

### Danger



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

### 1.1. Product identifier

Trade name	: Nitric oxide
SDS no	: EIGA088-ALBNL
Other means of identification	: Nitric oxide
	CAS-No. : 10102-43-9
	EC-No. : 233-271-0
	EC Index-No. : ---
REACH registration No	: 01-2120766630-54
Chemical formula	: NO

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

Relevant identified uses	: Test gas/Calibration gas. Chemical reaction / Synthesis. Laboratory and Process control. Use for manufacture of electronic/photovoltaic components. Industrial use. Perform risk assessment prior to use.
Uses advised against	: Consumer use. Uses other than those listed above are not supported, contact your supplier for more information on other uses.

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

**THE NETHERLANDS:**  
AIR LIQUIDE BV  
De Witbogt 1  
5652 AG Eindhoven  
the Netherlands-Nederland  
Tel: +31 (0)40 250 35 03

**BELGIUM:**  
L'AIR LIQUIDE BELGE S.A./N.V.  
Hermeslaan 11  
1932 Zaventem  
Belgium-Belgique-België  
Tel: +32 (0)2 540 86 60

**LUXEMBURG:**  
L'AIR LIQUIDE LUXEMBOURG S.A.  
ZONE P.E.D.-B.P.20  
L-4801 RODANGE Luxemburg  
Tel: +352 26 30 29 03

[infosafetydatasheet.albv@airliquide.com](mailto:infosafetydatasheet.albv@airliquide.com)  
[www.airliquide-benelux.com](http://www.airliquide-benelux.com)

### 1.4. Emergency telephone number

Country/Area	Organisation/Company	Address	Emergency number	Comment
Belgium	Centre Anti-Poisons/Antigifcentrum c/o Hôpital Militaire Reine Astrid	Rue Bruyn 1 1120 Bruxelles/Brussel	+32 70 245 245	Please dial: 070 245 245 for any urgent questions about intoxication (free of charge 24/7), if not accessible, dial: 02 264 96 30 (standard fee)
Luxembourg	Centre Anti-Poisons/Antigifcentrum c/o Hôpital Militaire Reine Astrid	Rue Bruyn 1 1120 Bruxelles/Brussel	+352 8002 5500	Free telephone number with a 24/7 access. Experts answer all urgency questions on dangerous products in French, Dutch and English
Netherlands	Nationaal Vergiftigingen Informatie Centrum	Huispostnummer Q03.2.315 Postbus 85500 3508 GA Utrecht	+31 88 755 80 00	Only for the purpose of informing medical personnel in cases of acute intoxications (24 hours a day, 7 days a week)

## 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 : Compressed gas	H280
Health hazards	Acute toxicity (inhalation:gas) Category 1	H330
	Skin corrosion/irritation, Category 1, Sub-Category 1B	H314
	Serious eye damage/eye irritation, Category 1	H318

### 2.2. Label elements

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

Hazard pictograms (CLP) :



GHS03

GHS04

GHS05

GHS06

Signal word (CLP) :

: Danger

Hazard statements (CLP) :

: H314 - Causes severe skin burns and eye damage.  
H270 - May cause or intensify fire; oxidiser.  
H280 - Contains gas under pressure; may explode if heated.  
H330 - Fatal if inhaled.  
EUH071 - Corrosive to the respiratory tract.

### Precautionary statements (CLP)

- Prevention : P280 - Wear eye protection, face protection, protective clothing, protective gloves.  
P260 - Do not breathe gas, vapours.  
P244 - Keep valves and fittings free from oil and grease.  
P220 - Keep away from clothing and other combustible materials.
- Response : P303+P361+P353+P315 - IF ON SKIN : (or hair) Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower. Get immediate medical advice / attention.  
P304+P340+P315 - IF INHALED : Remove victim to fresh air and keep at rest in a position comfortable for breathing. Get immediate medical advice / attention.  
P305+P351+P338+P315 - IF IN EYES : Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Get immediate medical advice / attention.  
P370+P376 - In case of fire: Stop leak if safe to do so.
- Storage : P405 - Store locked up.  
P403 - Store in a well-ventilated place.

