

Nitrous Oxide (Compressed)

Safety Data Sheet

according to the Hazardous Products Regulation (February 11, 2015)

Date of issue: 05/15/2017

Version: 1.0

SECTION 1: Identification

1.1. Product identifier

Product form	: Substance
Substance name	: Nitrous Oxide (Compressed)
Chemical name	: Nitrous Oxide
Substance type	: Mono-constituent
CAS-No.	: 10024-97-2
Product code	: CA-1001-00717
Formula	: N ₂ O
Synonyms	: Nitrogen oxide / Nitrous oxide / Nitrogen oxide (N ₂ O) / Laughing gas / Hyponitrous acid / anhydride; Dinitrogen monoxide

1.2. Recommended use and restrictions on use

Recommended uses and restrictions : Medical or Laboratory Purposes

1.3. Supplier

Air Liquide Canada Inc.
1250, René Lévesque West Blvd. Suite 1700
H3B 5E6 Montreal, QC - Canada
T 1-800-817-7697
www.airliquide.ca

1.4. Emergency telephone number

Emergency number : 514-878-1667

SECTION 2: Hazard identification

2.1. Classification of the substance or mixture

Classification (GHS-CA)

Oxidising Gases, Category 1	H270
Gases under pressure : Compressed gas	H280
Specific target organ toxicity — Single exposure, Category 3, Narcosis	H336

Full text of H statements : see section 16

2.2. GHS Label elements, including precautionary statements

GHS-CA labelling

Hazard pictograms (GHS-CA) :



GHS03

GHS04

GHS07

Signal word (GHS-CA) :

Danger

Hazard statements (GHS-CA) :

H270 - May cause or intensify fire; oxidizer
H280 - Contains gas under pressure; may explode if heated
H336 - May cause drowsiness or dizziness
OSHA-H01 - May displace oxygen and cause rapid suffocation
CGA-HG01 - May cause frostbite

Precautionary statements (GHS-CA) :

P370+P376 - In case of fire: Stop leak if safe to do so
P501 - Dispose of contents/container in accordance with local/regional/national/international regulations.
P403 - Store in a well-ventilated place
P403+P233 - Store in a well-ventilated place. Keep container tightly closed
P405 - Store locked up
P220 - Keep away from clothing and other combustible materials
P261 - Avoid breathing dust/fume/gas/mist/vapours/spray
P262 - Do not get in eyes, on skin, or on clothing
P244 - Keep valves and fittings free from oil and grease
P202 - Do not handle until all safety precautions have been read and understood
P312 - Call a POISON CENTER or doctor if you feel unwell
P315 - Get immediate medical advice/attention

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P271 - Use only outdoors or in a well-ventilated area
P304+P340 - IF INHALED: Remove person to fresh air and keep comfortable for breathing
P302 - IF ON SKIN:
P336+P315 - Thaw frosted parts with lukewarm water. Do not rub affected area
CGA-PG02 - Protect from sunlight when ambient temperature exceeds 52 °C/125 °F
CGA-PG05 - Use a back flow preventive device in the piping
CGA-PG06 - Close valve after each use and when empty
CGA-PG10 - Use only with equipment rated for cylinder pressure
CGA-PG14 - Approach suspected leak area with caution
CGA-PG20 - Use only with equipment of compatible materials of construction and rated for cylinder pressure
CGA-PG21 - Open valve slowly
CGA-PG22 - Use only with equipment cleaned for oxygen service

2.3. Other hazards

No additional information available

2.4. Unknown acute toxicity (GHS-CA)

No data available

SECTION 3: Composition/information on ingredients

3.1. Substances

Substance type : Mono-constituent
Name : Nitrous Oxide (Compressed)
CAS-No. : 10024-97-2

Name	Chemical name/Synonyms	Product identifier	%	Classification (GHS-CA)
Nitrous oxide	Dinitrogen oxide / Laughing gas / Nitrogen oxide (N ₂ O) / NITROUS OXIDE	(CAS-No.) 10024-97-2	> 99	Ox. Gas 1, H270 Press. Gas (Comp.), H280 STOT SE 3, H336

