

NITROUS OXIDE, Refrigerated Liquid (N2O)**AL611**

Label 2.2 : Non flammable, non toxic gas.



Label 5.1 : Oxidizing substances.

1 IDENTIFICATION OF THE SUBSTANCE/PREPARATION AND OF THE COMPANY/UNDERTAKING

Trade name : NITROUS OXIDE, Refrigerated Liquid (N2O)
MSDS Nr : AL611
Use : Scientific applications. Industrial applications.
Chemical formula : N2O
Company identification : Air Liquide Australia Limited
Level 9 / 380 St. Kilda Road
Melbourne VIC 3004 Australia
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ALAEquiries@AirLiquide.com
Emergency phone nr : 1800 812 588

2 HAZARDS IDENTIFICATION

Hazard classification : Not classified as hazardous according to NOHSC criteria.
Classified as a dangerous good by the criteria of the ADG code.
Hazards identification : Refrigerated liquefied gas. Contact with product may cause cold burns or frostbite.
Oxidant. Strongly supports combustion. May react violently with combustible materials.
R Phrase(s) : R8 : Contact with combustible material may cause fire.
S Phrase(s) : S9 : Keep container in a well-ventilated place. - S17 : Keep away from combustible material. - S36 : Wear suitable protective clothing.

3 COMPOSITION/INFORMATION ON INGREDIENTS

Substance / Preparation : Substance.

Substance name	Contents	CAS No	EC No	Annex No	Classification
Nitrous oxide (refrigerated)	100 %	10024-97-2	233-032-0	----	O; R8

Contains no other components or impurities which will influence the classification of the product.

4 FIRST AID MEASURES**First aid measures**

- **Inhalation** : In high concentrations may cause asphyxiation. Symptoms may include loss of mobility/consciousness. Victim may not be aware of asphyxiation.
In low concentrations may cause narcotic effects. Symptoms may include dizziness, headache, nausea and loss of co-ordination.
Remove victim to uncontaminated area wearing self contained breathing apparatus. Keep victim warm and rested. Call a doctor. Apply artificial respiration if breathing stopped.
- **Skin/eye contact** : Immediately flush eyes thoroughly with water for at least 15 minutes.
In case of frostbite spray with water for at least 15 minutes. Apply a sterile dressing.
Obtain medical assistance.
- **Ingestion** : Ingestion is not considered a potential route of exposure.

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5 FIRE-FIGHTING MEASURES

- Specific hazards** : Exposure to fire may cause containers to rupture/explode.
Supports combustion.
- 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 media : All known extinguishants can be used.
- Specific methods** : If possible, stop flow of product.
Move away from the container and cool with water from a protected position.
If leaking do not spray water onto container. Water surrounding area (from protected position) to contain fire.
- Special protective equipment for fire fighters** : Use self-contained breathing apparatus and chemically protective clothing.

6 ACCIDENTAL RELEASE MEASURES

- Personal precautions** : Evacuate area.
Ensure adequate air ventilation.
Eliminate ignition sources.
Wear self-contained breathing apparatus when entering area unless atmosphere is proved to be safe.
Use protective clothing.
- Environmental precautions** : Try to stop release.
Prevent from entering sewers, basements and workpits, or any place where its accumulation can be dangerous.
- Clean up methods** : Ventilate area.
Keep area evacuated and free from ignition sources until any spilled liquid has evaporated. (Ground free from frost).

7 HANDLING AND STORAGE

- Storage** : Segregate from flammable gases and other flammable materials in store.
Keep container below 50°C in a well ventilated place.
- Handling** : Use no oil or grease.
Open valve slowly to avoid pressure shock.
Suck back of water into the container must be prevented.
Do not allow backfeed into the container.
Use only properly specified equipment which is suitable for this product, its supply pressure and temperature. Contact your gas supplier if in doubt.
Keep away from ignition sources (including static discharges).
Refer to supplier's container handling instructions.

8 EXPOSURE CONTROLS/PERSONAL PROTECTION

- Personal protection** : Do not smoke while handling product.
Ensure adequate ventilation.
Protect eyes, face and skin from liquid splashes.
- Occupational Exposure Limits** : Nitrous oxide (refrigerated) : TLV© -TWA [ppm] : 50

9 PHYSICAL AND CHEMICAL PROPERTIES

- Physical state at 20 °C** : Gas.
- Colour** : Colourless liquid.

