Section 1 - Product and Company Identification

Product name：Nitrous Oxide
Other names：Nitrogen oxide
Product use：General Industrial.
Supplier's name：San Fu Chemical Co., Ltd.
Supplier's address：1,Sec.1,Huanyuan E..Rd.,Liuying Dist.,Tainan, Taiwan 736.
Supplier's phone：886-6-6231821 Emergency phone：886-6-6231821
FAX.：886-6-6231822

Section 2 - Hazards Identification

GHS classification

Oxidizing gases - Category 1
Gases under pressure - Liquefied gas.
Specific target organ toxicity - single exposure - Category 3

GHS label elements

Hazard pictograms/symbols

Signal word : Danger

Hazard statements :

May cause or intensify fire; oxidiser.
Contains gas under pressure; may explode if heated.
May cause drowsiness or dizziness.

Precautionary statements

Prevention :

Keep away from clothing and other combustible materials.
Keep valves and fittings free from oil and grease.
Obtain special instructions before use.
Do not handle until all safety precautions have been read and understood.
Use personal protective equipment as required.

Response :

In case of fire: Stop leak if safe to do so.
IF exposed or concerned: Get medical advice/attention.

Storage :

Protect from sunlight. Store in a well-ventilated place.
Store locked up.

Disposal : Disposal of contents/container to be specified in accordance with regulations.

Other hazards which do not result in classification

Use a back flow preventative device in the piping.

Use only with equipment of compatible materials of construction, rated for cylinder pressure.
Use only with equipment cleaned for oxygen service and rated for cylinder pressure.
Open valve slowly.
Close valve after each use and when empty.
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.

Section 3 - Composition/Information On Ingredients

Components : Nitrous Oxide Synonyms : Nitrogen oxide
CAS No. : 10024-97-2
Ingredient contributing to the hazard(%) : 100 %
Concentration is nominal. For the exact product composition, please refer to technical specifications.

Section 4 - First Aid Measures

The first aid measures for different exposure routes:
Eye contact : Seek medical advice.

Skin contact : In case of frostbite, obtain medical treatment immediately.

If inhaled :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.

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

The most important symptoms and hazardous effects. :
Remove victim to uncontaminated area wearing self-contained breathing apparatus. Keep victim warm and rested. Call a doctor. Apply artificial respiration if breathing stopped.

Protection Advice to First Aid personnel : Please refer to section 8 Personal Protective Equipment

Immediate medical attention and notes to physician
Treatment : If exposed or concerned: Get medical attention/advice.

Section 5 - Fire Fighting Measures

Suitable extinguishing media : Use extinguishing media appropriate for surrounding fire.

Specific hazards that may be encountered during fire-fighting :
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.

Special protective equipment for fire-fighters : Wear self contained breathing apparatus for fire fighting if necessary.

Section 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 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.

Section 7 - Handling and Storage

Handling

Only experienced and properly instructed persons should handle compressed gases/cryogenic liquids. Protect cylinders from physical damage; do not drag, roll, slide or drop. Do not allow storage area temperature to exceed 50°C (122°F). 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.

Use an adjustable strap wrench to remove over-tight or rusted caps. Before connecting the container, check the complete gas system for suitability, particularly for pressure rating and materials. Before connecting the container for use, ensure that back feed from the system into the container is prevented. Ensure the complete gas system is compatible for pressure rating and materials of construction. Ensure the complete gas system has been checked for leaks before use. Employ suitable pressure regulating devices on all containers when the gas is being emitted to systems with lower pressure rating than that of the container. Never insert an object (e.g. wrench, screwdriver, pry bar, etc.) into valve cap openings. Doing so may damage valve, causing a leak to occur. If user experiences any difficulty operating cylinder valve