Full text of hazard classes and H-statements : see section 16

3.2. Mixtures

Not applicable

SECTION 4: First-aid measures

4.1. Description of first aid measures

First-aid measures after inhalation : Remove victim to fresh air and keep at rest in a position comfortable for breathing. If you feel unwell, seek medical advice.
First-aid measures after skin contact : Thaw frosted parts with lukewarm water. Do not rub affected area. Get immediate medical advice/attention.
First-aid measures after eye contact : Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Consult an eye specialist.
First-aid measures after ingestion : Ingestion is not considered a potential route of exposure.

4.2. Most important symptoms and effects (acute and delayed)

Symptoms/effects after inhalation : May displace oxygen and cause rapid suffocation. May cause drowsiness or dizziness.
Symptoms/effects after skin contact : Contact with the liquefied gas may cause frostbite.
Symptoms/effects after eye contact : Contact with the product may cause cold burns or frostbite.
Symptoms/effects after ingestion : Ingestion is not considered a potential route of exposure.
Symptoms/effects upon intravenous administration : Not known.
Chronic symptoms : None known.
Most important symptoms and effects, both acute and delayed : Refer to section 11.

4.3. Immediate medical attention and special treatment, if necessary

Other medical advice or treatment : If breathing is difficult, give oxygen. Obtain medical attention if breathing difficulty persists.

SECTION 5: Fire-fighting measures

5.1. Suitable extinguishing media

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

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5.2. Unsuitable extinguishing media

Unsuitable extinguishing media : Do not use water jet to extinguish.

5.3. Specific hazards arising from the hazardous product

Fire hazard : The product is not flammable.
Explosion hazard : Product is not explosive. Heat may build pressure, rupturing closed containers, spreading fire and increasing risk of burns and injuries.
Hazardous combustion products : None known

5.4. Special protective equipment and precautions for fire-fighters

Firefighting instructions : In case of fire: Evacuate area. Fight fire remotely due to the risk of explosion. Use water spray or fog for cooling exposed containers. Exercise caution when fighting any chemical fire. Exposure to fire may cause containers to rupture/explode.
Protection during firefighting : Standard protective clothing and equipment (e.g. Self Contained Breathing Apparatus) for fire fighters. Do not enter fire area without proper protective equipment, including respiratory protection.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

General measures : Ensure adequate ventilation.
Personal Precautions, Protective Equipment and Emergency Procedures : EVACUATE ALL PERSONNEL FROM AFFECTED AREA. Use appropriate protective equipment. If leak is on user's equipment, be certain to purge piping before attempting repairs. If leak is on a container or container valve contact the closest Air Liquide Canada location.

6.2. Methods and materials for containment and cleaning up

For containment : Try to stop release if without risk.
Methods for cleaning up : Dispose of contents/container in accordance with local/regional/national/international regulations.
Methods and material for containment and cleaning up : None.

6.3. Reference to other sections

For further information refer to section 8: "Exposure controls/personal protection"

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Precautions for safe handling : Do not handle until all safety precautions have been read and understood. Use only outdoors or in a well-ventilated area.
Hygiene measures : Do not eat, drink or smoke when using this product.
Additional hazards when processed : Pressurized container: Do not pierce or burn, even after use. Use only with equipment rated for cylinder pressure.

7.2. Conditions for safe storage, including any incompatibilities

Technical measures : Comply with applicable regulations.
Storage conditions : Store locked up. Do not expose to temperatures exceeding 52 °C/ 125 °F. Keep container closed when not in use. Protect cylinders from physical damage; do not drag, roll, slide or drop. Store in well ventilated area.
Incompatible products : None known.
Incompatible materials : Flammable materials. Reducing agents. Combustible materials.
Conditions for safe storage, including any incompatibilities : Observe all regulations and local requirements regarding storage of containers. Containers should not be stored in conditions likely to encourage corrosion. Container valve guards or caps should be in place. Containers should be stored in the vertical position and properly secured to prevent them from falling over. Stored containers should be periodically checked for general condition and leakage. Keep container below 50°C in a well ventilated place. Store containers in location free from fire risk and away from sources of heat and ignition. Keep away from combustible materials.

