



NITROUS OXIDE (1-15N, 98%+)

Safety Data Sheet

according to Regulation (EC) No. 1907/2006 (REACH) with its amendment Regulation (EU) 2015/830 and according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations

Date of issue: 21/12/2010

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Version: 4.0

NLM-1045

SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1. Product identifier

Product form : Substance
Substance name : NITROUS OXIDE (1-15N, 98%+)
EC-No. : 233-032-0 (Unlabeled)
CAS-No. : 20509-24-4
Product code : NLM-1045
Formula : N*NO
Synonyms : Laughing gas / Dinitrogen monoxide

1.2. Relevant identified uses of the substance or mixture and uses advised against

1.2.1. Relevant identified uses

Main use category : Professional use
Industrial/Professional use spec : For professional use only

1.2.2. Uses advised against

No additional information available

1.3. Details of the supplier of the safety data sheet

Cambridge Isotope Laboratories, Inc.
50 Frontage Road
Andover, MA 01810
USA

USA: 1-800-322-1174 Int: 1-978-749-8000
cilsales@isotope.com www.isotope.com

Emergency telephone number

Emergency numbers:

Chemtrec: 1-800-424-9300 (24 hours)
International: 1-703-741-5970 (24 hours)

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

Classification according to Regulation (EC) No. 1272/2008 [CLP]

Ox. Gas 1 H270
Press. Gas (Comp.) H280

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

Classification according to Directive 67/548/EEC [DSD] or 1999/45/EC [DPD]

R5
O; R8

Full text of R-phrases: see section 16

GHS-US classification

Ox. Gas 1 H270
Press. Gas (Comp.) H280

Full text of H statements : see section 16

Adverse physicochemical, human health and environmental effects

Blood, Lungs.

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2.2. Label elements

Labeling according to Regulation (EC) No. 1272/2008 [CLP]

Hazard pictograms (CLP) :



GHS04

GHS03

Signal word (CLP) :

: Danger

Hazard statements (CLP) :

: H270 - May cause or intensify fire; oxidizer
H280 - Contains gas under pressure; may explode if heated

Precautionary statements (CLP) :

: P220 - Keep/Store away from clothing, combustible materials, combustibles
P244 - Keep valves and fittings free from oil and grease.
P370+P376 - In case of fire: Stop leak if safe to do so.
P403 - Store in a well-ventilated place.
P410+P403 - Protect from sunlight. Store in a well-ventilated place.

GHS-US labeling

Hazard pictograms (GHS-US) :



GHS04

GHS03

Signal word (GHS-US) :

: Danger

Hazard statements (GHS-US) :

: H270 - May cause or intensify fire; oxidizer
H280 - Contains gas under pressure; may explode if heated

Precautionary statements (GHS-US) :

: P220 - Keep/Store away from clothing, combustible materials, combustibles
P244 - Keep reduction valves/valves and fittings free from oil and grease
P370+P376 - In case of fire: Stop leak if safe to do so
P403 - Store in a well-ventilated place.
P410+P403 - Protect from sunlight. Store in a well-ventilated place.

2.3. Other hazards

No additional information available

SECTION 3: Composition/Information on ingredients

3.1. Substances

Name	Product identifier	%	Classification according to Directive 67/548/EEC
NITROUS OXIDE (1-15N, 98%+)	(CAS-No.) 20509-24-4 (EC-No.) 233-032-0 (Unlabeled)	100	R5 O; R8

Name	Product identifier	%	Classification according to Regulation (EC) No. 1272/2008 [CLP]
NITROUS OXIDE (1-15N, 98%+)	(CAS-No.) 20509-24-4 (EC-No.) 233-032-0 (Unlabeled)	100	Ox. Gas 1, H270 Press. Gas (Comp.), H280

Full text of R- and H- phrases: see section 16

Name	Product identifier	%	GHS-US classification
NITROUS OXIDE (1-15N, 98%+) (Main constituent)	(CAS-No.) 20509-24-4	100	Ox. Gas 1, H270 Press. Gas (Comp.), H280

Full text of H-phrases: see section 16

3.2. Mixtures

Not applicable

SECTION 4: First aid measures

4.1. Description of first aid measures

First-aid measures general : If you feel unwell, seek medical advice (show the label where possible). Evacuate danger area.

