

Safety Data Sheet

Product :

Nitrous oxide

Page :1/5

MSDS Nr : 093A_AL

Version : 1.01

Date : 31/07/2002

1 IDENTIFICATION OF THE SUBSTANCE/PREPARATION AND OF THE COMPANY

MSDS Nr	093A_AL
Product name	Nitrous oxide
Chemical formula	N ₂ O
Company identification	see heading and/or footer see paragraph 16 "OTHER INFORMATION"
Emergency phone numbers	see heading and/or footer see paragraph 16 "OTHER INFORMATION"

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	10024-97-2
EEC Nr (from EINECS)	233-032-0

3 HAZARDS IDENTIFICATION

Hazards identification	Liquefied gas Oxidant. Strongly supports combustion. May react violently with combustible materials.
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4 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.
Ingestion	Ingestion is not considered a potential route of exposure.

5 FIRE FIGHTING MEASURES

Specific hazards	Supports combustion. Exposure to fire may cause containers to rupture/explode. Non flammable
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Safety Data Sheet

Product :

Nitrous oxide

Page :2/5

MSDS Nr : 093A_AL

Version : 1.01

Date : 31/07/2002

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
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	Wear self-contained breathing apparatus when entering area unless atmosphere is proved to be safe. Evacuate area. Ensure adequate air ventilation. Eliminate ignition sources.
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.

7 HANDLING AND STORAGE

Handling and storage	Use no oil or grease. Open valve slowly to avoid pressure shock. Segregate from flammable gases and other flammable materials in store. 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. Keep container below 50°C in a well ventilated place.
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8 EXPOSURE CONTROLS/PERSONAL PROTECTION

Exposure limit value -TLV(ACGIH)	50 ppm (2000 edition)
Exposure limit value for country	Great Britain: LTEL: 100ppm Germany: MAK= 100 ppm

Safety Data Sheet

Product :

Nitrous oxide

Page :3/5

MSDS Nr : 093A_AL

Version : 1.01

Date : 31/07/2002

Personal protection

Do not smoke while handling product.

Ensure adequate ventilation.

9 PHYSICAL AND CHEMICAL PROPERTIES

Molecular weight	44
Melting point	-90.81 °C
Boiling point	-88.5 °C
Critical temperature	36.4 °C
Relative density, gas	1.5 (air=1)
Relative density, liquid	1.2 (water=1)
Vapour Pressure 20°C	50.8 bar
Solubility mg/l water	2.2 mg/l
Appearance/Colour	Colourless gas
Odour	Sweetish Poor warning properties at high concentrations.
Autoignition temperature	Not applicable
Flammability range	Oxidiser.
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

Thermal decomposition yields toxic products which can be corrosive in the presence of moisture.

May react violently with reducing agents.

Violently oxidises organic material.

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.

11 TOXICOLOGICAL INFORMATION

General

No known toxicological effects from this product.

Safety Data Sheet

Product :

Nitrous oxide

Page :4/5

MSDS Nr : 093A_AL

Version : 1.01

Date : 31/07/2002

12 ECOLOGICAL INFORMATION

General No known ecological damage caused by this product.
Global warming factor 310

13 DISPOSAL CONSIDERATIONS

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

14 TRANSPORT INFORMATION

Proper shipping name Nitrous oxide
UN Nr 1070
Class/Div 2.2
Subsidiary risk 5.1
ADR/RID Classification code 2, 2°O
ADR/RID Hazard Nr 25
Labelling ADR Label 05: fire intensifying risk.
Label 2: non flammable non toxic gas
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 Proposed by the industry
O;R8
-Symbols O: Oxidising
-Risk phrases R8 Contact with combustible material may cause fire.

Safety Data Sheet

Product :

Nitrous oxide

Page :5/5

MSDS Nr : 093A_AL

Version : 1.01

Date : 31/07/2002

-Safety phrases

S9 Keep container in well ventilated place.

S17 Keep away from combustible material.

16 OTHER INFORMATION

Asphyxiant in high concentrations.

Ensure all national/local regulations are observed.

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

Contact with liquid may cause cold burns/frost bite.

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.

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.

This MSDS is for information purposes only and is subject to change without notice. [Prior to purchase of products, please contact your local Air Liquide office for a complete MSDS (with Manufacturer's name and emergency phone number).]

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Number of pages :5