### 2.3. Other hazards

Not classified as PBT or vPvB.  
The substance/mixture has no endocrine disrupting properties.  
Not classified as PMT or vPvM.

## SECTION 3: Composition/information on ingredients

### 3.1. Substances

Name	Product identifier	%	Classification according to Regulation (EC) No. 1272/2008 [CLP] ATE, EUH-statements, M-Factors
Nitric oxide	CAS-No.: 10102-43-9 EC-No.: 233-271-0 EC Index-No.: --- REACH registration No: 01-2120766630-54	100	Ox. Gas 1, H270 Press. Gas (Comp.), H280 Acute Tox. 1 (Inhalation:gas), H330 (ATE=57,5 ppmv/4h) Skin Corr. 1B, H314 Eye Dam. 1, H318

Name	Product identifier	Specific concentration limits (%)
Nitric oxide	CAS-No.: 10102-43-9 EC-No.: 233-271-0 EC Index-No.: --- REACH registration No: 01-2120766630-54	(0,5 ≤ C ≤ 100) STOT SE 3; H335

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

Contains no other components or impurities which will influence the classification of the product.

### 3.2. Mixtures

Not applicable

## SECTION 4: First aid measures

### 4.1. Description of first aid measures

- Inhalation : Remove victim to uncontaminated area wearing self contained breathing apparatus. Keep victim warm and rested. Call a doctor. Perform cardiopulmonary resuscitation if breathing stopped.
- Skin contact : Remove contaminated clothing. Drench affected area with water for at least 15 minutes.
- Eye contact : Immediately flush eyes thoroughly with water for at least 15 minutes.

- Ingestion : Ingestion is not considered a potential route of exposure.

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

Prolonged exposure to small concentrations may result in pulmonary oedema.  
May cause severe chemical burns to skin and cornea. Suitable first-aid treatment should be immediately available. Seek medical advice before using product.  
Delayed adverse effects possible.  
Material is destructive to tissue of the mucuous membranes and upper respiratory tract.  
Cough, shortness of breath, headache, nausea.  
See section 11.

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

Obtain medical assistance.  
Treat with corticosteroid spray as soon as possible after inhalation.

### **SECTION 5: Firefighting measures**

#### **5.1. Extinguishing media**

- Suitable extinguishing media : Water spray or fog.  
Product does not burn, use fire control measures appropriate for the surrounding fire.  
- Unsuitable extinguishing media : Do not use water jet to extinguish.

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

Specific hazards : Supports combustion.  
Exposure to fire may cause containers to rupture/explode.  
Hazardous combustion products : Nitric oxide/nitrogen dioxide.

#### **5.3. Advice for firefighters**

Specific methods : Use fire control measures appropriate for the surrounding fire. Exposure to fire and heat radiation may cause gas receptacles to rupture. Cool endangered receptacles with water spray jet from a protected position. Prevent water used in emergency cases from entering sewers and drainage systems.  
If possible, stop flow of product.  
Use water spray or fog to knock down fire fumes if possible.  
Move containers away from the fire area if this can be done without risk.  
Special protective equipment for fire fighters : Wear gas tight chemically protective clothing in combination with self contained breathing apparatus.  
Standard EN 943-2: Protective clothing against liquid and gaseous chemicals, aerosols and solid particles. Gas-tight chemical protective suits for emergency teams.  
Standard EN 137 - Self-contained open-circuit compressed air breathing apparatus with full face mask.

### **SECTION 6: Accidental release measures**

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

For non-emergency personnel : Act in accordance with local emergency plan.  
Try to stop release.  
Evacuate area.  
Ensure adequate air ventilation.  
Eliminate ignition sources.  
Stay upwind.  
See section 8 of the SDS for more information on personal protective equipment.  
For emergency responders : Wear self-contained breathing apparatus when entering area unless atmosphere is proved to be safe.  
Use chemically protective clothing.  
Monitor concentration of released product.  
See section 5.3 of the SDS for more information.

### 6.2. Environmental precautions

Reduce vapour with fog or fine water spray.  
Try to stop release.