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

Nitrous oxide (10024-97-2)		
USA - ACGIH	ACGIH TWA (ppm)	50 ppm
Canada (Quebec)	VEMP (mg/m ³)	90 mg/m ³
Canada (Quebec)	VEMP (ppm)	50 ppm

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Nitrous oxide (10024-97-2)		
Alberta	OEL TWA (mg/m ³)	90 mg/m ³
Alberta	OEL TWA (ppm)	50 ppm
British Columbia	OEL TWA (ppm)	25 ppm
Manitoba	OEL TWA (ppm)	50 ppm
New Brunswick	OEL TWA (mg/m ³)	90 mg/m ³
New Brunswick	OEL TWA (ppm)	50 ppm
New Foundland & Labrador	OEL TWA (ppm)	50 ppm
Nova Scotia	OEL TWA (ppm)	50 ppm
Nunavut	OEL STEL (ppm)	75 ppm
Nunavut	OEL TWA (ppm)	50 ppm
Northwest Territories	OEL STEL (ppm)	75 ppm
Northwest Territories	OEL TWA (ppm)	50 ppm
Ontario	OEL TWA (mg/m ³)	45 mg/m ³
Ontario	OEL TWA (ppm)	25 ppm
Prince Edward Island	OEL TWA (ppm)	50 ppm
Saskatchewan	OEL STEL (ppm)	75 ppm
Saskatchewan	OEL TWA (ppm)	50 ppm

8.2. Appropriate engineering controls

- Appropriate engineering controls : Ensure exposure is below occupational exposure limits (where available). Provide adequate general and local exhaust ventilation. Systems under pressure should be regularly checked for leakages. Oxygen detectors should be used when asphyxiating gases may be released. Consider the use of a work permit system e.g. for maintenance activities.
- Environmental exposure controls : Refer to local regulations for restriction of emissions to the atmosphere. See section 13 for specific methods for waste gas treatment.

8.3. Individual protection measures/Personal protective equipment

Personal protective equipment:

Gloves. Safety glasses. Protective clothing. Safety shoes.

Hand protection:

Wear working gloves when handling gas containers.

Eye protection:

Wear safety glasses with side shields.

Skin and body protection:

Wear suitable protective clothing, e.g. lab coats, coveralls or flame resistant clothing.

Respiratory protection:

None necessary during routine operations.



Thermal hazard protection:

None necessary.

Other information:

Wear safety shoes while handling containers.

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SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical state	: Gas
Appearance	: Clear, colorless gas.
Colour	: Colourless
Odour	: Slightly sweet
Odour threshold	: No data available
pH	: No data available
Relative evaporation rate (butylacetate=1)	: No data available
Relative evaporation rate (ether=1)	: No data available
Molecular mass	: 44.013 g/mol
Melting point	: -90.81 °C
Freezing point	: -90.81 °C
Boiling point	: -87.45 °C
Flash point	: No data available
Critical temperature	: 37.45 °C
Auto-ignition temperature	: No data available
Decomposition temperature	: No data available
Flammability (solid, gas)	: See Section 2.1 and 2.2 Non flammable, May cause or intensify fire; oxidizer
Vapour pressure	: 30350.983591357 mbar
Vapour pressure at 50 °C	: No data available
Critical pressure	: 7255 kPa
Relative vapour density at 20 °C	: 1.53
Relative density	: 1.2
Density	: 1.977 g/l
Relative gas density	: 1.5
Solubility	: Water: 0.1 %
Log Pow	: Not applicable for gas mixtures. Not applicable for gas mixtures.
Viscosity, kinematic	: Not applicable.
Viscosity, dynamic	: Not applicable.
Explosive properties	: Not flammable.
Oxidising properties	: Not combustible but enhances combustion of other substances. May intensify fire. Oxidizer.
Explosive limits	: Not applicable - not flammable
Ci	: 0.6

