

Nitric oxide

AL187


T+ : Very toxic



C : Corrosive



O : Oxidizing



Label 2.3 : Toxic gas.



Label 5.1 : Oxidizing substances.



Label 8 : Corrosive substance.

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

Trade name : Nitric oxide
MSDS Nr : AL187
Use : Chemical reagent.
Chemical formula : NO
Company identification : Air Liquide
 Level 9, 380 St.Kilda Road
 3004 Melbourne AUSTRALIA
Emergency phone nr : 1800 812 588

2 HAZARDS IDENTIFICATION

Hazard classification : Classified as hazardous according to NOHSC criteria.
 Classified as a dangerous good by the criteria of the ADG code.

Hazards identification : Compressed gas.
 Very toxic by inhalation.
 Corrosive to eyes, respiratory system and skin.
 Oxidant. Strongly supports combustion. May react violently with combustible materials.

R Phrase(s) : R8 : Contact with combustible material may cause fire. - R26 : Very toxic by inhalation. - R34 : Causes burns.

S Phrase(s) : S1 : Keep locked up. - S9 : Keep container in a well-ventilated place. - S17 : Keep away from combustible material. - S26 : In case of contact with eyes, rinse immediately with plenty of water and seek medical advice. - S36/37/39 : Wear suitable protective clothing, gloves and eye/face protection. - S45 : In case of accident or if you feel unwell, seek medical advice immediately (show the label when possible).

3 COMPOSITION/INFORMATION ON INGREDIENTS

Substance / Preparation : Substance.

Substance name	Contents	CAS No	EC No	Annex No	Classification
Nitric oxide	100 %	10102-43-9	233-271-0	----	O; R8 T+; R26 C; R34

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

4 FIRST AID MEASURES

First aid measures

- Inhalation

: Very toxic by inhalation.
 Delayed adverse effects possible.
 Prolonged exposure to small concentrations may result in pulmonary oedema.
 Remove victim to uncontaminated area wearing self contained breathing apparatus. Keep victim warm and rested. Call a doctor. Apply artificial respiration if breathing stopped.



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4 FIRST AID MEASURES (continued)

- Skin/eye contact** : May cause chemical burns to skin and cornea (with temporary disturbance to vision).
Immediately flush eyes thoroughly with water for at least 15 minutes.
Remove contaminated clothing. Drench affected area with water for at least 15 minutes.
Obtain medical assistance.

5 FIRE-FIGHTING MEASURES

- Specific hazards** : Supports combustion.
Exposure to fire may cause containers to rupture/explode.
- Hazardous combustion products** : None that are more toxic than the product itself.
- 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.
- 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.
Use self-contained breathing apparatus and chemically protective clothing.
- Environmental precautions** : Try to stop release.
Reduce vapour with fog or fine water spray.
Prevent from entering sewers, basements and workpits, or any place where its accumulation can be dangerous.
- Clean up methods** : Ventilate area.
Wash contaminated equipment or sites of leaks with copious quantities of water.
Hose down area with water.

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 only properly specified equipment which is suitable for this product, its supply pressure and temperature. Contact your gas supplier if in doubt.
Open valve slowly to avoid pressure shock.
Refer to supplier's container handling instructions.
Use no oil or grease.
Do not allow backfeed into the container.
Suck back of water into the container must be prevented.

8 EXPOSURE CONTROLS/PERSONAL PROTECTION

- Personal protection** : Keep suitable chemically resistant protective clothing readily available for emergency use.
Keep self contained breathing apparatus readily available for emergency use.
Do not smoke while handling product.
Ensure adequate ventilation.

Nitric oxide**AL187****8 EXPOSURE CONTROLS/PERSONAL PROTECTION (continued)****Occupational Exposure Limits** : Nitric oxide : TLV© -TWA [ppm] : 25**9 PHYSICAL AND CHEMICAL PROPERTIES**

Physical state at 20 °C : Gas.
Colour : Colourless gas.
Odour : Poor warning properties at low concentrations.
Molecular weight : 30
Melting point [°C] : -164
Boiling point [°C] : -152
Critical temperature [°C] : -93
Vapour pressure [20°C] : Not applicable.
Relative density, gas (air=1) : 1
Relative density, liquid (water=1) : 1.3
Solubility in water [mg/l] : 67
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 : Violently oxidises organic material.
Decomposes at room temperature to other nitrogen oxides and nitrogen. Oxidises in air to form nitrogen dioxide which is extremely reactive.
May react violently with reducing agents.
May react violently with combustible materials.

11 TOXICOLOGICAL INFORMATION

Toxicity information : Delayed fatal pulmonary oedema possible.
Severe corrosion to skin, eyes and respiratory tract at high concentrations.
LC50 [ppm/1h] : 115

12 ECOLOGICAL INFORMATION

Ecological effects information : May cause pH changes in aqueous ecological systems.

13 DISPOSAL CONSIDERATIONS

General : Avoid discharge to atmosphere.
Gas may be scrubbed in alkaline solution under controlled conditions to avoid violent reaction.
Do not discharge into any place where its accumulation could be dangerous.
Contact supplier if guidance is required.



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14 TRANSPORT INFORMATION

UN No. : 1660

Labelling ADG : Label 2.3 : Toxic gas.
Label 5.1 : Oxidizing substances.
Label 8 : Corrosive substance.

H.I. nr : --

Proper shipping name : NITRIC OXIDE, COMPRESSED

HAZCHEM - Emergency Action Code : 2PE
: 2 = *Fine water spray.*
P = Risk of violent reaction or explosion. Recommended personal protective equipment : Liquid-tight chemical protective clothing and breathing apparatus. Appropriate measures : dilute.
E = There may be a public safety hazard outside the immediate area of the incident, and that the following actions should be considered :
1. People should be warned to stay indoors with all doors and windows closed, preferably in rooms upstairs and facing away from the incident. Ignition sources should be eliminated and any ventilation stopped.
2. Effects may spread beyond the immediate vicinity. all non-essential personnel should be instructed to move at least 250 metres away from the incident.
3. Police and fire brigade incident commanders should consult each other and with a product expert, or with a source of product expertise.
4. The possible need for subsequent evacuation should be considered, but it should be remembered that in most cases it will be safer to remain in a building than to evacuate.

- ADG Class : 2

- ADG Classification code : 1 TOC

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
T+; R26
C; R34

EC Labelling

Symbol(s) : T+ : Very toxic
C : Corrosive
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15 REGULATORY INFORMATION (continued)

S36/37/39 : Wear suitable protective clothing, gloves and eye/face protection.
S45 : In case of accident or if you feel unwell, seek medical advice immediately (show the label when possible).

16 OTHER INFORMATION

Ensure all national/local regulations are observed.
Ensure operators understand the toxicity hazard.
Users of breathing apparatus must be trained.

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

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

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