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

Hose down area with water.  
Wash contaminated equipment or sites of leaks with copious quantities of water.

### 6.4. Reference to other sections

See also sections 8 and 13.

## SECTION 7: Handling and storage

### 7.1. Precautions for safe handling

Safe use of the product

: Do not breathe gas.  
Avoid release of product into atmosphere.  
Use only lubricants and sealings approved for the specific gas service.  
The product must be handled in accordance with good industrial hygiene and safety procedures.  
Only experienced and properly instructed persons should handle gases under pressure.  
Consider pressure relief device(s) in gas installations.  
Ensure the complete gas system was (or is regularly) checked for leaks before use.  
Do not smoke while handling product.  
Avoid exposure, obtain special instructions before use.  
Keep equipment free from oil and grease. For more guidance, refer to the EIGA Doc. 33 - Cleaning of Equipment for Oxygen Service downloadable at <http://www.eiga.eu>.  
Use no oil or grease.  
Use only properly specified equipment which is suitable for this product, its supply pressure and temperature. Contact your gas supplier if in doubt.  
Installation of a cross purge assembly between the container and the regulator is recommended.  
Purge system with dry inert gas (e.g. helium or nitrogen) before gas is introduced and when system is placed out of service.  
Avoid suck back of water, acid and alkalis.

Safe handling of the gas receptacle

: Do not allow backfeed into the container.  
Protect containers from physical damage; do not drag, roll, slide or drop.  
When moving cylinders, even for short distances, use a cart (trolley, hand truck, etc.) designed to transport cylinders.  
Leave valve protection caps, when provided, in place until the container has been secured against either a wall or bench or placed in a container stand and is ready for use.  
If user experiences any difficulty operating valve discontinue use and contact supplier.  
Never attempt to repair or modify container valves or safety relief devices.  
Damaged valves should be reported immediately to the supplier.  
Keep container valve outlets clean and free from contaminants particularly oil and water.  
Replace valve outlet caps or plugs and container caps where supplied as soon as container is disconnected from equipment.  
Close container valve after each use and when empty, even if still connected to equipment.  
Never attempt to transfer gases from one cylinder/container to another.  
Never use direct flame or electrical heating devices to raise the pressure of a container.  
Do not remove or deface labels provided by the supplier for the identification of the content of the container.  
Suck back of water into the container must be prevented.  
Open valve slowly to avoid pressure shock.

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

Store locked up.  
Observe all regulations and local requirements regarding storage of containers.  
Containers should not be stored in conditions likely to encourage corrosion.  
Container valve guards or caps, when provided, should be in place.  
Containers should be stored in the vertical position and properly secured to prevent them from falling over.  
Stored containers should be periodically checked for general condition and leakage.  
Keep container below 50°C in a well ventilated place.  
Segregate from flammable gases and other flammable materials in store.  
Store containers in location free from fire risk and away from sources of heat and ignition.  
Keep away from combustible materials.

### 7.3. Specific end use(s)

None.

## SECTION 8: Exposure controls/personal protection

### 8.1. Control parameters

Nitric oxide (10102-43-9)	
<b>EU - Indicative Occupational Exposure Limit (IOEL)</b>	
Local name	Nitrogen monoxide
IOEL TWA	2,5 mg/m <sup>3</sup>
	2 ppm
Regulatory reference	COMMISSION DIRECTIVE (EU) 2017/164
<b>Belgium - Occupational Exposure Limits</b>	
Local name	Azote (monoxyde d') # Stikstofmonoxide
OEL TWA	2,5 mg/m <sup>3</sup>
	2 ppm
Regulatory reference	Koninklijk besluit/Arrêté royal 16/11/2023
<b>Luxembourg - Occupational Exposure Limits</b>	
Local name	Monoxyde d'azote
OEL TWA	2,5 mg/m <sup>3</sup>
	2 ppm
Regulatory reference	Mémorial A N° 226 de 2021 concernant la protection de la sécurité et de la santé des salariés contre les risques liés à des agents chimiques sur le lieu de travail
<b>Netherlands - Occupational Exposure Limits</b>	
Local name	Stikstofmonoxide
TGG-8u (OEL TWA)	2,5 mg/m <sup>3</sup>
	2 ppm
Regulatory reference	Arbeidsomstandighedenregeling 2024

DNEL (Derived-No Effect Level) : None established.