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First-aid measures after inhalation	: When symptoms occur: go into open air and ventilate suspected area. If not breathing, give artificial respiration. Get medical advice/attention.
First-aid measures after skin contact	: Wash with plenty of soap and water. Get immediate medical advice/attention.
First-aid measures after eye contact	: Rinse cautiously with water for several minutes.
First-aid measures after ingestion	: Never give anything by mouth to an unconscious person. Rinse mouth out with water. Get medical advice/attention.

4.2. Most important symptoms and effects, both acute and delayed

Symptoms/effects after inhalation	: May be harmful if inhaled. May cause respiratory irritation.
Symptoms/effects after skin contact	: May be harmful in contact with skin. May cause moderate irritation.
Symptoms/effects after eye contact	: May cause eye irritation.
Symptoms/effects after ingestion	: May be harmful if swallowed.

4.3. Indication of any immediate medical attention and special treatment needed

No additional information available

SECTION 5: Firefighting measures

5.1. Extinguishing media

Suitable extinguishing media : Water spray. Dry chemical powder, alcohol-resistant foam, carbon dioxide (CO₂).

5.2. Special hazards arising from the substance or mixture

No additional information available

5.3. Advice for firefighters

Firefighting instructions	: Fight fire with normal precautions from a reasonable distance. Wear a self contained breathing apparatus. Do not enter fire area without proper protective equipment, including respiratory protection.
Protection during firefighting	: Do not enter fire area without proper protective equipment, including respiratory protection. Wear recommended personal protective equipment.
Other information	: Use water spray to cool exposed surfaces.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

6.1.1. For non-emergency personnel

Emergency procedures : Avoid breathing vapors, mist, gas. Avoid dust formation. Ensure adequate air ventilation. Evacuate unnecessary personnel. Evacuate danger area.

6.1.2. For emergency responders

Protective equipment : Do not attempt to take action without suitable protective equipment. For further information refer to section 8: "Exposure controls/personal protection".

6.2. Environmental precautions

Prevent entry to sewers and public waters. Do not allow to enter drains or water courses. Avoid release to the environment.

6.3. Methods and material for containment and cleaning up

For containment	: Clean up any spills as soon as possible, using an absorbent material to collect it. Stop leak, if possible without risk. Vacuum with an equipment that avoids ignition risk. Consult an expert on waste disposal or treatment.
Methods for cleaning up	: This material and its container must be disposed of in a safe way, and as per local legislation.

6.4. Reference to other sections

For further information refer to section 13.

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Additional hazards when processed	: Avoid all eye and skin contact and do not breathe vapor and mist. Keep away from sources of ignition - No smoking.
Precautions for safe handling	: Provide adequate ventilation to minimize dust and/or vapor concentrations.
Hygiene measures	: Handle in accordance with good industrial hygiene and safety practice. Wash hands and other exposed areas with mild soap and water before eating, drinking or smoking and when leaving work.

7.2. Conditions for safe storage, including any incompatibilities

Technical measures	: Store in a well-ventilated place. Keep container tightly closed. Containers which are opened should be properly resealed and kept upright to prevent leakage.
Storage conditions	: Store at room temperature away from light and moisture.

7.3. Specific end use(s)

No additional information available

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SECTION 8: Exposure controls/personal protection

8.1. Control parameters

NITROUS OXIDE (1-15N, 98%+) (20509-24-4)		
Italy - Portugal - USA ACGIH	ACGIH TWA (ppm)	50.00000000 ppm USA. ACGIH Threshold Limit Values (TLV)
Italy - Portugal - USA ACGIH	Remark (ACGIH)	Central Nervous System impairment. Hematologic effects. Embryo/fetal damage. Not classifiable as a human carcinogen.
USA NIOSH	NIOSH REL (TWA) (mg/m ³)	46 mg/m ³ USA. NIOSH Recommended Exposure Limits
USA NIOSH	NIOSH REL (TWA) (ppm)	25 ppm USA. NIOSH Recommended Exposure Limits
USA NIOSH	Remark (NIOSH)	REL for exposure to waste anesthetic gas TWA over the time exposed
USA OSHA	OSHA PEL (Ceiling) (mg/m ³)	90 mg/m ³ California permissible exposure limits for chemical contaminants (Title 8, Article 107)
USA OSHA	OSHA PEL (Ceiling) (ppm)	50 ppm California permissible exposure limits for chemical contaminants (Title 8, Article 107)

8.2. Exposure controls

Appropriate engineering controls : Wash hands and other exposed areas with mild soap and water before eating, drinking or smoking and when leaving work.