discontinue use and contact supplier. Close container valve after each use and when empty, even if still connected to equipment. Never attempt to repair or modify container valves or safety relief devices. Damaged valves should be reported immediately to the supplier. Do not use containers as rollers or supports or for any other purpose than to contain the gas as supplied. Never strike an arc on a compressed gas cylinder or make a cylinder a part of an electrical circuit. Do not smoke while handling product or cylinders. Never re-compress a gas or a gas mixture without first consulting the supplier. Never attempt to transfer gases from one cylinder/container to another. Always use backflow protective device in piping. When returning cylinder install valve outlet cap or plug leak tight. Never permit oil, grease, or other readily combustible substances to come into contact with valves or containers containing oxygen or other oxidants. Do not use rapidly opening valves (e.g. ball valves). Open valve slowly to avoid pressure shock. Never pressurize the entire system at once. Use only with equipment cleaned for oxygen service and rated for cylinder pressure. Never use direct flame or electrical heating devices to raise the pressure of a container. Containers should not be subjected to temperatures above 50°C (122°F).

Storage

Use a back flow preventative device in the piping. Use only with equipment of compatible materials of construction, rated for cylinder pressure. Use only with equipment cleaned for oxygen service and rated for cylinder pressure. Open valve slowly. Close valve after each use and when empty. Read and follow the Safety Data Sheet (SDS) before use. 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. Stored containers should be periodically checked for general condition and leakage. Observe all regulations and local requirements regarding storage of containers. 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. Keep containers tightly closed in a cool, well-ventilated place. Store containers in location free from fire risk and away from sources of heat and ignition. Full and empty cylinders should be segregated. Do not allow storage temperature to exceed 50°C (122°F). Display "No Smoking or Open Flames" signs in the storage areas. Return empty containers in a timely manner.

Technical measures/Storage conditions

Containers should be segregated in the storage area according to the various categories (e.g. flammable, toxic, etc.) and in accordance whit local regulations.

Section 8 - Exposure Controls & Personal Protection

Exposure limit(s)			
Nitrous oxide	Time Weighted Average (TWA):TW OEL	50 ppm	90 mg/m3
Nitrous oxide	Short-term exposure limit:TW OEL	75 ppm	135 mg/m3

Engineering measures
Ensure adequate ventilation.

Personal protective equipment
Respiratory protection : Keep self-contained breathing apparatus readily available for emergency use. Users of breathing apparatus must be trained.

Hand protection : Wear working gloves when handling gas containers. Gloves must be clean and free of oil and grease. 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.

Eye protection : Safety glasses recommended when handling cylinders. Wear goggles and a face shield when transfilling or breaking transfer connections.

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.

Section 9 - Physical & Chemical Properties

Appearance : Liquefied gas Colorless gas.

Odor : Sweet. Poor warning properties at high concentrations.

Odor threshold : No data available.

Ph : No data available.

Melting point/range : -131 °F (-90.81 °C)

Boiling point/range : -127 °F (-88.5 °C)

Flash point : No data available.

Evaporation rate : No data available.

Flammability (solid, gas) : Refer to product classification in Section 2

Upper/lower explosion/flammability limit : No data available.

Vapor pressure : 736.77 psia (50.80 bara) at 68 °F (20 °C)

Water solubility : 1.5 g/l

Relative vapor density : 1.5 (air = 1) Heavier than air.

Relative density : 1.2 (water = 1)

Partition coefficient: n-octanol/water [log Kow] : No data available.

Auto-ignition temperature : No data available.

Decomposition temperature : No data available.

Molecular Weight : 44 g/mol

Density : 0.112 lb/ft3 (0.0018 g/cm3) at 70 °F (21 °C) Note: (as vapor)

Specific Volume : 8.74 ft3/lb (0.5456 m3/kg) at 70 °F (21 °C)

Section 10 - Stability & Reactivity Data

Chemical stability : Stable under normal conditions.

Possibility of hazardous reactions : Violently oxidises organic material.

