

**Danger**



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

#### 1.1. Product identifier

SDS no : MG-CO-N2-02

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

Relevant identified uses : Industrial and professional. Perform risk assessment prior to use.  
 Test gas/Calibration gas.  
 Laboratory use.  
 Contact supplier for more information on uses.

Uses advised against : Consumer use.

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

Company identification : Messer Tehnogas AD  
 Banjicki put 62  
 11090 Beograd - Serbia  
 T +38 111 353 7210

#### 1.4. Emergency telephone number

Emergency telephone number : +381(0) 11 360 8440 (24h)  
 Emergency telephone number

### SECTION 2: Hazards identification

#### 2.1. Classification of the substance or mixture

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

Physical hazards	Press. Gas (Comp.)	H280
Health hazards	Repr. 1A	H360
	STOT RE 2	H373

#### 2.2. Label elements

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

Hazard pictograms (CLP) :



Signal word (CLP) : Danger

Hazard statements (CLP) : H360 - May damage fertility or the unborn child.  
 H280 - Contains gas under pressure; may explode if heated.  
 H373 - May cause damage to organs through prolonged or repeated exposure.

Precautionary statements (CLP)

- Prevention : P202 - Do not handle until all safety precautions have been read and understood.

- P260 - Do not breathe gas, vapours.  
P280 - Wear protective gloves, protective clothing, eye protection, face protection.  
- Response : P308+P313 - IF exposed or concerned: Get medical advice/attention.  
- Storage : P405 - Store locked up.  
P403 - Store in a well-ventilated place.

### 2.3. Other hazards

: None.

## SECTION 3: Composition/information on ingredients

**3.1. Substances** : Not applicable

### 3.2. Mixtures

Name	Product identifier	%	Classification according to Regulation (EC) No. 1272/2008 [CLP]
Nitrogen	(CAS-No.) 7727-37-9 (EC-No.) 231-783-9 (EC Index-No.) (REACH-no) *1	94.5-99.5	Press. Gas (Comp.), H280
Carbon monoxide	(CAS-No.) 630-08-0 (EC-No.) 211-128-3 (EC Index-No.) 006-001-00-2 (REACH-no) 01-2119480165-39	0.5 - 5.5	Flam. Gas 1, H220 Press. Gas (Comp.), H280 Acute Tox. 3 (Inhalation:gas), H331 Repr. 1A, H360D STOT RE 1, H372

Full text of H-statements: see section 16

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

\*1: Listed in Annex IV / V REACH, exempted from registration.

\*3: Registration not required: Substance manufactured or imported < 1t/y.

## 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 : Adverse effects not expected from this product.
- Eye contact : Adverse effects not expected from this product.
- Ingestion : Ingestion is not considered a potential route of exposure.

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

: Refer to section 11.

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

: Obtain medical assistance.

## SECTION 5: Firefighting measures

### 5.1. Extinguishing media

- Suitable extinguishing media : Water spray or fog.
- Unsuitable extinguishing media : Do not use water jet to extinguish.

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

- Specific hazards : Exposure to fire may cause containers to rupture/explode.
- Hazardous combustion products : It is not known to be more toxic than the product itself.

**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 : Standard protective clothing and equipment (Self Contained Breathing Apparatus) for fire fighters.  
Standard EN 137 - Self-contained open-circuit compressed air breathing apparatus with full face mask.  
Standard EN 469 - Protective clothing for firefighters. Standard - EN 659: Protective gloves for firefighters.

**SECTION 6: Accidental release measures**

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

- : Act in accordance with local emergency plan.  
Try to stop release.  
Evacuate area.  
Monitor concentration of released product.  
Wear self-contained breathing apparatus when entering area unless atmosphere is proved to be safe.  
Ensure adequate air ventilation.  
Stay upwind.

**6.2. Environmental precautions**

- : Try to stop release.

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

- : Ventilate area.