NITROUS OXIDE, Refrigerated Liquid (N₂O)**AL611****9 PHYSICAL AND CHEMICAL PROPERTIES (continued)**

Odour	: Sweetish. Poor warning properties at high concentrations.
Molecular weight	: 44
Melting point [°C]	: -90.81
Boiling point [°C]	: -88.5
Critical temperature [°C]	: 36.4
Vapour pressure [20°C]	: 50.8 bar
Relative density, gas (air=1)	: 1.5
Relative density, liquid (water=1)	: 1.2
Solubility in water [mg/l]	: 2.2
Flammability range [vol% in air]	: Oxidiser.
Auto-ignition temperature [°C]	: Not applicable.
Other data	: Gas/vapour heavier than air. May accumulate in confined spaces, particularly at or below ground level.

10 STABILITY AND REACTIVITY

Stability and reactivity	: May react violently with combustible materials. May react violently with reducing agents. Violently oxidises organic material. Thermal decomposition yields toxic products which can be corrosive in the presence of moisture. At temperatures over 575°C 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. In the presence of catalysts (e.g. halogen products, mercury, nickel, platinum) the rate of decomposition increases and decomposition can occur at even lower temperatures. Nitrous oxide dissociation is irreversible and exothermic, leading to a considerable rise in pressure. Liquid spillages can cause embrittlement of structural materials.
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11 TOXICOLOGICAL INFORMATION

Toxicity information	: No known toxicological effects from this product.
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12 ECOLOGICAL INFORMATION

Ecological effects information	: Can cause frost damage to vegetation. When discharged in large quantities may contribute to the greenhouse effect.
Global warming potential [CO₂=1]	: 296

13 DISPOSAL CONSIDERATIONS

General	: To atmosphere in a well ventilated place. Do not discharge into any place where its accumulation could be dangerous. Contact supplier if guidance is required. Discharge to atmosphere in large quantities should be avoided.
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14 TRANSPORT INFORMATION

UN No.	: 2201
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14 TRANSPORT INFORMATION (continued)

• Labelling ADG, IMDG, IATA



: Label 5.1 : Oxidizing substances.
 Label 2.2 : Non flammable, non toxic gas.

Land transport

H.I. nr : 225
Proper shipping name : NITROUS OXIDE, REFRIGERATED LIQUID
HAZCHEM - Emergency Action Code : HAZCHEM
 : HAZCHEM_C
- ADG Class : 2
- ADG Classification code : 3 O
- Packing Instruction(s) - General : P203

Sea transport

- IMO-IMDG code
• Proper shipping name : NITROUS OXIDE, REFRIGERATED LIQUID
• Class : 2.2
- IMO Packing group : P203
- Emergency Schedule (EmS) - Fire : F-C
- Emergency Schedule (EmS) - Spillage : S-W
- Instructions - Packing : P203

Air transport

- ICAO/IATA
- Proper shipping name : NITROUS OXIDE, REFRIGERATED LIQUID
• Class : 2.2
• Passenger and Cargo Aircraft : DO NOT LOAD IN PASSENGER AIRCRAFT.
• Cargo Aircraft only : FORBIDDEN.

Other transport 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.
 Before transporting product containers :
 - 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.
 - Ensure there is adequate ventilation.
 - Compliance with applicable regulations.

15 REGULATORY INFORMATION

EC Classification : Not included in Annex I.
 Proposed by the industry.
 O; R8

EC Labelling

Symbol(s) : O : Oxidizing
R Phrase(s) : R8 : Contact with combustible material may cause fire.
S Phrase(s) : S9 : Keep container in a well-ventilated place.
 S17 : Keep away from combustible material.
 S36 : Wear suitable protective clothing.



MATERIAL SAFETY DATA SHEET

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16 OTHER INFORMATION

Asphyxiant in high concentrations.

May cause frostbite.

The hazard of asphyxiation is often overlooked and must be stressed during operator training.

Ensure all national/local regulations are observed.

This Safety Data Sheet has been established in accordance with the applicable European Directives and applies to all countries that have translated the Directives in their national laws.

DISCLAIMER OF LIABILITY

: Whilst proper care has been taken in the preparation of this document, no liability for injury or damage resulting from its use can be accepted.

Details given in this document are believed to be correct at the time of going to press. Before using this product in any new process or experiment, a thorough material compatibility and safety study should be carried out.

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