

# Nitrous oxide supplied in cartridges

## Safety Data Sheet

according to the REACH Regulation (EC) 1907/2006 amended by Regulation (EU) 2020/878

Issue date: 5/26/2020

Revision date: 10/4/2021

Supersedes: 5/28/2020

Version: 2.0

SDS No: 12411-0001



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

### 1.1. Product identifier

Product form : Substance  
Trade name : Nitrous oxide supplied in cartridges  
EC-No. : 233-032-0  
REACH registration No : 01-2119970538-25  
Formula : N<sub>2</sub>O

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

#### 1.2.1. Relevant identified uses

Use of the substance/mixture : For industrial application  
Medicinal Use  
Food applications.

#### 1.2.2. Uses advised against

No additional information available

### 1.3. Details of the supplier of the safety data sheet

Cryoalfa Europe GmbH  
Bernhard-Voss-Strasse, 25 A  
01445 Radebeul  
Germany

T +49 (0) 351 795 1866 - F +49 (0) 351 795 1803

[info@cryoalfa.de](mailto:info@cryoalfa.de) - [www.cryoalfa.de](http://www.cryoalfa.de)

E-mail address of competent person responsible for the SDS: [sds@gbk-ingelheim.de](mailto:sds@gbk-ingelheim.de)

### 1.4. Emergency telephone number

Emergency number : +49 (0)6132/84463 (GBK GmbH)

## SECTION 2: Hazards identification

### 2.1. Classification of the substance or mixture

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

Oxidising Gases, Category 1 H270  
Gases under pressure : Liquefied gas H280  
Specific target organ toxicity — Single exposure, Category 3, Narcosis H336  
Full text of H- and EUH-statements: see section 16

#### Adverse physicochemical, human health and environmental effects

Contains gas under pressure; may explode if heated. May cause or intensify fire; oxidiser. May cause drowsiness or dizziness.

### 2.2. Label elements

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

Hazard pictograms (CLP) :



GHS03

GHS04

GHS07

Signal word (CLP) :

Danger

Hazard statements (CLP) :

H270 - May cause or intensify fire; oxidiser.

H280 - Contains gas under pressure; may explode if heated.

H336 - May cause drowsiness or dizziness.

# Nitrous oxide supplied in cartridges

## Safety Data Sheet

according to the REACH Regulation (EC) 1907/2006 amended by Regulation (EU) 2020/878  
SDS No: 12411-0001



Precautionary statements (CLP) : P220 - Keep away from clothing and other combustible materials.  
P261 - Avoid breathing gas.  
P271 - Use only outdoors or in a well-ventilated area.  
P304+P340 - IF INHALED: Remove person to fresh air and keep comfortable for breathing.  
P312 - Call a doctor if you feel unwell.  
P410+P403 - Protect from sunlight. Store in a well-ventilated place.  
P405 - Store locked up.

### 2.3. Other hazards

No additional information available

## SECTION 3: Composition/information on ingredients

### 3.1. Substances

Name	Product identifier	%	Classification according to Regulation (EC) No. 1272/2008 [CLP]
Dinitrogen oxide	EC-No.: 233-032-0 REACH-no: 01-2119970538-25	100	Ox. Gas 1, H270 Press. Gas (Liq.), H280 STOT SE 3, H336

Full text of H- and EUH-statements: see section 16

### 3.2. Mixtures

Not applicable

## SECTION 4: First aid measures

### 4.1. Description of first aid measures

First-aid measures general : Call a poison center or a doctor if you feel unwell.  
First-aid measures after inhalation : Remove person to fresh air and keep comfortable for breathing. Apply artificial respiration if breathing stopped. Call a doctor.  
First-aid measures after skin contact : On frostbite: rinse with plenty of water, do NOT remove clothes. Obtain medical attention.  
First-aid measures after eye contact : Rinse eyes with water as a precaution.  
First-aid measures after ingestion : Call a poison center or a doctor if you feel unwell.

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

Symptoms/effects : May cause drowsiness or dizziness.

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

Treat symptomatically.