Personal protective equipment : Gloves. Protective clothing. Protective goggles. Self-contained breathing apparatus.



Materials for protective clothing : Wear suitable protective clothing and gloves.

Hand protection : Wear suitable protective clothing and gloves.

Eye protection : Wear eye protection. Chemical goggles or face shield with safety glasses.

Skin and body protection : Wear suitable protective clothing, gloves and eye/face protection.

Respiratory protection : In case of inadequate ventilation wear respiratory protection. Approved supplied air respirator.

Environmental exposure controls : Avoid release to the environment.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical state	: Gas
Appearance	: Liquified gas
Molecular mass	: 45.01 g/mol (Labeled)
Color	: Colorless
Odor	: No data available
Odor threshold	: No data available
pH	: No data available
Relative evaporation rate (butyl acetate=1)	: No data available
Melting point	: -91 °C (-132 °F) - lit
Freezing point	: No data available
Boiling point	: -88 °C (-126 °F) - lit
Flash point	: No data available
Auto-ignition temperature	: No data available
Decomposition temperature	: No data available
Flammability (solid, gas)	: No data available
Vapor pressure	: 68.9 hPa (51.7 mmHg) at 21 °C (70 °F)
Relative vapor density at 20 °C	: No data available
Relative density	: No data available
Solubility	: No data available
Log Pow	: No data available
Log Kow	: No data available
Viscosity, kinematic	: No data available
Viscosity, dynamic	: No data available

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Explosive properties	: No data available
Oxidizing properties	: The substance or mixture is classified as oxidizing with the Category 1. Oxidizing liquids Category 2.
Explosion limits	: No data available

9.2. Other information

No additional information available

SECTION 10: Stability and reactivity

10.1. Reactivity

No additional information available

10.2. Chemical stability

Stable if stored under recommended conditions.

10.3. Possibility of hazardous reactions

No additional information available

10.4. Conditions to avoid

No additional information available

10.5. Incompatible materials

No additional information available

10.6. Hazardous decomposition products

Nitrogen oxides.

SECTION 11: Toxicological information

11.1. Information on toxicological effects

Acute toxicity	: Not classified
Skin corrosion/irritation	: Not classified
Serious eye damage/irritation	: Not classified
Respiratory or skin sensitization	: Not available
Germ cell mutagenicity	: Not classified
Carcinogenicity	: This product is or contains a component that is not classifiable as to its carcinogenicity on its IARC, ACGIH, NTP, or EPA classification.
Reproductive toxicity	: Overexposure may cause reproductive disorder(s) based on tests with laboratory animals.
Specific target organ toxicity – single exposure	: Not classified
Specific target organ toxicity – repeated exposure	: Not classified
Aspiration hazard	: Not classified
Potential Adverse human health effects and symptoms	: This information is based on our current knowledge and is intended to describe the product for the purposes of health, safety and environmental requirements only. It should not therefore be construed as guaranteeing any specific property of the product.
IARC group	: 3
Other information	: Simple Asphyxiant.
Symptoms/effects after inhalation	: May be harmful if inhaled. May cause respiratory irritation.
Symptoms/effects after skin contact	: May be harmful in contact with skin. May cause moderate irritation.
Symptoms/effects after eye contact	: May cause eye irritation.
Symptoms/effects after ingestion	: May be harmful if swallowed.

SECTION 12: Ecological information

12.1. Toxicity

Ecology - general	: The product is not considered harmful to aquatic organisms or to cause long-term adverse effects in the environment.
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12.2. Persistence and degradability

NITROUS OXIDE (1-15N, 98%+) (20509-24-4)

Persistence and degradability	Not available.
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12.3. Bioaccumulative potential

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Bioaccumulative potential : Not available.

12.4. Mobility in soil

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Ecology - soil : Not available.

12.5. Results of PBT and vPvB assessment

No additional information available

12.6. Other adverse effects

Other adverse effects : Not available.

SECTION 13: Disposal considerations

13.1. Waste treatment methods

Regional legislation (waste) : Waste materials should be disposed of under conditions which meet Federal, State, and local environmental control regulations.

Product/Packaging disposal recommendations : Offer surplus and non-recyclable solutions to a licensed disposal company. Contact a licensed professional waste disposal service to dispose of this material.