9.2. Other information

Gas group	: Compressed gas
Additional information	: Gas/vapour heavier than air. May accumulate in confined spaces, particularly at or below ground level

SECTION 10: Stability and reactivity

10.1. Reactivity

Reactivity	: None known.
Chemical stability	: Stable under normal conditions.
Possibility of hazardous reactions	: May react violently with reducing agents.
Conditions to avoid	: Refer to Section 10 on Incompatible Materials.
Incompatible materials	: Flammable materials. Reducing agents. Combustible materials.
Hazardous decomposition products	: Nitrous oxide explosively decomposes at elevated temperatures (above 1200 deg. F, 650 deg. C) into nitrogen and oxygen.

SECTION 11: Toxicological information

Likely routes of exposure	: Inhalation. Skin and eyes contact.
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11.1. Information on toxicological effects

Acute toxicity (oral)	: Not classified
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Acute toxicity (dermal) : Not classified
Acute toxicity (inhalation) : Inhalation:gas: Not classified.

Nitrous Oxide (Compressed) (f)10024-97-2	
LC50 inhalation rat (ppm)	250000 ppm/4h
ATE CA (gases)	250000.00000000 ppmv/4h

Nitrous oxide (10024-97-2)	
LC50 inhalation rat (ppm)	250000 ppm/4h

Skin corrosion/irritation : Not classified
Serious eye damage/irritation : Not classified
Respiratory or skin sensitization : Not classified
Germ cell mutagenicity : Not classified
Carcinogenicity : Not classified

Reproductive toxicity : Not classified
STOT-single exposure : May cause drowsiness or dizziness.
STOT-repeated exposure : Not classified

Aspiration hazard : Not classified

SECTION 12: Ecological information

12.1. Toxicity

Ecology - general : Classification criteria are not met.

12.2. Persistence and degradability

Nitrous Oxide (Compressed) (10024-97-2)	
Persistence and degradability	No data available.

Nitrous oxide (10024-97-2)	
Persistence and degradability	Not applicable for inorganic gases.

12.3. Bioaccumulative potential

Nitrous Oxide (Compressed) (10024-97-2)	
Log Pow	Not applicable for gas mixtures.
Log Kow	Not applicable for gas mixtures.
Bioaccumulative potential	No data available.

Nitrous oxide (10024-97-2)	
Log Pow	Not applicable for inorganic gases.
Bioaccumulative potential	No data available.

12.4. Mobility in soil

Nitrous Oxide (Compressed) (10024-97-2)	
Mobility in soil	No data available
Log Pow	Not applicable for gas mixtures.
Log Kow	Not applicable for gas mixtures.

Nitrous oxide (10024-97-2)	
Log Pow	Not applicable for inorganic gases.
Ecology - soil	Because of its high volatility, the product is unlikely to cause ground or water pollution.

12.5. Other adverse effects

Effect on ozone layer : None.

SECTION 13: Disposal considerations

13.1. Disposal methods

Waste treatment methods : Contact supplier if guidance is required. Do not discharge into any place where its accumulation could be dangerous. Ensure that the emission levels from local regulations or operating permits are not exceeded.

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Product/Packaging disposal recommendations : Refer to the CGA Pamphlet P-63 "Disposal of Gases" available at www.cganet.com for more guidance on suitable disposal methods.

Additional information : None.