## SECTION 5: Firefighting measures

### 5.1. Extinguishing media

Suitable extinguishing media : Water spray. Dry powder. Foam. Fire-extinguishing activities according to surrounding.  
Unsuitable extinguishing media : high volume water jet.

### 5.2. Special hazards arising from the substance or mixture

Fire hazard : May intensify fire; oxidiser.  
Hazardous decomposition products in case of fire : Toxic fumes may be released.

### 5.3. Advice for firefighters

Firefighting instructions : In case of fire: stop leak if safe to do so.

# Nitrous oxide supplied in cartridges

## Safety Data Sheet

according to the REACH Regulation (EC) 1907/2006 amended by Regulation (EU) 2020/878  
SDS No: 12411-0001



Protection during firefighting : Do not attempt to take action without suitable protective equipment. Self-contained breathing apparatus. Complete protective clothing.

## SECTION 6: Accidental release measures

### 6.1. Personal precautions, protective equipment and emergency procedures

General measures : Wear personal protective equipment. Evacuate the danger area. Keep upwind.

#### 6.1.1. For non-emergency personnel

Emergency procedures : Ventilate spillage area. Avoid breathing gas.

#### 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

Avoid release to the environment. Stop leaks if it can be done without personal risk.

### 6.3. Methods and material for containment and cleaning up

For containment : Stop leaks if it can be done without personal risk.

Methods for cleaning up : Notify authorities if product enters sewers or public waters.

### 6.4. Reference to other sections

Information for safe handling look up section 7. For further information refer to section 8: "Exposure controls/personal protection". For further information refer to section 13.

## SECTION 7: Handling and storage

### 7.1. Precautions for safe handling

Precautions for safe handling : Wear personal protective equipment. Use only outdoors or in a well-ventilated area. Avoid breathing gas.

Hygiene measures : Do not eat, drink or smoke when using this product. Always wash hands after handling the product. Avoid contact with skin, eyes and clothing.

### 7.2. Conditions for safe storage, including any incompatibilities

Storage conditions : Protect from sunlight. Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. Store in a well-ventilated place. Store locked up. Keep container tightly closed. Keep cool.

Incompatible products : Hydrogen sulfide. Sulphur trioxide. boron. Phosphine. Ethers. Aluminium. Hydrazine. Phenyllithium. Tungsten carbide. Ammonia. Carbon monoxide. Oil. Grease. Fuels.

Incompatible materials : combustible materials.

### 7.3. Specific end use(s)

No additional information available

## SECTION 8: Exposure controls/personal protection

### 8.1. Control parameters

#### 8.1.1 National occupational exposure and biological limit values

No additional information available

#### 8.1.2. Recommended monitoring procedures

No additional information available

#### 8.1.3. Air contaminants formed

No additional information available

# Nitrous oxide supplied in cartridges

## Safety Data Sheet

according to the REACH Regulation (EC) 1907/2006 amended by Regulation (EU) 2020/878  
SDS No: 12411-0001



### 8.1.4. DNEL and PNEC

No additional information available

### 8.1.5. Control banding

No additional information available

## 8.2. Exposure controls

### 8.2.1. Appropriate engineering controls

#### Appropriate engineering controls:

Ensure good ventilation of the work station.

### 8.2.2. Personal protection equipment

#### Personal protective equipment symbol(s):



#### 8.2.2.1. Eye and face protection

##### Eye protection:

Safety glasses

#### 8.2.2.2. Skin protection

##### Skin and body protection:

Wear suitable protective clothing. Chemical resistant apron. safety foot-wear

##### Hand protection:

Protective gloves

#### 8.2.2.3. Respiratory protection

##### Respiratory protection:

In case of insufficient ventilation, wear suitable respiratory equipment. Use self-contained breathing apparatus

#### 8.2.2.4. Thermal hazards

No additional information available

### 8.2.3. Environmental exposure controls

#### Environmental exposure controls:

Avoid release to the environment.

#### Other information:

Do not inhale vapour. Avoid contact with skin, eyes and clothing.