Conditions to avoid : Direct sources of heat. At temperatures over 575°C (1067 °F) and at atmospheric pressure, nitrous oxide decomposes into nitrogen and oxygen. Pressurized nitrous oxide can also decompose at temperatures equal or greater than 300°C (572 °F). In the presence of catalysts (e.g. halogen products, mercury, nickel, platinum) the decomposition rate will increase and decomposition can occur at lower temperatures. The decomposition of nitrous oxide is irreversible and exothermic and will lead to a substancial pressure increase.

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

Hazardous decomposition products : No data available.

Section 11 - Toxicological Information

Likely routes of exposure

Effects on Eye : Contact with liquid may cause cold burns/frostbite.

Effects on Skin : Contact with liquid may cause cold burns/frostbite.

Inhalation Effects : 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.

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

Symptoms : No data available.

Acute toxicity

Acute Oral Toxicity : No data is available on the product itself.

Inhalation : LC50 (4 h) : 36514 ppm Species : Rat. (gas)

Acute Dermal Toxicity : No data is available on the product itself.

Serious eye damage/eye irritation : No data available.

Sensitization. : No data available.

Chronic toxicity or effects from long term exposures

Carcinogenicity : No data available.

Reproductive toxicity : 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. Nitrous Oxide exposure may be associated with increased incidence of fetal miscarriage in humans.

Germ cell mutagenicity : No data is available on the product itself.

Specific target organ systemic toxicity (single exposure) : May cause drowsiness or dizziness.

Specific target organ systemic toxicity (repeated exposure) :

In humans, repeated high-level exposure (>3000 hours within the prior 10 years) to Nitrous Oxide (N2O) 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% N2O 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).

Aspiration hazard : No data available.

Other Health Hazard

IARC : Inadequate data.
IARC : 3 - Not classifiable as to carcinogenicity to humans.

Section 12 - Ecological Information

Aquatic and terrestrial ecotoxicity

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

Toxicity to other organisms : No data is available on the product itself.

Persistence and degradability
No data available.

Bioaccumulative potential
Refer to Section 9 "Partition Coefficient (n-octanol/water)".

Soil mobility
Because of its high volatility, the product is unlikely to cause ground pollution.

Other adverse effects
This product has no known eco-toxicological effects.

Section 13 - Disposal Considerations

Disposal method : Return unused product in original cylinder to supplier. Contact supplier if guidance is required.

Precaution for Disposal : Return cylinder to supplier.

Section 14 - Transport Information

ADR
UN/ID No. : UN1070
Proper shipping name : NITROUS OXIDE
Class or Division : 2
Tunnel Code : (C/E)
Label(s) : 2.2 (5.1)
ADR/RID Hazard ID no. : 25
Marine Pollutant : No

IATA
UN/ID No. : UN1070
Proper shipping name : Nitrous oxide
Class or Division : 2.2
Label(s) : 2.2 (5.1)
Marine Pollutant : No

IMDG
UN/ID No. : UN1070
Proper shipping name : NITROUS OXIDE
Class or Division : 2.2
Label(s) : 2.2 (5.1)
Marine Pollutant : No
Segregation Group: None

Special precautions which a user needs to be aware of or needs to comply with in connection with transport or conveyance.
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. The transportation information is not intended to convey all specific regulatory data relating to this material. For complete

transportation information, contact customer service.

Section 15 - Regulatory Information

Traffic Regulation Rules on Occupational safety and Hygiene facilities Regulation of Labeling and Hazard Communication for Hazardous Materials Regulations for high-pressure gas labor safety

Section 16 - Other Information

Literature references	Product Compliance Department	
Prepared by	Suppler：San Fu Chemical Co., Ltd.	
	Address：1,Sec.1,Huanyuan E..Rd.,Liuying Dist.,Tainan, Taiwan 736.	
	TEL：886-6-6231821	FAX：886-6-6231822
	Name：X.Z.Lin	
Issue date	Jan-8th 2026	Revision：2
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