**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** :
- : 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.
  - Use only properly specified equipment which is suitable for this product, its supply pressure and temperature. Contact your gas supplier if in doubt.
  - Do not breathe gas.
  - Avoid release of product into atmosphere.
- Safe handling of the gas receptacle** :
- : Refer to supplier's container handling instructions.
  - Do not allow backfeed into the container.
  - Protect cylinders 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 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 cylinder 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 cylinder contents.
  - Containers should be stored in the vertical position and properly secured to prevent them from falling over.

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

- : 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 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.
- 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**

<b>Carbon monoxide (630-08-0)</b>		
OEL : Occupational Exposure Limits		
EU	TWA IOELV (EU) 8 h [mg/m <sup>3</sup> ]	23 mg/m <sup>3</sup>
	TWA IOELV (EU) 8 h [ppm]	20 ppm

	STEL IOELV (EU) 15 min [mg/m <sup>3</sup> ]	117 mg/m <sup>3</sup>
	STEL IOELV (EU) 15 min [ppm]	100 ppm
	Notes	SCOEL Recommendations (1995)
Austria	TWA (AT) OEL 8h [mg/m <sup>3</sup> ]	33 mg/m <sup>3</sup>
	TWA (AT) OEL 8h [ppm]	30 ppm
	STEL (AT) OEL 15min [mg/m <sup>3</sup> ]	66 mg/m <sup>3</sup>
	STEL (AT) OEL 15min [ppm]	60 ppm
	Regulatory reference	BGBI. II Nr. 186/2015
Belgium	TWA (BE) OEL 8h [mg/m <sup>3</sup> ]	23 mg/m <sup>3</sup>
	TWA (BE) OEL 8h [ppm]	20 ppm
	STEL (BE) OEL 15min [mg/m <sup>3</sup> ]	117 mg/m <sup>3</sup>
	STEL (BE) OEL 15min [ppm]	100 ppm
	Regulatory reference	Koninklijk besluit/Arrêté royal 02/09/2018
Bulgaria	TWA (BG) OEL 8h [mg/m <sup>3</sup> ]	23 mg/m <sup>3</sup>
	STEL (BG) OEL 15min [mg/m <sup>3</sup> ]	117 mg/m <sup>3</sup>
	Regulatory reference	Наредба № 13 от 30.12.2003 г. за защита на работещите от рискове, свързани с експозиция на химични агенти при работа (изм. и доп. ДВ. бр.73 от 4 септември 2018 г.)
Estonia	TWA (EE) OEL 8h [mg/m <sup>3</sup> ]	40 mg/m <sup>3</sup> Allmaakaevandustes 25 mg/m <sup>3</sup> heitgaasina 23 mg/m <sup>3</sup>
	TWA (EE) OEL 8h [ppm]	35 ppm Allmaakaevandustes 20 ppm heitgaasina 20 ppm
	STEL (EE) OEL 15min [mg/m <sup>3</sup> ]	120 mg/m <sup>3</sup> Allmaakaevandustes 117 mg/m <sup>3</sup>
	STEL (EE) OEL 15min [ppm]	100 ppm Allmaakaevandustes 100 ppm
	Regulatory reference	Vabariigi Valitsuse 18. septembri 2001. a määruse nr 293 (21.08.2018)
France	TWA (FR) OEL 8h [mg/m <sup>3</sup> ]	55 mg/m <sup>3</sup>
	TWA (FR) OEL 8h [ppm]	50 ppm
	Note (FR)	Valeurs recommandées/admises; substance classée toxique pour la reproduction de catégorie 1A
	Regulatory reference	Circulaire du Ministère du travail (réf.: INRS ED 984, 2016)
Germany	TRGS 900 Local name	Kohlenstoffmonoxid
	TRGS 900 Occupational exposure limit value (mg/m <sup>3</sup> )	35 mg/m <sup>3</sup>
	TRGS 900 Occupational exposure limit value (ppm)	30 ppm
	TRGS 900 Limitation of exposure peaks	2(II)
	TRGS 900 Remark	DFG;Z
	TRGS 900 Regulatory reference	TRGS900
Greece	TWA (GR) OEL 8h [mg/m <sup>3</sup> ]	55 mg/m <sup>3</sup>
	TWA (GR) OEL 8h [ppm]	50 ppm
	STEL (GR) OEL 15min [mg/m <sup>3</sup> ]	330 mg/m <sup>3</sup>
	STEL (GR) OEL 15min [ppm]	300 ppm
	Regulatory reference	Π.Δ. 90/1999
ACGIH	ACGIH TWA (ppm)	25 ppm
	Remark (ACGIH)	TLV® Basis: COHb-emia. Notations: BEI
	Regulatory reference	ACGIH 2018
Latvia	TWA (LV) OEL 8h [mg/m <sup>3</sup> ]	20 mg/m <sup>3</sup>
	TWA (LV) OEL 8h [ppm]	17 ppm
	STEL (LV) OEL 15min [mg/m <sup>3</sup> ]	117 mg/m <sup>3</sup>
	STEL (LV) OEL 15min [ppm]	100 ppm
	Regulatory reference	Ministru kabineta 2007.gada 15.maija noteikumiem Nr.325 (Grozījumi Ministru kabineta 2018. gada 10. jūlijā noteikumiem Nr.407)
Luxembourg	TWA (LU) OEL 8h [mg/m <sup>3</sup> ]	23 mg/m <sup>3</sup>
	TWA (LU) OEL 8h [ppm]	20 ppm
	STEL (LU) OEL 15min [mg/m <sup>3</sup> ]	117 mg/m <sup>3</sup>
	STEL (LU) OEL 15min [ppm]	100 ppm
	Regulatory reference	Mémorial A N° 684 de 2018
Slovenia	TWA (SL) OEL 8h [mg/m <sup>3</sup> ]	35 mg/m <sup>3</sup>