PNEC (Predicted No-Effect Concentration) : None established.

### **8.2. Exposure controls**

#### **8.2.1. Appropriate engineering controls**

Product to be handled in a closed system and under strictly controlled conditions.  
Provide adequate general and local exhaust ventilation.  
Preferably use permanent leak-tight installations (e.g. welded pipes).  
Systems under pressure should be regularly checked for leakages.  
Ensure exposure is below occupational exposure limits (where available).  
Gas detectors should be used when toxic gases may be released.  
Consider the use of a work permit system e.g. for maintenance activities.

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

A risk assessment should be conducted and documented in each work area to assess the risks related to the use of the product and to select the PPE that matches the relevant risk.

The following recommendations should be considered:

PPE compliant to the recommended EN/ISO standards should be selected.

- Eye/face protection : Wear goggles and a face shield when transfilling or breaking transfer connections.  
Standard EN 166 - Personal eye-protection - specifications.  
Provide readily accessible eye wash stations and safety showers.
- Skin protection
  - Hand protection : Wear working gloves when handling gas containers.  
Wear chemically resistant protective gloves.  
Standard EN 388 - Protective gloves against mechanical risks, performance level 1 or higher. Recommended types include wrist gloves from leather or synthetic material with equivalent performance, fabric gloves, fabric gloves with leather palms.  
Standard EN 374 - Protective gloves against chemicals.  
Consult glove manufacturer's product information on material suitability and material thickness.
  - Other : The breakthrough time of the selected gloves must be greater than the intended use period.  
Keep suitable chemically resistant protective clothing readily available for emergency use.  
Standard EN943-1 - Full protective suits against liquid, solid and gaseous chemicals.  
Wear safety shoes while handling containers.  
Standard EN ISO 20345 - Personal protective equipment - Safety footwear.
- Respiratory protection : Standard EN 137 - Self-contained open-circuit compressed air breathing apparatus with full face mask.  
Consult respiratory device supplier's product information for the selection of the appropriate device.  
Self contained breathing apparatus (SCBA) or positive pressure airline with mask are to be used in oxygen-deficient atmospheres.  
Keep self contained breathing apparatus readily available for emergency use.  
Self contained breathing apparatus is recommended, where unknown exposure may be expected, e.g. during maintenance activities on installation systems.
- Thermal hazards : None in addition to the above sections.

#### **8.2.3. Environmental exposure controls**

Refer to local regulations for restriction of emissions to the atmosphere. See section 13 for specific methods for waste gas treatment.

## **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 : Brownish gas.

#### Odour

: Pungent. Poor warning properties at low concentrations.

#### Melting point / Freezing point

: -164 °C

#### Boiling point

: -152 °C

#### Flammability

: Non flammable.

Lower explosion limit	: Not applicable.
Upper explosion limit	: Not applicable.
Flash point	: Not applicable for gases and gas mixtures.
Auto-ignition temperature	: Non flammable.
Decomposition temperature	: Not applicable.
pH	: Not applicable for gases and gas mixtures.
Viscosity, kinematic	: No reliable data available.
Water solubility [20°C]	: mg/l Min: 46 Max: 57,4
Partition coefficient n-octanol/water (Log Kow)	: Not known.
Vapour pressure [20°C]	: Not applicable.
Vapour pressure [50°C]	: Not applicable.
Density and/or relative density	: Not applicable for gases and gas mixtures.
Relative vapour density (air=1)	: 1
Particle characteristics	: Not applicable for gases and gas mixtures. Nanoforms are not relevant for gases and gas mixtures.

### 9.2. Other information

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

Oxidising properties	: Oxidiser.
- Coefficient of oxygen equivalency (Ci)	: 0,3
Critical temperature [°C]	: -93 °C

#### 9.2.2. Other safety characteristics

Molar mass	: 30 g/mol
Other data	: None.