## SECTION 9: Physical and chemical properties

### 9.1. Information on basic physical and chemical properties

Physical state	: Gas
Colour	: Colourless.
Appearance	: Compressed/liquefied gas.
Odour	: Sweet.
Odour threshold	: Not available
Melting point	: -90.81 °C
Freezing point	: Not applicable
Boiling point	: -88.5 °C
Flammability	: Not available
Explosive limits	: Not available
Lower explosive limit (LEL)	: Not available
Upper explosive limit (UEL)	: Not available
Flash point	: Not applicable
Auto-ignition temperature	: Not available

# Nitrous oxide supplied in cartridges

## Safety Data Sheet

according to the REACH Regulation (EC) 1907/2006 amended by Regulation (EU) 2020/878  
SDS No: 12411-0001



Decomposition temperature	: Not available
pH	: Not applicable
Viscosity, kinematic	: Not applicable
Solubility	: Water: 2.2 mg/l
Partition coefficient n-octanol/water (Log Kow)	: Not available
Vapour pressure	: Filling pressure: 7 MPa (1015psi); Pressure at 50 °C: 16,5 MPa (2425 psi); Bursting pressure: min. 45 MPa.
Vapour pressure at 50 °C	: Not available
Critical pressure	: 72.4 bar
Density	: 0.452 g/m <sup>3</sup> Critical density
Relative density	: Not applicable
Relative vapour density at 20 °C	: Not available
Relative gas density	: 1.5
Particle size	: Not applicable
Particle size distribution	: Not applicable
Particle shape	: Not applicable
Particle aspect ratio	: Not applicable
Particle aggregation state	: Not applicable
Particle agglomeration state	: Not applicable
Particle specific surface area	: Not applicable
Particle dustiness	: Not applicable

## 9.2. Other information

### 9.2.1. Information with regard to physical hazard classes

Critical temperature : 36.4 °C

### 9.2.2. Other safety characteristics

Gas group : Press. Gas (Liq.)

## SECTION 10: Stability and reactivity

### 10.1. Reactivity

The product is non-reactive under normal conditions of use, storage and transport.

### 10.2. Chemical stability

Stable under normal conditions.

### 10.3. Possibility of hazardous reactions

No dangerous reactions known under normal conditions of use. See Section 7.

### 10.4. Conditions to avoid

None under recommended storage and handling conditions (see section 7).

### 10.5. Incompatible materials

Combustible materials.

### 10.6. Hazardous decomposition products

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

## SECTION 11: Toxicological information

### 11.1. Information on hazard classes as defined in Regulation (EC) No 1272/2008

Acute toxicity (oral)	: Not classified
Acute toxicity (dermal)	: Not classified
Acute toxicity (inhalation)	: Not classified
Skin corrosion/irritation	: Not classified

# Nitrous oxide supplied in cartridges

## Safety Data Sheet

according to the REACH Regulation (EC) 1907/2006 amended by Regulation (EU) 2020/878  
SDS No: 12411-0001



Serious eye damage/irritation	: Not classified
Respiratory or skin sensitisation	: Not classified
Germ cell mutagenicity	: Not classified
Carcinogenicity	: Not classified
Reproductive toxicity	: Not classified
STOT-single exposure	: May cause drowsiness or dizziness.
STOT-repeated exposure	: Not classified
Aspiration hazard	: Not classified

### 11.2. Information on other hazards

No additional information available

## SECTION 12: Ecological information

### 12.1. Toxicity

Ecology - general	: The product is not considered harmful to aquatic organisms nor to cause long-term adverse effects in the environment.
Hazardous to the aquatic environment, short-term (acute)	: Not classified
Hazardous to the aquatic environment, long-term (chronic)	: Not classified

### 12.2. Persistence and degradability

No additional information available

### 12.3. Bioaccumulative potential

No additional information available

### 12.4. Mobility in soil

No additional information available

### 12.5. Results of PBT and vPvB assessment

No additional information available

### 12.6. Endocrine disrupting properties

No additional information available

### 12.7. Other adverse effects

Additional information : Avoid release to the environment

## SECTION 13: Disposal considerations

### 13.1. Waste treatment methods

Waste treatment methods	: Dispose of contents/container in accordance with licensed collector's sorting instructions. Disposal in accordance with local regulations.
Product/Packaging disposal recommendations	: Disposal must be done according to official regulations.
European List of Waste (LoW) code	: 15 01 05 - composite packaging

