1 Identification of the substance/mixture and of the company/undertaking

Product identifier

Trade name : Nitrous Oxide in non-refillable gas cylinders less than 118 ml (4 Fl oz.)

Safety data sheet no. :

Chemical description of gas : Nitrous Oxide
CAS-No.: 10024-97-2

Chemical formula : N_2O

UN number : UN 1070

Usage : For various industrial applications
Perform risk assessment prior to use.

Company name : iSi North America Inc.
175 Route 46 West
Fairfield, NJ 07004
Website: www.isi.com
E-mail: info@isinorthamerica.com
Tel.: +1-973-227-2426

Emergency telephone number : Chemtrec
Tel.: +1-800-424-9300

2 Hazards identification

Classification of the substance or mixture

Classification (GHS-US/GHS-CAN)

H336: May cause drowsiness or dizziness
H270: May cause or intensify fire: oxidizer
H280: Contains gas under pressure; may explode if heated
Full text of H statements : see section 16

Label elements

GHS-US/GHS-CAN Labelling

- **Hazard pictograms**


GHS03


GHS04


GHS07

- **Signal word** : Danger
- **Hazard statements** : H336 May cause drowsiness or dizziness
  H270 - May cause or intensify fire; oxidizer
  H280 - Contains gas under pressure; may explode if heated

Precautionary statements: P202 Do not handle until all safety precautions have been read and understood.
P220 - Keep away from combustible materials
P244 - Keep valves and fittings free from oil and grease
P261 - Avoid breathing gas
P370+P376 - In case of fire: Stop leak if safe to do so

Other hazards

Other hazards : May cause asphyxiation in high concentrations.

3 Composition/information on ingredients

Substance/Preparation : **Substance**

Substance name	CAS no.	%	.
Nitrous oxide	10024-97-2	100	

Does not contain any other components or impurities which could affect the classification of this product.

4 First-aid measures

Inhalation : Move the exposed person to fresh air at once. Attempt artificial respiration if the victim stops breathing.

Contact with skin : Spray any cold burns with water immediately for at least 15 minutes. Cover with a sterile dressing. Consult a doctor.

Contact with eye : Flush eyes immediately with water for at least 15 minutes. Consult a doctor.

Ingestion : Ingestion is not considered a possible method of exposure.

5 Fire-fighting measures

Specific risks Cylinder may burst/explode if exposed to direct flame and thermal radiation by fire, respectively.

Hazardous combustion Products If involved in a fire the following toxic and/or corrosive fumes may be produced by thermal decomposition: Nitric oxide, nitrogen dioxide.

Extinguishing media

- **Suitable extinguishing agent** All known extinguishing media can be used.

Specific methods Move cylinder away from fire area, if this can be done without risk. If possible, attempt to stop gas release. Use fire fighting measures appropriate for the surrounding fire.

Special protective equipment for fire fighters Standard protective clothing and equipment (Self-contained breathing Apparatus.

6 Accidental release measures

Personnel-related precautions Evacuate area. Eliminate all ignition sources, if safe to do so. Provide adequate ventilation.

Environmental precautions Attempt to stop gas release. Prevent from entering sewer systems, basements, work pits or any other areas where accumulation could be hazardous.

Cleaning up methods Ventilate area

7 Handling and storage

Handling : Do not use oil or grease. Use only properly specified equipment which is suitable for this product, its supply pressure and temperature. If in doubt, consult supplier. Do not smoke while handling product. Use only oxygen approved lubricants and sealants. Only experienced and properly instructed persons should handle gases under pressure. Ensure the complete gas system was (or is regularly) checked for leaks before use. Use only with equipment suitable for this product, its supply pressure, and

temperature. If in doubt, contact supplier. The substance must be handled in accordance with good industrial hygiene and safety procedures.

Safe use of pressurized cylinder: Refer to supplier's handling instructions. Do not allow backfeed into cylinder. Do not subject cylinder to mechanical shocks which may cause damage to their integrity. Do not use cylinder as roller or support, or for any other purpose than to contain the gas as supplied. Never attempt to refill an empty cylinder. Never attempt to transfer gases from one cylinder to another. Emerging gas may cause the cylinder to freeze. Do not touch a discharging or recently discharged cylinder with bare hands. Never use direct flame or electrical heating devices to raise the pressure of a cylinder. Keep cylinder connections clean and fee from contaminants, particularly from oil and water. Only use equipment suitable for this product and its pressure and temperature specified. If in doubt, contact supplier.

Storage : Keep out of reach of children. Store cylinder in a well-ventilated place at less than 50°C. Store cylinder in a location free from risk of fire and away from sources of heat and ignition. Periodically check cylinder for general conditions and leakage. Do not store cylinder in conditions likely to encourage corrosion. Observe all regulations and local requirements regarding storage of gas cylinders.