## SECTION 10: Stability and reactivity

### 10.1. Reactivity

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

### 10.2. Chemical stability

Decomposes at room temperature to other nitrogen oxides and nitrogen. Oxidises in air to form nitrogen dioxide which is extremely reactive.

### 10.3. Possibility of hazardous reactions

Violently oxidises organic material.

### 10.4. Conditions to avoid

High temperature.  
Avoid moisture in installation systems.

### 10.5. Incompatible materials

Air.  
May react violently with combustible materials.  
May react violently with reducing agents.  
Keep equipment free from oil and grease. For more guidance, refer to the EIGA Doc. 33 - Cleaning of Equipment for Oxygen Service downloadable at <http://www.eiga.eu>.  
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. Information on hazard classes as defined in Regulation (EC) No 1272/2008

**Acute toxicity** : Delayed fatal pulmonary oedema possible.  
Fatal if inhaled.

#### Nitric oxide (10102-43-9)

LC50 Inhalation - Rat [ppm]	115 ppm/1h (ADR) 57,5 ppm/4h (CLP)
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**Skin corrosion/irritation** : Causes severe skin burns and eye damage.  
**Serious eye damage/irritation** : Causes serious eye damage.  
**Respiratory or skin sensitisation** : No known effects from this product.  
**Germ cell mutagenicity** : No known effects from this product.  
**Carcinogenicity** : No known effects from this product.  
**Toxic for reproduction : Fertility** : No known effects from this product.  
**Toxic for reproduction : unborn child** : No known effects from this product.  
**STOT-single exposure** : Severe corrosion to the respiratory tract at high concentrations.  
**Target organ(s)** : Blood.  
Eyes.  
Respiratory system.  
**STOT-repeated exposure** : Severe corrosion to the respiratory tract at high concentrations.  
**Target organ(s)** : Respiratory system.  
**Aspiration hazard** : Not applicable for gases and gas mixtures.

#### 11.2. Information on other hazards

**Other information** : Delayed fatal pulmonary oedema possible.  
The substance/mixture has no endocrine disrupting properties.

### SECTION 12: Ecological information

#### 12.1. Toxicity

**Assessment** : No ecological damage caused by this product.  
**EC50 48h - Daphnia magna [mg/l]** : No data available.  
**EC50 72h - Algae [mg/l]** : No data available.  
**LC50 96 h - Fish [mg/l]** : No data available.

#### 12.2. Persistence and degradability

**Assessment** : Not applicable for inorganic products.

#### 12.3. Bioaccumulative potential

**Assessment** : Product is an inorganic gas with a low potential to bioaccumulate in aquatic species.

#### 12.4. Mobility in soil

**Assessment** : Because of its high volatility, the product is unlikely to cause ground or water pollution.  
Partition into soil is unlikely.

#### 12.5. Results of PBT and vPvB assessment

**Assessment** : Not classified as PBT or vPvB.

#### 12.6. Endocrine disrupting properties

**Assessment** : The substance/mixture has no endocrine disrupting properties.

#### 12.7. Other adverse effects

**Other adverse effects** : May cause pH changes in aqueous ecological systems.  
Not classified as PMT or vPvM.  
**Effect on the ozone layer** : No effect on the ozone layer.  
**Effect on global warming** : No known effects from this product.

### SECTION 13: Disposal considerations

#### 13.1. Waste treatment methods

Contact supplier if guidance is required.  
Must not be discharged to atmosphere.  
Gas may be scrubbed in alkaline solution under controlled conditions to avoid violent reaction.  
Ensure that the emission levels from local regulations or operating permits are not exceeded.  
Refer to the EIGA code of practice Doc.30 "Disposal of Gases", downloadable at <http://www.eiga.org> for more guidance on suitable disposal methods.  
Return unused product in original container to supplier.

List of hazardous waste codes (from Commission Decision 2000/532/EC as amended) : 16 05 04 \*: Gases in pressure containers (including halons) containing hazardous substances.

#### 13.2. Additional information

External treatment and disposal of waste should comply with applicable local and/or national regulations.