	TWA (SL) OEL 8h [ppm]	30 ppm
	Peak exposure limitation factor (SL)	2
	Regulatory reference	Uradni list RS, št. 38/2015 z dne 4.6.2015
Spain	TWA (ES) OEL 8h [mg/m <sup>3</sup> ]	23 mg/m <sup>3</sup> 29 mg/m <sup>3</sup> (valor vigente en 2017)
	TWA (ES) OEL 8h [ppm]	20 ppm 25 ppm (valor vigente en 2017)
	STEL (ES) OEL 15min [mg/m <sup>3</sup> ]	117 mg/m <sup>3</sup>
	STEL (ES) OEL 15min [ppm]	100 ppm
	Notes/Notes	VLI (Agente químico para el que la U.E. estableció en su día un valor límite indicativo), TR1A (Cuando las pruebas utilizadas para la clasificación procedan principalmente de datos en humanos), VLB® (Agente químico que tiene Valor Límite Biológico), , r (Esta sustancia tiene establecidas restricciones a la fabricación, la comercialización o el uso en los términos especificados en el "Reglamento (CE) n° 1907/2006 sobre Registro, Evaluación, Autorización y Restricción de sustancias y preparados químicos" (REACH) de 18 de diciembre de 2006 (DOUE L 369 de 30 de diciembre de 2006). Las restricciones de una sustancia pueden aplicarse a todos los usos o sólo a usos concretos. El anexo XVII del Reglamento REACH contiene la lista de todas las sustancias restringidas y especifica los usos que se han restringido).
	Regulatory reference	Límites de Exposición Profesional para Agentes Químicos en España 2018. INSHT
Switzerland	STEL (CH) OEL 15min [mg/m <sup>3</sup> ]	70 mg/m <sup>3</sup>
	STEL (CH) OEL 15min [ppm]	60 ppm
	TWA (CH) OEL 8h [mg/m <sup>3</sup> ]	35 mg/m <sup>3</sup>
	TWA (CH) OEL 8h [ppm]	30 ppm
	Remark	Kritische Toxizität: COHb; Messmethoden: NIOSH; Notationen: SS <sub>B</sub> , O <sup>L</sup> , B
	Regulatory reference	www.suva.ch, 01.11.2018
Netherlands	MAC TWA 8H (NL) [mg/m <sup>3</sup> ]	23 mg/m <sup>3</sup>
	MAC STEL 15MIN (NL) [mg/m <sup>3</sup> ]	117 mg/m <sup>3</sup>
	Regulatory reference	Arbeidsomstandighedenregeling 2018
United Kingdom	WEL - LTEL - UK [mg/m <sup>3</sup> ]	23 mg/m <sup>3</sup> 35 mg/m <sup>3</sup> Limits applicable to underground mining & tunnelling industries ONLY until 21/8/23
	WEL - LTEL - UK [ppm]	20 ppm 30 ppm Limits applicable to underground mining & tunnelling industries ONLY until 21/8/23
	WEL - STEL - UK [mg/m <sup>3</sup> ]	117 mg/m <sup>3</sup> 232 mg/m <sup>3</sup> Limits applicable to underground mining & tunnelling industries ONLY until 21/8/23
	WEL - STEL - UK [ppm]	100 ppm 200 ppm Limits applicable to underground mining & tunnelling industries ONLY until 21/8/23
	Remark (WEL)	BMGV (Biological monitoring guidance values are listed in Table 2)
	Regulatory reference	EH40/2005 (Third edition, 2018). HSE
Czech Republic	TWA (CZ) OEL 8h [mg/m <sup>3</sup> ]	23 mg/m <sup>3</sup>
	TWA (CZ) OEL 8h [ppm]	20.08 ppm
	STEL (CZ) OEL 15min [mg/m <sup>3</sup> ]	117 mg/m <sup>3</sup>
	STEL (CZ) OEL 15min [ppm]	102.14 ppm
	Remark (CZ)	P (u látky nelze vyloučit závažné pozdní účinky)
	Regulatory reference	Nařízení vlády č. 361/2007 Sb. (zpracovány změny č. 246/2018 Sb.)
Denmark	TWA (DK) OEL 8h [mg/m <sup>3</sup> ]	23 mg/m <sup>3</sup>
	TWA (DK) OEL 8h [ppm]	20 ppm
	Anmærkninger (DK)	E (betyder, at stoffet har en EF-grænseværdi)
	Regulatory reference	BEK nr 655 af 31/05/2018

