

Safety Data Sheet

Product :

Nitric oxide

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MSDS Nr : 351-00-0001BOC(U)

Version : 1.02

Date : 13/09/2000

Replaces version dated : 26/07/1994

1 IDENTIFICATION OF THE SUBSTANCE/PREPARATION AND OF THE COMPANY

Product name	Nitric oxide
Chemical formula	NO
Company identification	see heading and/or footer
Emergency phone numbers	see heading and/or footer

2 COMPOSITION/INFORMATION ON INGREDIENTS

Substance/Preparation	Substance.
Components/Impurities	Contains no other components or impurities which will influence the classification of the product.
CAS Nr	10102-43-9
EEC Nr (from EINECS)	233-271-0

3 HAZARDS IDENTIFICATION

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.
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4 FIRST AID MEASURES

Inhalation	Very toxic by inhalation. 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. Delayed adverse effects possible.
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. Non flammable
Hazardous combustion products	None that are more toxic than the product itself.
Suitable extinguishing media	All known extinguishants can be used.

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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.

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

Handling and storage

Use no oil or grease.

Open valve slowly to avoid pressure shock.

Keep container below 50°C in a well ventilated place.

Refer to supplier's container handling instructions.

Use only properly specified equipment which is suitable for this product, its supply pressure and temperature. Contact your gas supplier if in doubt.

Do not allow backfeed into the container.

Suck back of water into the container must be prevented.

Segregate from flammable gases and other flammable materials in store.

8 EXPOSURE CONTROLS/PERSONAL PROTECTION

Exposure limit value for country

UK: Nitric oxide - LTEL: 25ppm; STEL: 35ppm (EH40/2000)

France: Nitric oxide - VME: 25ppm

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.

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9 PHYSICAL AND CHEMICAL PROPERTIES

Molecular weight	30
Melting point	-164 °C
Boiling point	-152 °C
Critical temperature	-93 °C
Relative density, gas	1 (air=1)
Relative density, liquid	1.3 (water=1)
Vapour Pressure 20°C	Not applicable.
Solubility mg/l water	67 mg/l
Appearance/Colour	Colourless gas
Odour	Pungent
	Poor warning properties at low concentrations.

10 STABILITY AND REACTIVITY

Stability and reactivity	Violently oxidises organic material. May react violently with reducing agents. May react violently with combustible materials Decomposes at room temperature to other nitrogen oxides and nitrogen. Oxidises in air to form nitrogen dioxide which is extremely reactive.
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11 TOXICOLOGICAL INFORMATION

General	Delayed fatal pulmonary oedema possible. Severe corrosion to skin, eyes and respiratory tract at high concentrations.
LC50/1h (ppm)	115 ppm

12 ECOLOGICAL INFORMATION

General	May cause pH changes in aqueous ecological systems.
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13 DISPOSAL CONSIDERATIONS

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

Contact supplier if guidance is required.

14 TRANSPORT INFORMATION

UN Nr	1660
Class/Div	2.3
Subsidiary risk	5.1
	8
ADR/RID Item Nr	2,1° TOC
Labelling ADR	Label 6.1: toxic substance. Label 05: fire intensifying risk. Label 8: corrosive substance.
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 they are firmly secured and: - cylinder valve is closed and not leaking - valve outlet cap nut or plug (where provided) is correctly fitted - valve protection device (where provided) is correctly fitted - there is adequate ventilation. - compliance with applicable regulations.

15 REGULATORY INFORMATION

Number in Annex I of Dir 67/548	Not included in Annex I.
EC Classification	O;R8 T+;R26 C;R34
-Symbols	O: Oxidising T+: Very toxic C: Corrosive
Labelling of cylinders	
-Symbols	Label 6.1: toxic substance. Label 05: fire intensifying risk. Label 8: corrosive substance.

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-Risk phrases

R8 Contact with combustible material may cause fire.

R26 Very toxic by inhalation.

R34 Cause burns (to eyes, respiratory system and skin).

-Safety phrases

S1 Keep locked up.

S9 Keep container in 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 Wear suitable protective clothing.

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 where possible).

16 OTHER INFORMATION

Ensure all national/local regulations are observed.

Ensure operators understand the toxicity hazard.

Users of breathing apparatus must be trained.

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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