SECTION 14: Transport information

14.1. Basic shipping description

In accordance with TDG

Transportation of Dangerous Goods

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 (5.1)
Proper Shipping Name : NITROUS OXIDE

Hazard labels (TDG) : 2.2 - Non-flammable, non-toxic gases
5.1 - Oxidizing substances



ERAP Index : 3 000
Explosive Limit and Limited Quantity Index : 0
Excepted quantities (TDG) : E0
Passenger Carrying Road Vehicle or Passenger Carrying Railway Vehicle Index : 75 L

14.2. Transport information/DOT - USA

Department of Transport

DOT NA no. : UN1070
UN-No.(DOT) : 1070
Transport Document Description : UN1070 Nitrous oxide, 2.2 (5.1)
Proper Shipping Name (DOT) : Nitrous oxide
Contains Statement Field Selection (DOT) : DOT_TECHNICAL - Proper Shipping Name - Technical (DOT)

Class (DOT) : 2.2 - Class 2.2 - Non-flammable compressed gas 49 CFR 173.115
Division (DOT) : 2.2
Hazard labels (DOT) : 2.2 - Non-flammable gas
5.1 - Oxidiser



Dangerous for the environment : No

DOT Special Provisions (49 CFR 172.102) : A14 - This material is not authorized to be transported as a limited quantity or consumer commodity in accordance with 173.306 of this subchapter when transported aboard an aircraft.
DOT Packaging Exceptions (49 CFR 173.xxx) : 306
DOT Packaging Non Bulk (49 CFR 173.xxx) : 304
DOT Packaging Bulk (49 CFR 173.xxx) : 314;315
DOT Quantity Limitations Passenger aircraft/rail (49 CFR 173.27) : 75 kg

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DOT Quantity Limitations Cargo aircraft only (49 CFR 175.75)	: 150 kg
DOT Vessel Stowage Location	: A - The material may be stowed "on deck" or "under deck" on a cargo vessel and on a passenger vessel.
DOT Vessel Stowage Other	: 40 - Stow "clear of living quarters"
Emergency Response Guide (ERG) Number	: 122
Special transport precautions	: 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. Before transporting product containers: - Ensure there is adequate ventilation. - Ensure that containers are firmly secured. - Ensure cylinder valve is closed and not leaking. - Ensure valve outlet cap nut or plug (where provided) is correctly fitted. - Ensure valve protection device (where provided) is correctly fitted.
Other information	: No supplementary information available.

14.3. Air and sea transport

IMDG

UN-No. (IMDG)	: 1070
Proper Shipping Name (IMDG)	: NITROUS OXIDE
Transport Document Description (IMDG)	: UN 1070 NITROUS OXIDE, 2.2 (5.1)
Class (IMDG)	: 2 - Gases
Subsidiary risk (IMDG)	: 5.1

IATA

UN-No. (IATA)	: 1070
Proper Shipping Name (IATA)	: Nitrous oxide
Transport Document Description (IATA)	: UN 1070 Nitrous oxide, 2.2 (5.1)
Class (IATA)	: 2

SECTION 15: Regulatory information

15.1. National regulations

Nitrous oxide (10024-97-2)

Listed on the Canadian DSL (Domestic Substances List)

15.2. International regulations

Nitrous oxide (10024-97-2)

Listed on the AICS (Australian Inventory of Chemical Substances)
Listed on IECSC (Inventory of Existing Chemical Substances Produced or Imported in China)
Listed on the EEC inventory EINECS (European Inventory of Existing Commercial Chemical Substances)
Listed on the Japanese ENCS (Existing & New Chemical Substances) inventory
Listed on the Korean ECL (Existing Chemicals List)
Listed on NZIoC (New Zealand Inventory of Chemicals)
Listed on PICCS (Philippines Inventory of Chemicals and Chemical Substances)
Listed on the United States TSCA (Toxic Substances Control Act) inventory
Listed on INSQ (Mexican National Inventory of Chemical Substances)

SECTION 16: Other information

Date of issue : 05/15/2017

Full text of H-statements:

H270	May cause or intensify fire; oxidizer
H280	Contains gas under pressure; may explode if heated
H336	May cause drowsiness or dizziness

SDS Canada (GHS)

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