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

1.1. Product identifier

Trade name	Nitrous oxide
Chemical description	Nitrous oxide
CAS N°	10024-97-2
CE N°	233-032-0
Index N°	-
Registration n°	01-2119970538-25
Chemical formula	N_2O

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

Relevant identified uses	Industrial and professional Test gas/Calibration gas. Laboratory use Chemical reaction / synthesis Aerosol propellant Food applications Contact supplier for more information on uses
Uses advised against	Consumer use not recommended

1.3. Details of the supplier of the safety data sheet

Company identification	MULTIGAS Route de l'Industrie 102 CH-1564 Domdidier
Phone number	+41 (0) 26 676 94 94
E-mail address	info@multigas.ch

1.4. Emergency telephone numbers

145 (Toxicology Centre Zurich) or +41 (0) 44 251 51 51

+41 (0) 26 676 94 94 (Multigas)

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

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

Physical hazards	Oxidising Gases, Category 1	H270
	Gases under pressure : Liquefied gas	H280

Health hazards	Specific target organ toxicity — Single exposure, Category 3, Narcosis	H336

For the complete H-sentences texts mentioned in that chapter, refer to Section 16

2.2. Label elements

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

Hazard pictograms

GHS03 GHS04 GHS07

Signal word Danger

Hazard statements

H270	May cause or intensify fire; oxidizer
H280	Contains gas under pressure; may explode if heated
H336	May cause drowsiness or dizziness

Precautionary statements

P220	Keep away from clothing and other combustible materials
P244	Keep valves and fittings free from oil and grease
P410+P403	Protect from sunlight. Store in a well-ventilated place

2.3. Other hazards

Contact with liquid may cause cold burns/frostbite

SECTION 3: Composition/information on ingredients

3.1. Substances

Name	Product identifier	Concentration	Classification
Nitrous oxide	(CAS-No.) 10024-97-2 (EC-No.) 233-032-0 (EC Index-No.) --- (Registration-No.) 01-2119970538-25	<= 100%	Ox. Gas 1, H270 Press. Gas (Liq.), H280 STOT SE 3, H336

For the complete H-sentences texts mentioned in that chapter, refer to Section 16
Contains no other components or impurities which will influence the classification of the product

3.2. Mixtures

Not established

SECTION 4: First aid measures

4.1. Description of first aid measures

General advice — See a doctor. Show this safety data sheet to the attending physician

In case of inhalation — In case of inhalation, remove the person from the contaminated area. In case of respiratory arrest, give artificial respiration. See a doctor

In case of skin contact — In case of frostbite spray with water for at least 15 minutes. Apply a sterile dressing. Obtain medical assistance

In case of eyes contact — Rinse thoroughly with plenty of water for at least 15 minutes and consult a doctor

In case of ingestion — Do NOT induce vomiting. Never give anything by mouth to an unconscious person. Rinse mouth with water. See a doctor

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

In low concentrations may cause narcotic effects. Symptoms may include dizziness, headache, nausea and loss of co-ordination

Refer to section 11

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

No data available

SECTION 5: Firefighting measures

5.1. Extinguishing media

Suitable extinguishing media — Water spray or water mist. Dry powder. Carbon dioxide. Foam

Unsuitable extinguishing media — Do not use water jet to extinguish

5.2. Special hazards arising from the substance or mixture

Specific hazards — In case of fire or excessive heat, hazardous combustion products may be produced

Exposure to fire may cause containers to rupture/explode

Hazardous combustion products — In case of fire or excessive heat, hazardous combustion products may be produced such as : nitric oxide, nitrogen dioxide

5.3. Additional information

Cool endangered receptacles with water spray jet from a protected position

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

Avoid breathing vapours, spray mists or gases
Provide adequate ventilation
Beware of gas accumulating in explosive concentrations
Evacuate personnel to a safe place
Personal protective equipment, see section 8