### SECTION 14: Transport information

#### 14.1. UN number or ID number

In accordance with ADR / RID / IMDG / IATA / ADN  
UN-No. : 1660

#### 14.2. UN proper shipping name

Transport by road/rail/inland waterways (ADR/RID/ADN) : NITRIC OXIDE, COMPRESSED  
Transport by air (ICAO-TI / IATA-DGR) : Nitric oxide, compressed  
Transport by sea (IMDG) : NITRIC OXIDE, COMPRESSED

#### 14.3. Transport hazard class(es)

#### Labelling



2.3 : Toxic gases.  
5.1 : Oxidizing substances.  
8 : Corrosive substances.

#### Transport by road/rail/inland waterways (ADR/RID/ADN)

Class : 2  
Classification code : 1TOC  
Tunnel Restriction : D - Passage forbidden through tunnels of category D and E

#### Transport by sea (IMDG)

Class / Div. (Sub. risk(s)) : 2.3 (5.1, 8)  
Emergency Schedule (EmS) - Fire : F-C  
Emergency Schedule (EmS) - Spillage : S-W

#### 14.4. Packing group

Transport by road/rail/inland waterways (ADR/RID/ADN) : Not applicable.  
Transport by air (ICAO-TI / IATA-DGR) : Not applicable.  
Transport by sea (IMDG) : Not applicable.

#### 14.5. Environmental hazards

Transport by road/rail/inland waterways (ADR/RID/ADN) : None.

Transport by air (ICAO-TI / IATA-DGR) : None.  
Transport by sea (IMDG) : None.

### 14.6. Special precautions for user

#### Packing Instruction(s)

Transport by road/rail/inland waterways (ADR/RID/ADN) : P200.  
Transport by air (ICAO-TI / IATA-DGR)  
Passenger and Cargo Aircraft : Forbidden.  
Cargo Aircraft only : Forbidden.  
Transport by sea (IMDG) : P200.

Special transport precautions : 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 there is adequate ventilation.  
- Ensure that containers are firmly secured.  
- Ensure valve is closed and not leaking.  
- Ensure valve outlet cap nut or plug (where provided) is correctly fitted.  
- Ensure valve protection device (where provided) is correctly fitted.

### 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

#### EU-Regulations

Restrictions on use : None.  
Other information, restriction and prohibition regulations : Not listed on the PIC list (Regulation EU 649/2012).  
Not listed on the POP list (Regulation EU 2019/1021).  
Seveso Directive : 2012/18/EU (Seveso III) : Covered.

Seveso III Part I (Categories of dangerous substances)	Qualifying quantity (tonnes)	
	Lower-tier	Upper-tier
H1 ACUTE TOXIC Category 1, all exposure routes	5	20
P4 OXIDISING GASES Oxidising gases, Category 1	50	200

#### National regulations

Regulatory reference : Ensure all national/local regulations are observed.

### 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 453/2010.

Section	Changed item	Comments
	Endocrine disrupting properties	Added

	Supersedes version of	Modified
	Revision date	Modified
2.1	Specific concentration limits (CLP)	Added
2.1	Classification according to Regulation (EC) No. 1272/2008 [CLP]	Modified
2.3	Other hazards which do not result in classification	Modified
7	Safe handling of the gas receptacle	Modified
7	Conditions for safe storage, including any incompatibilities	Modified
8	Regulatory reference	Added
8	Regulatory reference	Added
8	TGG-8u (OEL TWA) [ppm]	Added
8	Regulatory reference	Added
8	Local name	Added
8	Local name	Added
8	Local name	Added
8	OEL TWA	Added
8	OEL TWA	Added
8	TGG-8u (OEL TWA)	Added
8	OEL TWA	Added
8	OEL TWA	Added
8	Regulatory reference	Added
8	Local name	Added
8	IOEL TWA [ppm]	Added
8	IOEL TWA	Added
9	Particle characteristics	Added
9	Density	Added
9	Partition coefficient n-octanol/water (Log Kow)	Added
9	Lower explosive limit (LEL)	Added
9.1	Explosive limits (vol %)	Removed
9.1	Decomposition temperature	Modified
11.1	LC50 Inhalation - Rat [ppm]	Modified
12.3	Bioaccumulative potential	Added
12.7	Other adverse effects	Modified
14	Number of blue cones/lights (ADN)	Added
14	Classification code (ADN)	Added
14	Equipment required (ADN)	Added
14	Excepted quantities (ADN)	Added
14	Danger labels (ADN)	Added