Finland	TWA (FI) OEL 8h [mg/m <sup>3</sup> ]	23 mg/m <sup>3</sup>
	TWA (FI) OEL 8h [ppm]	20 ppm
	STEL (FI) OEL 15min [mg/m <sup>3</sup> ]	87 mg/m <sup>3</sup>
	STEL (FI) OEL 15min [ppm]	75 ppm
	Huomautus (FI)	melu
	Regulatory reference	HTP-ARVOT 2018 (Sosiaali- ja terveystieteiden ministeriö)
Hungary	TWA (HU) OEL 8h [mg/m <sup>3</sup> ]	23 mg/m <sup>3</sup> 33 mg/m <sup>3</sup> a föld alatti bányászat és az alagútúrás terén vonatkozó határértékek
	STEL (HU) OEL 15min [mg/m <sup>3</sup> ]	117 mg/m <sup>3</sup> 66 mg/m <sup>3</sup> a föld alatti bányászat és az alagútúrás terén vonatkozó határértékek
	Megjegyzések (HU)	EU4 (2017/164 EU irányelvben közölt érték), BHM (biológiai hatásmutató)
	Regulatory reference	25/2000. (IX. 30.) EüM–SZCSM együttes rendelet a munkahelyek kémiai biztonságáról
Iceland	Regulatory reference	Reglugerð um mengunarmörk og aðgerðir til að draga úr mengun á vinnustöðum (Nr. 390/2009)
Ireland	OEL (IE)-(8-hour reference period) [mg/m <sup>3</sup> ]	23 mg/m <sup>3</sup>
	OEL (IE)-(8-hour reference period) [ppm]	20 ppm
	OEL (IE)-(15min reference period) [mg/m <sup>3</sup> ]	117 mg/m <sup>3</sup>
	OEL (IE)-(15min reference period) [ppm]	100 ppm
	Notes (IE)	Repr.1A (Substances which are known human reproductive toxicants), IOELV (Indicative Occupational Exposure Limit Values)
	Regulatory reference	Code of Practice for the Chemical Agents Regulations 2018
Lithuania	TWA (LT) OEL 8h [mg/m <sup>3</sup> ]	23 mg/m <sup>3</sup>
	TWA (LT) OEL 8h [ppm]	20 ppm
	STEL (LT) OEL 15min [mg/m <sup>3</sup> ]	117 mg/m <sup>3</sup>
	STEL (LT) OEL 15min [ppm]	100 ppm
	Remark (LT)	R (reprodukcijai toksiškas poveikis); Ū (ūmus poveikis)
	Regulatory reference	LIETUVOS HIGIENOS NORMA HN 23:2011 (Nr. V-695/A1-272, 2018-06-12)
Malta	TWA (MT) OEL 8h [mg/m <sup>3</sup> ]	23 mg/m <sup>3</sup>
	TWA (MT) OEL 8h [ppm]	20 ppm
	STEL (MT) OEL 15min [mg/m <sup>3</sup> ]	117 mg/m <sup>3</sup>
	STEL (MT) OEL 15min [ppm]	100 ppm
	Regulatory reference	S.L.424.24 (L.N.57 of 2018)
Norway	TWA (NO) OEL 8h [mg/m <sup>3</sup> ]	23 mg/m <sup>3</sup> 29 mg/m <sup>3</sup> For bransjene gruvedrift under jord og tunnelvirksomhet
	TWA (NO) OEL 8h [ppm]	20 ppm 25 ppm For bransjene gruvedrift under jord og tunnelvirksomhet
	STEL (NO) OEL 15min [mg/m <sup>3</sup> ]	117 mg/m <sup>3</sup>
	STEL (NO) OEL 15min [ppm]	100 ppm 100 ppm For bransjene gruvedrift under jord og tunnelvirksomhet
	Merknader (NO)	R (Kjemikalier som skal betraktes som reproduksjonstoksiske); E (EU har en veiledende grenseverdi for stoffet); S (Korttidsverdi er en verdi for gjennomsnittskonsentrasjonen av et kjemisk stoff i pustesonen til en arbeidstaker som ikke skal overskrides i en fastsatt referanseperiode. Referanseperioden er 15 minutter); 6) Enkelte bedrifter innen smelteverkindustrien vil av teknisk-økonomiske årsaker ikke kunne overholde denne korttidsverdien. Det er disse bedriftenes ansvar å dokumentere et