Ecology - waste materials : Dispose of as unused product.

SECTION 14: Transport information

In accordance with ADR / RID / IMDG / IATA / ADN

14.1. UN number

UN-No.(DOT) : 1070
DOT NA no. : UN1070

14.2. UN proper shipping name

Proper Shipping Name (DOT) : Nitrous oxide
Class (DOT) : 2.2 - Class 2.2 - Non-flammable compressed gas 49 CFR 173.115
Hazard labels (DOT) : 2.2 - Non-flammable gas
5.1 - Oxidizer



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
Marine pollutant : No

14.3. Additional information

Other information : No supplementary information available.

Overland transport

Class (ADR) : 2 - Gases
Hazard identification number (Kemler No.) : 25
Classification code (ADR) : 20
Hazard labels (ADR) : 2.2 - Non-flammable, non-toxic gases
5.1 - Oxidizing substances



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Orange plates

:

25
1070

Tunnel restriction code (ADR)

: C/E

Limited quantities (ADR)

0

EAC

: 2P

APP

: A(co)

Excepted quantities (ADR)

: E0

Transport by sea

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"

MFAG-No

: 122

Air transport

DOT Quantity Limitations Passenger aircraft/rail : 75 kg
(49 CFR 173.27)DOT Quantity Limitations Cargo aircraft only (49 : 150 kg
CFR 175.75)

Civil Aeronautics Law

: Gases under pressure/Gases nonflammable nontoxic under pressure

14.4. Environmental hazards

Other information

: No supplementary information available.

14.5. Special precautions for user

14.6. Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

Not applicable

SECTION 15: Regulatory information

15.1. US Federal regulations

NITROUS OXIDE (1-15N, 98%+) (20509-24-4)	
SARA Section 302 Threshold Planning Quantity (TPQ)	Not subject to reporting requirements of the United States SARA Section 302.
SARA Section 313 - Emission Reporting	Not subject to reporting requirements of the United States SARA Section 313.

15.2. International regulations

CANADA

NITROUS OXIDE (1-15N, 98%+) (20509-24-4)
Listed on the Canadian DSL (Domestic Substances List)

15.2.1. National regulations

No additional information available

15.3. US State regulations

NITROUS OXIDE (1-15N, 98%+)(20509-24-4)	
U.S. - California - Proposition 65 - Carcinogens List	No
U.S. - California - Proposition 65 - Developmental Toxicity	Yes
U.S. - California - Proposition 65 - Reproductive Toxicity - Female	Yes
U.S. - California - Proposition 65 - Reproductive Toxicity - Male	No
State or local regulations	U.S. - Massachusetts - Right To Know List U.S. - Pennsylvania - RTK (Right to Know) List U.S. - New Jersey - Right to Know Hazardous Substance List

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SECTION 16: Other information

Other information : This product is not radioactive. The data given for this product are those of the corresponding unlabeled compound, unless specifically indicated otherwise. Health and safety data for labeled compounds are generally not available, but are assumed to be similar or identical to the corresponding unlabeled compound.

Full text of R-, H- and EUH-phrases:

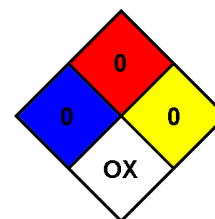
Ox. Gas 1	Oxidizing gases Category 1
Press. Gas (Comp.)	Gases under pressure Compressed gas
H270	May cause or intensify fire; oxidizer
H280	Contains gas under pressure; may explode if heated
R5	Heating may cause an explosion
R8	Contact with combustible material may cause fire
O	Oxidizing

NFPA health hazard : 0 - Materials that, under emergency conditions, would offer no hazard beyond that of ordinary combustible materials.

NFPA fire hazard : 0 - Materials that will not burn under typical fire conditions, including intrinsically noncombustible materials such as concrete, stone, and sand.

NFPA reactivity : 0 - Material that in themselves are normally stable, even under fire conditions.

NFPA specific hazard : OX - Materials that posses oxidizing properties.



Hazard Rating

Health : 0 Minimal Hazard - No significant risk to health

Flammability : 1 Slight Hazard

Physical : 3 Serious Hazard

CIL Substance SDS

This information is based on our current knowledge and is intended to describe the product for the purposes of health, safety and environmental requirements only. It should not therefore be construed as guaranteeing any specific property of the product