6.2. Environmental precautions

Try to stop the leak

6.3. Methods and material for containment and cleaning up

Keep area evacuated and free from ignition sources until any spilled liquid has evaporated (ground free from frost)

6.4. Reference to other sections

See also sections 8 and 13

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Keep away from sources of ignition - No smoking
For precautions, see section 2.2

7.2. Conditions for safe storage, including any incompatibilities

Store in a cool place. Keep container tightly closed in a dry and well-ventilated place
Content under pressure

7.3. Specific end use(s)

None

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

Components with occupational exposure limits

Component	CAS N°	Exposure value type	Control parameter	Source
Nitrous oxide	10024-97-2	TWA	100 ppm	SUVA: Limit values of exposure to workstations
			182 mg/m^3	
		OEL	200 ppm	SUVA: Limit values of exposure to workstations
			364 mg/m^3	

8.2. Exposure controls

8.2.1. Appropriate engineering controls

Provide adequate general and local exhaust ventilation

Gas detectors should be used when toxic or flammable gases may be released

8.2.2. Individual protection measures, e.g. personal protective equipment

Eye/face protection

Wear goggles and a face shield when transfilling or breaking transfer connections. Standard EN 166 - Personal eye-protection - specifications

Skin / hand protection

Handle with gloves. The selected protective gloves have to satisfy the specifications of EU Directive 89/686 / EEC and the standard EN 374 derived from it

For short-term use

Material: Chloroprene

Penetration time: 30 min

Glove thickness: 0.6 mm

For long-term use

Material: Butyl rubber

Penetration time:> 480 min

Glove thickness: 0.3 mm

Have appropriate, chemical-resistant protective clothing ready for use in emergencies. Norm EN943-1

Respiratory protection

Self-contained breathing apparatus (SCBA) or positive pressure air mask must be used in oxygenated atmospheres. Standard EN 137 - Self-contained compressed air device with a full face mask

8.2.3. Environmental exposure controls

-

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Appearance	
• **Physical state at 20°C / 101.3kPa**	Gas
• **Colour**	Colourless
Odour	No data available
Odour threshold	No data available
pH	No data available
Melting point / Freezing point	-91°C
Boiling point	-88°C
Flash point	No data available
Evaporation rate	No data available
Flammability (solid, gas)	No data available
Explosive limits	No data available
Vapour pressure [20°C]	50.8 bar
Vapour pressure [50°C]	No data available
Vapour density	No data available
Relative density, liquid (water=1)	1.2
Relative density, gas (air=1)	1.52
Water solubility	1.5 g/l
Partition coefficient n-octanol/water (Log Kow)	No data available
Auto-ignition temperature	No data available
Decomposition temperature	No data available
Viscosity	No data available
Explosive properties	No data available
Oxidising properties	No data available

9.2. Other information

Molar mass	44 g/mole
Critical temperature [°C]	36.4°C
Relative vapour density	Gas/vapour heavier than air. May accumulate in confined spaces, particularly at or below ground level

SECTION 10: Stability and reactivity

10.1. Reactivity

No reactivity hazard other than the effects described in sub-sections below

10.2. Chemical stability

Stable under recommended storage conditions

10.3. Possibility of hazardous reactions

May react violently with combustible materials. reducing agents, catalysts, organic materials

10.4. Conditions to avoid

Heat

10.5. Incompatible materials

May react violently with combustible materials

May react violently with reducing agents

For additional information on compatibility refer to ISO 11114

10.6. Hazardous decomposition products

Under normal conditions of storage and use, hazardous decomposition products should not be produced

SECTION 11: Toxicological information

11.1. Chemical safety assessment

Acute toxicity	No data available
Skin corrosion/irritation	No data available
Serious eye damage/irritation	No data available
Respiratory or skin sensitisation	No data available
Germ cell mutagenicity	No data available
Carcinogenicity	No data available
Reproductive toxicity	No data available
STOT-single exposure – Target organ(s)	May cause drowsiness or dizziness
STOT-repeated exposure	At low concentrations: Neurologic effect Hemotoxic effect
Ingestion hazard	Inhalation causes narcotic effects