		forsvarlig arbeidsmiljø. Det skal utarbeides skriftlig instruks for arbeid i CO-atmosfære. For bransjene gruvedrift under jord og tunnelvirksomhet frem til 21.august 2023
	Regulatory reference	FOR-2018-08-21-1255
Poland	TWA (PL) OEL 8h [mg/m <sup>3</sup> ]	23 mg/m <sup>3</sup>
	STEL (PL) OEL 15min [mg/m <sup>3</sup> ]	117 mg/m <sup>3</sup>
	Regulatory reference	Dz. U. 2018 poz. 1286
Romania	TWA (RO) OEL 8h [mg/m <sup>3</sup> ]	20 mg/m <sup>3</sup> Exploatărilor miniere subterane și al șantierelor de săpare a tunelurilor și puțurilor 23 mg/m <sup>3</sup> (Pentru substanțe chimice în fază gazoasă sau de vapori, valoarea-limită este exprimată la 20°C și la 101,3 kPa)
	TWA (RO) OEL 8h [ppm]	17.5 ppm Exploatărilor miniere subterane și al șantierelor de săpare a tunelurilor și puțurilor 20 ppm
	STEL (RO) OEL 15min [mg/m <sup>3</sup> ]	30 mg/m <sup>3</sup> Exploatărilor miniere subterane și al șantierelor de săpare a tunelurilor și puțurilor 117 mg/m <sup>3</sup> (Pentru substanțe chimice în fază gazoasă sau de vapori, valoarea-limită este exprimată la 20°C și la 101,3 kPa)
	STEL (RO) OEL 15min [ppm]	26 ppm Exploatărilor miniere subterane și al șantierelor de săpare a tunelurilor și puțurilor 100 ppm
	Regulatory reference	Hotărârea nr. 584/2018
Slovakia	Maximum permissible exposure limit, average, 8h (SK) [mg/m <sup>3</sup> ]	35 mg/m <sup>3</sup> podzemnej ťažbe a razení tunelov 23 mg/m <sup>3</sup>
	Maximum permissible exposure limit, average, 8h (SK) [ppm]	30 ppm podzemnej ťažbe a razení tunelov 20 ppm
	Upozornenie (SK)	5) NPEL majú prechodné obdobie do 21. augusta 2023, ktoré sa týka expozície zamestnancov pri podzemnej ťažbe a razení tunelov
	Regulatory reference	Nariadenie vlády č. 33/2018 Z.z.
Sweden	TWA (SV) OEL 8h [mg/m <sup>3</sup> ]	23 mg/m <sup>3</sup> 25 mg/m <sup>3</sup> När det gäller underjord- eller tunnelarbete
	TWA (SV) OEL 8h [ppm]	20 ppm 20 ppm När det gäller underjord- eller tunnelarbete
	STEL (SV) OEL 15min [mg/m <sup>3</sup> ]	117 mg/m <sup>3</sup> 117 mg/m <sup>3</sup> När det gäller underjord- eller tunnelarbete
	STEL (SV) OEL 15min [ppm]	100 ppm 100 ppm När det gäller underjord- eller tunnelarbete
	Anmärkning (SE)	B (Ämnet kan orsaka hörselskada. Exponering för ämnet nära det befintliga yrkeshygieniska gränsvärdet och vid samtidig exponering för buller nära insatsvärdet 80 dB kan orsaka hörselskada); R (Ämnet är reproduktionsstörande. Med reproduktionsstörande ämnen avses ämnen som kan medföra skadliga effekter på fortplantningsförmågan eller avkommans utveckling); V (Vägledande korttidsgränsvärde ska användas som ett rekommenderat högsta värde som inte bör överskridas)
	Regulatory reference	Hygieniska gränsvärden (AFS 2018:1)
Portugal	TWA (PT) OEL 8h [ppm]	25 ppm
	Regulatory reference	Norma Portuguesa NP 1796:2014
<b>Nitrogen (7727-37-9)</b>		
OEL : Occupational Exposure Limits		
Belgium	Remark (BE)	A: la mention "A" signifie que l'agent libère un gaz ou une vapeur qui n'ont en eux-mêmes aucun effet physiologique mais peuvent diminuer le taux d'oxygène dans l'air. Lorsque le taux d'oxygène descend en dessous de 17-18 % (vol/vol) le manque d'oxygène provoque des suffocations qu'aucun