8 Exposure controls/personal protection

Personal protection : Ensure adequate ventilation.
Systems under pressure should be regularly checked from leakages. Gas detectors should be used, if oxidizing gases may be released. Ensure that the occupational exposure limit for the gas is not exceeded. Wear eye protection with side shields. Wearing working gloves while handling gas cylinders. Consider the use of flame resistant safety clothing. Wear safety shoes while handling gas cylinders.

Occupational exposure limits : None

9 Physical and chemical characteristics

Physical state	:	Gas
Color	:	Colorless
Odor	:	Sweetish, Poor warning properties at high concentrations.
Odor threshold	:	No data available
pH	:	No data available
Melting point	:	-90.81 °C
Freezing point	:	No data available
Boiling point	:	-88.5 °C
Critical temperature	:	36.4 °C
Flash point	:	Not applicable
Relative evaporation rate (butyl acetate=1)	:	Not applicable
Flammability (solid, gas)	:	No data available
Explosion limits	:	No data available
Explosive properties	:	No data available
Oxidizing properties	:	No data available
Vapor pressure	:	50.8

Relative density	:	No data available
Relative vapor density at 20 °C	:	No data available
Relative gas density	:	1.5
Solubility	:	Water: 1,500 mg/l
Log Pow	:	No data available
Auto-ignition temperature	:	No data available
Decomposition temperature	:	No data available
Viscosity	:	No data available
Viscosity, kinematic	:	No data available
Viscosity, dynamic	:	No data available

10 Stability and reactivity

Reactivity : No additional information available
Chemical stability : The product is stable at normal handling and storage conditions.
Possibility of hazardous reactions : Violently oxidizes organic materials.
Conditions to avoid : Heat
Incompatible materials : May violently react with combustible materials and with reducing agents.
Hazardous decomposition products : Under normal conditions of storage and use, hazardous decomposition products should not be produced. If involved in a fire the following toxic and/or fumes may be produced by thermal decomposition: nitric oxide, nitrogen dioxide.

11 Toxicological information

Toxicological information : There are no toxic effects known of this product.

12 Ecological information

Ecological effects information : No ecological damages caused from this product.

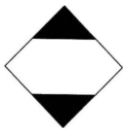
13 Disposable considerations

General : Do not discharge into any place where its accumulation could be dangerous. Release into the atmosphere in a well-ventilated place. Avoid releasing large quantities into the atmosphere. Consult your supplier if you require advice.

Disposal methods : Dispose of emptied cylinders only. Cylinders are made of recyclable steel and hence a valuable resource. Emptied cylinders should therefore always be recycled. Adhere to local waste regulations when disposing of emptied cylinders. Never dispose of cylinders in an uncontrolled manner (e.g. dumping at sea).

14 Transport information

In accordance with DOT
Transport document description : Nitrous Oxide, 2.2, 5.1
UN-No.(DOT) : UN1070
Proper Shipping Name (DOT) : Nitrous Oxide, compressed
Class (DOT) : 2.2 - Oxidizer, 5.1 - Oxidizer
Hazard labels (DOT) : Disposable Cylinder **Limited Quantity Exemption** as per: Limited Quantity (49 CFR 173.306): Each cartridge < 4 fluid ounces (118 ml); No hazard labeling except by air, no specification packaging (cylinder), outer package < 66 pounds (30 Kg) gross.



In accordance with TDG

UN-No. (TDG)	: UN1070
TDG Primary Hazard Classes	: 2.2 - Class 2.2 - Non-Flammable, Non-Toxic Gas.
TDG Subsidiary Classes	: 5.1
Transport document description	: UN1070 NITROUS OXIDE, 2.2
TDG Proper Shipping Name	: NITROUS OXIDE
Hazard labels (TDG)	: 2.2 - Non-flammable compressed gas 5.1 - Oxidizer

TDG Special Provisions	: None
Explosive Limit and Limited Quantity Index	: 0
Excepted quantities (TDG)	: E0

15 Regulatory information

US Federal regulations

Nitrous oxide (10024-97-2) : Listed on the United States TSCA (Toxic Substances Control Act) inventory

US State regulations

Nitrous oxide (10024-97-2)
: U.S. - Massachusetts - Right To Know List
: U.S. - Minnesota - Hazardous Substance List
: U.S. - New Jersey - Right to Know Hazardous Substance List

: U.S. - Pennsylvania - RTK (Right to Know) List
: U.S. - California - Proposition 65

Canada regulations
Nitrous oxide (10024-97-2) : Listed on the Canadian DSL (Domestic Sustances List)

16 Other information

Full text of H-phrases : H336 May cause drowsiness or dizziness
H270 - May cause or intensify fire; oxidizer
H280 - Contains gas under pressure; may explode if heated

May cause asphyxiation in high concentrations.
Keep cylinder in a well-ventilated place.
Do not inhale the gas.
The hazard of asphyxiation is often overlooked and must be stressed during operator training.

DISCLAIMER OF LIABILITY

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