## SECTION 14: Transport information

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

# Nitrous oxide supplied in cartridges

## Safety Data Sheet

according to the REACH Regulation (EC) 1907/2006 amended by Regulation (EU) 2020/878  
SDS No: 12411-0001



ADR	IMDG	IATA	ADN	RID
<b>14.1. UN number or ID number</b>				
UN 2037	UN 2037	UN 2037	UN 2037	UN 2037
<b>14.2. UN proper shipping name</b>				
RECEPTACLES, SMALL, CONTAINING GAS (GAS CARTRIDGES)	RECEPTACLES, SMALL, CONTAINING GAS (GAS CARTRIDGES)	Receptacles, small, containing gas	RECEPTACLES, SMALL, CONTAINING GAS (GAS CARTRIDGES)	RECEPTACLES, SMALL, CONTAINING GAS (GAS CARTRIDGES)
<b>Transport document description</b>				
UN 2037 RECEPTACLES, SMALL, CONTAINING GAS (GAS CARTRIDGES), 2.2 (5.1), (E)	UN 2037 RECEPTACLES, SMALL, CONTAINING GAS (GAS CARTRIDGES), 2.2 (5.1)	UN 2037 Receptacles, small, containing gas, 2.2 (5.1)	UN 2037 RECEPTACLES, SMALL, CONTAINING GAS (GAS CARTRIDGES), 2.2 (5.1)	UN 2037 RECEPTACLES, SMALL, CONTAINING GAS (GAS CARTRIDGES), 2.2 (5.1)
<b>14.3. Transport hazard class(es)</b>				
2.2 (5.1)	2.2 (5.1)	2.2 (5.1)	2.2 (5.1)	2.2 (5.1)
<b>14.4. Packing group</b>				
Not applicable	Not applicable	Not applicable	Not applicable	Not applicable
<b>14.5. Environmental hazards</b>				
Dangerous for the environment: No	Dangerous for the environment: No Marine pollutant: No	Dangerous for the environment: No	Dangerous for the environment: No	Dangerous for the environment: No
No supplementary information available				

### 14.6. Special precautions for user

#### Overland transport

Classification code (ADR)	: 50
Special provisions (ADR)	: 191, 303, 344
Limited quantities (ADR)	: 1I
Excepted quantities (ADR)	: E0
Packing instructions (ADR)	: P003
Special packing provisions (ADR)	: PP17, RR6
Mixed packing provisions (ADR)	: MP9
Transport category (ADR)	: 3
Tunnel restriction code (ADR)	: E

#### Transport by sea

Special provisions (IMDG)	: 191, 277, 303, 344
Packing instructions (IMDG)	: P003
Special packing provisions (IMDG)	: PP17
EmS-No. (Fire)	: F-D
EmS-No. (Spillage)	: S-U
Stowage category (IMDG)	: B
Stowage and handling (IMDG)	: SW2
MFAG-No	: 115

#### Air transport

PCA Excepted quantities (IATA)	: E0
PCA Limited quantities (IATA)	: Forbidden
PCA limited quantity max net quantity (IATA)	: Forbidden

# Nitrous oxide supplied in cartridges

## Safety Data Sheet

according to the REACH Regulation (EC) 1907/2006 amended by Regulation (EU) 2020/878  
SDS No: 12411-0001



PCA packing instructions (IATA)	: 203
PCA max net quantity (IATA)	: 1kg
CAO packing instructions (IATA)	: 203
CAO max net quantity (IATA)	: 15kg
Special provisions (IATA)	: A167, A802
ERG code (IATA)	: 2X

### Inland waterway transport

Classification code (ADN)	: 50
Special provisions (ADN)	: 191, 303, 344
Limited quantities (ADN)	: 1 L
Excepted quantities (ADN)	: E0
Equipment required (ADN)	: PP
Number of blue cones/lights (ADN)	: 0