SECTION 12: Ecological information

12.1. Toxicity

Assessment No ecological damage caused by this product

12.2. Persistence and degradability

No data available

12.3. Bioaccumulative potential

No data available

12.4. Mobility in soil

No data available

12.5. Results of PBT and vPvB assessment

PBT / vPvB assessment is not available because the chemical safety assessment is not required / is not conducted

12.6. Other adverse effects

No data available

SECTION 13: Disposal considerations

13.1. Waste treatment methods

Product
Must not be released into the atmosphere
Burn in a chemical incinerator equipped with an afterburner and scrubber
Return to the supplier the product not consumed in its original container

Contaminated container
Eliminate as unused product
Contact the supplier if instructions are needed

OMoD Code
16 05 04
Gases in pressure containers containing dangerous substances

SECTION 14: Transport information

14.1. UN number

Transport par road/rail ADR / RID	Transport by sea IMDG	Transport by air IATA
1070	1070	1070

14.2. UN proper shipping name

Transport par road/rail ADR / RID	Transport by sea IMDG	Transport by air IATA

Nitrous oxide	Nitrous oxide	Nitrous oxide

14.3. Transport hazard class(es)

Labelling

ADR/RID **IMDG** **IATA**	2.2 : Non-flammable, non-toxic gases 5.1 : Oxidizing substances

14.4. Packing group

ADR/RID **IMDG** **IATA**	Not established

14.5. Environmental hazards

ADR/RID	None
IMDG	None
ICAO-TI / IATA-DGR	None

14.6. Special precautions for user

No data available

14.7. Transport in bulk according to Annex II of Marpol and the IBC Code

Not applicable

SECTION 15: Regulatory information

15.1. Safety, health and environmental regulations/legislation specific for the substance or mixture

This safety data sheet complies with the requirements of Regulation (CE) No. 1907/2006

15.2. Chemical safety assessment

A CSA has been carried out

SECTION 16: Other information

Indication of changes	Revised safety data sheet in accordance with commission regulation (EU) No 2015/830	
Abbreviations and acronyms	ADR :	European Agreement concerning the International Carriage of Dangerous Goods by Road
	CAS :	Chemical Abstract Service number (USA)

CLP :	Classification Labelling Packaging Regulation; Regulation (EC) No 1272/2008
CSA :	Chemical Safety Assessment
EIGA :	European Industrial Gases Association
EINECS :	European Inventory of Existing Commercial Chemical Substances
EN :	European Standard
ATE :	Acute Toxicity Estimate
IATA :	International Air Transport Association
IMDG Code :	International Maritime Dangerous Goods Code
LC50 :	Lethal Concentration to 50 % of a test population
OMoD :	Swiss Ordinance on the movement of waste
PBT :	Persistent, Bioaccumulative and Toxic
PPE:	Personal Protection Equipment
REACH :	Registration, Evaluation, Authorisation and Restriction of Chemicals Regulation (EC) No 1907/2006
RID :	Regulations concerning the international carriage of dangerous goods by rail
RMM :	Risk Management Measures
STOT-SE :	Specific Target Organ Toxicity - Single Exposure
UN :	United Nations
vPvB :	Very Persistent and Very Bioaccumulative
WGK:	Water Hazards Class

Full text of H, EUH and P statements used in sections 2 and 3

Hazard statements

H270	May cause or intensify fire; oxidizer
H280	Contains gas under pressure; may explode if heated
H336	May cause drowsiness or dizziness

Precautionary statements

P220	Keep away from clothing and other combustible materials
P244	Keep valves and fittings free from oil and grease
P410+P403	Protect from sunlight. Store in a well-ventilated place

Disclaimer of liability

Details given in this document have been prepared based on the most available reliable documents and are believed to be correct at the time of going to press

They do not claim to be exhaustive and should be considered as a guide