		symptôme préalable n'annonce. # A: de vermelding "A" betekent dat dit agens gas of damp vrijgeeft dat of die op zich geen fysiologische werking heeft, maar het zuurstofgehalte in de lucht verlaagt. Wanneer het zuurstofgehalte daalt onder de 17-18 % (vol/vol), veroorzaakt het zuurstoftekort verstikking, die zich manifesteert zonder dat er een waarschuwing aan voorafgaat.
	Regulatory reference	Koninklijk besluit/Arrêté royal 02/09/2018
ACGIH	Remark (ACGIH)	TLV® Basis: Simple Asphyxiant
	Regulatory reference	ACGIH 2018
Spain	NotesNotes	b (Asfixiantes simples. Ciertos gases y vapores presentes en el aire actúan desplazando al oxígeno y disminuyendo su concentración en el aire, sin efecto toxicológico. Estas sustancias no tienen un valor límite ambiental asignado y el único factor limitador de la concentración viene dado por el oxígeno disponible en el aire, que debe ser al menos del 19,5 % de O2 equivalente a nivel del mar. Este valor proporciona una cantidad adecuada de oxígeno para la mayoría de los trabajos realizados, incluyendo un margen de seguridad).
	Regulatory reference	Límites de Exposición Profesional para Agentes Químicos en España 2018. INSHT
Switzerland	Regulatory reference	www.suva.ch, 01.11.2018
Ireland	Notes (IE)	Asphx. (Gaseous chemical substances which may not produce significant physiological effects in the exposed employee, but when present in high concentrations will act as simple asphyxiants).
	Regulatory reference	Code of Practice for the Chemical Agents Regulations 2018