### Rail transport

Classification code (RID)	: 50
Special provisions (RID)	: 191, 303, 344
Limited quantities (RID)	: 1L
Excepted quantities (RID)	: E0
Packing instructions (RID)	: P003
Transport category (RID)	: 3
Hazard identification number (RID)	: 25

## 14.7. Maritime transport in bulk according to IMO instruments

Not applicable

## SECTION 15: Regulatory information

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

#### 15.1.1. EU-Regulations

No REACH Annex XVII restrictions

Nitrous oxide supplied in cartridges is not on the REACH Candidate List

Nitrous oxide supplied in cartridges is not on the REACH Annex XIV List

Nitrous oxide supplied in cartridges is not subject to Regulation (EU) No 649/2012 of the European Parliament and of the Council of 4 July 2012 concerning the export and import of hazardous chemicals.

Nitrous oxide supplied in cartridges is not subject to Regulation (EU) No 2019/1021 of the European Parliament and of the Council of 20 June 2019 on persistent organic pollutants

Contains no substance subject to Regulation (EU) 2019/1148 of the European Parliament and of the Council of 20 June 2019 on the marketing and use of explosives precursors.

#### Directive 2012/18/EU (SEVESO III)

Seveso III Part I (Categories of dangerous substances)	Qualifying quantity (tonnes)	
	Lower-tier	Upper-tier
P4 OXIDISING GASES Oxidising gases, Category 1	50	200

#### 15.1.2. National regulations

No additional information available

## 15.2. Chemical safety assessment

No chemical safety assessment has been carried out



# Nitrous oxide supplied in cartridges

## Safety Data Sheet

according to the REACH Regulation (EC) 1907/2006 amended by Regulation (EU) 2020/878

SDS No: 12411-0001



### SECTION 16: Other information

#### Indication of changes

Section	Changed item	Change	Comments
1.3	Address Information	Modified	

#### Abbreviations and acronyms:

ADR	European Agreement concerning the International Carriage of Dangerous Goods by Road
ADN	European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways
IATA	International Air Transport Association
IMDG	International Maritime Dangerous Goods
RID	Regulations concerning the International Carriage of Dangerous Goods by Rail
DOT	Department of Transport
TDG	Transportation of Dangerous Goods
REACH	Registration, Evaluation, Authorisation and Restriction of Chemicals Regulation (EC) No 1907/2006
GHS	Globally Harmonized System of Classification, Labelling and Packaging of Chemicals
IARC	International Agency for Research on Cancer
vPvB	Very Persistent and Very Bioaccumulative
PBT	Persistent Bioaccumulative Toxic
PNEC	Predicted No-Effect Concentration
CAS	CAS (Chemical Abstracts Service) number
IBC-Code	International Code for the Construction and Equipment of Ships carrying Dangerous Chemicals in Bulk
ATE	Acute Toxicity Estimate
CLP	Classification Labelling Packaging Regulation; Regulation (EC) No 1272/2008
BCF	Bioconcentration factor
MARPOL 73/78	MARPOL 73/78: International Convention for the Prevention of Pollution From Ships
ADG	Transport of Australian Dangerous Goods

Other information

: Data of sections 4 to 8, as well as 10 to 12, do partly not refer to the use and the regular employing of the product (in this sense consult information on use and on product), but to liberation of major amounts in case of accidents and irregularities. The information describes exclusively the safety requirements for the product(s) and is based on the present level of our knowledge. The delivery specifications are contained in the corresponding product sheet. This data does not constitute a guarantee for the characteristics of the product(s) as defined by the legal warranty regulations.

#### Full text of H- and EUH-statements:

H270	May cause or intensify fire; oxidiser.
H280	Contains gas under pressure; may explode if heated.
H336	May cause drowsiness or dizziness.
Ox. Gas 1	Oxidising Gases, Category 1
Press. Gas (Liq.)	Gases under pressure : Liquefied gas
STOT SE 3	Specific target organ toxicity — Single exposure, Category 3, Narcosis

# Nitrous oxide supplied in cartridges

## Safety Data Sheet

according to the REACH Regulation (EC) 1907/2006 amended by Regulation (EU) 2020/878  
SDS No: 12411-0001

---



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 therefore not be construed as guaranteeing any specific property of the product.