14	Limited quantities (ADN)	<b>Added</b>
14	Ventilation (ADN)	<b>Added</b>
14	Classification code (RID)	<b>Added</b>
14	Excepted quantities (RID)	<b>Added</b>
14	Hazard identification number (RID)	<b>Added</b>
14	Limited quantities (RID)	<b>Added</b>
14	Mixed packing provisions (RID)	<b>Added</b>
14	Packing instructions (RID)	<b>Added</b>
14	Special provisions for carriage - Loading, unloading and handling (RID)	<b>Added</b>
14	Proper Shipping Name (RID)	<b>Added</b>
14	Transport category (RID)	<b>Added</b>
14	UN-No. (RID)	<b>Modified</b>
14.1	UN-No. (ADN)	<b>Added</b>
14.2	Proper Shipping Name (ADN)	<b>Added</b>
14.3	Danger labels (RID)	<b>Modified</b>
16	Abbreviations and acronyms	<b>Modified</b>

### Abbreviations and acronyms

- : ATE - Acute Toxicity Estimate.
- CLP - Classification Labelling Packaging Regulation; Regulation (EC) No 1272/2008.
- REACH - Registration, Evaluation, Authorisation and Restriction of Chemicals Regulation (EC) No 1907/2006.
- EINECS - European Inventory of Existing Commercial Chemical Substances.
- CAS# - Chemical Abstract Service number.
- PPE - Personal Protection Equipment.
- LC50 - Lethal Concentration to 50 % of a test population.
- RMM - Risk Management Measures.
- PBT - Persistent, Bioaccumulative and Toxic.
- vPvB - Very Persistent and Very Bioaccumulative.
- STOT- SE : Specific Target Organ Toxicity - Single Exposure.
- CSA - Chemical Safety Assessment.
- EN - European Standard.
- UN - United Nations.
- ADR - Agreement concerning the International Carriage of Dangerous Goods by Road.
- IATA - International Air Transport Association.
- IMDG code - International Maritime Dangerous Goods.
- RID - Regulations concerning the International Carriage of Dangerous Goods by Rail.
- WGK - Water Hazard Class.
- STOT - RE : Specific Target Organ Toxicity - Repeated Exposure.
- UFI : Unique Formula Identifier.
- ADN -International Carriage of Dangerous Goods by Inland Waterways.
- PROC -Process category
- .
- ERC – Environmental release category.
- PMT - Persistent, Mobile and Toxic.
- vPvM – very Persistent and very Mobile.
- : Users of breathing apparatus must be trained.
- Ensure operators understand the toxicity hazard.
- : Classification in accordance with the procedures and calculation methods of Regulation (EC) 1272/2008 (CLP).
- Key literature references and sources of data are maintained in EIGA doc 169 : 'Classification and Labelling Guide', downloadable at <http://www.Eiga.eu> .

### Training advice

### Further information

Full text of H- and EUH-statements	
Acute Tox. 1 (Inhalation:gas)	Acute toxicity (inhalation:gas) Category 1
Eye Dam. 1	Serious eye damage/eye irritation, Category 1
Ox. Gas 1	Oxidising Gases, Category 1
Press. Gas (Comp.)	Gases under pressure : Compressed gas
Skin Corr. 1B	Skin corrosion/irritation, Category 1, Sub-Category 1B
STOT SE 3	Specific target organ toxicity – Single exposure, Category 3, Respiratory tract irritation
H270	May cause or intensify fire; oxidiser.
H280	Contains gas under pressure; may explode if heated.
H314	Causes severe skin burns and eye damage.
H318	Causes serious eye damage.
H330	Fatal if inhaled.
H335	May cause respiratory irritation.
EUH071	Corrosive to the respiratory tract.

#### DISCLAIMER OF LIABILITY

: 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.

**End of document**