<b>Carbon monoxide (630-08-0)</b>	
DNEL: Derived no effect level (Workers)	
Acute - local effects, inhalation	100 ppm
Acute - systemic effects, inhalation	117 mg/m <sup>3</sup>
Long-term - local effects, inhalation	23 ppm
Long-term - systemic effects, inhalation	23 mg/m <sup>3</sup>

## 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 safety glasses with side shields.
- Standard EN 166 - Personal eye-protection - specifications.

#### • Skin protection

##### - Hand protection

- : Wear working gloves when handling gas containers.
- Standard EN 388 - Protective gloves against mechanical risk.

- Other : Wear safety shoes while handling containers.  
Standard EN ISO 20345 - Personal protective equipment - Safety footwear.
  
- Respiratory protection : Gas filters may be used if all surrounding conditions e.g. type and concentration of the contaminant(s) and duration of use are known.  
Use gas filters with full face mask, where exposure limits may be exceeded for a short-term period, e.g. connecting or disconnecting containers.  
Consult respiratory device supplier's product information for the selection of the appropriate device.  
Gas filters do not protect against oxygen deficiency.  
Standard EN 14387 - Gas filter(s), combined filter(s) and standard EN136, full face masks .  
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.  
Standard EN 137 - Self-contained open-circuit compressed air breathing apparatus with full face mask.
  
- Thermal hazards : None necessary.

### 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 : Mixture contains one or more component(s) which have the following colour(s):  
Colourless.

Odour : Odourless.

Odour threshold : Odour threshold is subjective and inadequate to warn of overexposure.  
Odour threshold is subjective and inadequate to warn of overexposure.

pH : Not applicable for gas mixtures.

Melting point / Freezing point : Not applicable for gas mixtures.

Boiling point : Not applicable for gas mixtures.

Flash point : Not applicable for gas mixtures.

Evaporation rate : Not applicable for gas mixtures.

Flammability (solid, gas) :

Explosive limits : Non flammable.

Vapour pressure [20°C] : Not applicable.

Vapour pressure [50°C] : Not applicable.

Relative density, gas (air=1) : Lighter or similar to air.

Partition coefficient n-octanol/water (Log Kow) : Not applicable for gas mixtures.

Auto-ignition temperature : Non flammable.

Viscosity : Not applicable.

Explosive properties : Not applicable.

Oxidising properties : Not applicable.

### 9.2. Other information

Molar mass : Not applicable for gas mixtures.

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**

: Stable under normal conditions.

**10.3. Possibility of hazardous reactions**

: None.

**10.4. Conditions to avoid**

: Stable under normal conditions.

**10.5. Incompatible materials**

: None.

**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 toxicological effects**

**Acute toxicity**

: Classification criteria are not met.  
Toxicological effects not expected from this product if occupational exposure limit values are not exceeded.

**Carbon monoxide (630-08-0)**

LC50 inhalation rat (ppm)	3760 ppm/1h 1300 ppm/4h
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**Skin corrosion/irritation**

: No known effects from this product.

