature:   | 98 °F (36.4 °C)   |
| Melting point/range:    | -131 °F (-90.81 °C)   |
| Water solubility:       | 0.0022 g/l  |

## 10. STABILITY AND REACTIVITY

**Stability:** Stable under normal conditions.

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

## 11. TOXICOLOGICAL INFORMATION

### Acute Health Hazard:

Ingestion: No data is available on the product itself.

Inhalation: No data is available on the product itself.

Inhalation – Components Nitrous oxide: LC50 (4 h) : 36514 ppm Species : Rat.

Skin: No data is available on the product itself.

### Chronic Health Hazard:

Exposure to Nitrous Oxide has produced embryofetal toxicity in animals as evidenced by reduced fetal weight, delayed ossification, and increased incidence of visceral and skeletal variations. In humans, repeated high-level exposure (>3000 hours within the prior 10 years) to Nitrous Oxide (N<sub>2</sub>O) has caused adverse liver and kidney effects and neurological damage with such symptoms as numbness or tingling of the extremities, weakness, and depression. In monkeys, exposure to 50% N<sub>2</sub>O for 2 months caused incoordination, progressive ataxia and spinal cord demyelination with spongy degeneration. Nitrous oxide inactivates vitamin B12 (an essential cofactor of certain enzymes) that adversely affects folate metabolism, DNA synthesis and blood formation (RBC, WBC, and platelets). Nitrous Oxide exposure may be associated with increased incidence of fetal miscarriage in humans.

## 12. ECOLOGICAL INFORMATION

### Ecotoxicity effects

Aquatic toxicity: No data is available on the product itself.

Toxicity to other organisms: No data available.

### Persistence and degradability

Mobility: No data available.

Bioaccumulation: No data is available on the product itself.

### Further information

This product has no known eco-toxicological effects.

## 13. DISPOSAL CONSIDERATIONS

**Waste from residues / unused products:** Return unused product in original cylinder to supplier.

Contact supplier if guidance is required.

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

## 14. TRANSPORT INFORMATION

**UN No :** 1070、2201

**Proper shipping name :** Nitrous oxide

**Class :** 2.2

**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 standards have made the clear legal provisions to the safe use, storage, transportation, loading and unloading, classification and marking of 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

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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.