**Serious eye damage/irritation**

: No known effects from this product.

**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**

: May cause harm to the unborn child.

**STOT-single exposure**

: No known effects from this product.

**STOT-repeated exposure**

: May cause damage to organs through prolonged or repeated exposure.

**Aspiration hazard**

: Not applicable for gases and gas mixtures.

**SECTION 12: Ecological information**

**12.1. Toxicity**

**Assessment**

: Classification criteria are not met.

**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**

: No data available.

**12.3. Bioaccumulative potential**

Assessment : No data available.

**12.4. Mobility in soil**

Assessment : No data available.

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

Assessment : Not classified as PBT or vPvB.

**12.6. Other adverse effects**

Effect on the ozone layer : None.

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.  
Avoid discharge to atmosphere.  
Do not discharge into any place where its accumulation could be dangerous.  
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.eu> for more guidance on suitable disposal methods.

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**

: None.

**SECTION 14: Transport information****14.1. UN number**

UN-No. : 1956

**14.2. UN proper shipping name**

Transport by road/rail (ADR/RID) : COMPRESSED GAS, N.O.S. (Nitrogen, Carbon monoxide)

Transport by air (ICAO-TI / IATA-DGR) : Compressed gas, n.o.s. (Nitrogen, Carbon monoxide)

Transport by sea (IMDG) : COMPRESSED GAS, N.O.S. (Nitrogen, Carbon monoxide)

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

Labelling :



2.2 : Non flammable, non-toxic gases.

**Transport by road/rail (ADR/RID)**

Class : 2

Classification code : 1A

Hazard identification number : 20

Tunnel Restriction : E - Passage forbidden through tunnels of category E

**Transport by air (ICAO-TI / IATA-DGR)**

Class / Div. (Sub. risk(s)) : 2.2

**Transport by sea (IMDG)**

Class / Div. (Sub. risk(s)) : 2.2

Emergency Schedule (EmS) - Fire : F-C

Emergency Schedule (EmS) - Spillage : S-V

**14.4. Packing group**

Transport by road/rail (ADR/RID) : 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 (ADR/RID) : 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 (ADR/RID) : P200

Transport by air (ICAO-TI / IATA-DGR)

Passenger and Cargo Aircraft : 200.

Cargo Aircraft only : 200.

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 cylinder 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. 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****EU-Regulations**

Restrictions on use : Restricted to professional users (Annex XVII REACH).

Seveso Directive : 2012/18/EU (Seveso III) : Not covered.

**National regulations**

National legislation : Ensure all national/local regulations are observed.

Water hazard class (WGK) : 1 - Slightly hazardous to water

**15.2. Chemical safety assessment**

: A CSA does not need to be carried out for this product.

**SECTION 16: Other information**

Indication of changes : Revised safety data sheet in accordance with commission regulation (EU) No 2015/830.

Training advice : Users of breathing apparatus must be trained.  
Receptacle under pressure.

Further information : This Safety Data Sheet has been established in accordance with the applicable European Union legislation.  
Classification in accordance with the calculation methods of Regulation (EC) 1272/2008 CLP.

Full text of H- and EUH-statements

Acute Tox. 3 (Inhalation:gas)	Acute toxicity (inhalation:gas) Category 3
Flam. Gas 1	Flammable gases, Category 1
Press. Gas (Comp.)	Gases under pressure : Compressed gas
Repr. 1A	Reproductive toxicity, Category 1A
Repr. 1A	Reproductive toxicity, Category 1A
STOT RE 1	Specific target organ toxicity — Repeated exposure, Category 1
STOT RE 2	Specific target organ toxicity — Repeated exposure, Category 2
H220	Extremely flammable gas.
H280	Contains gas under pressure; may explode if heated.
H331	Toxic if inhaled.
H360	May damage fertility or the unborn child.
H360D	May damage the unborn child.
H372	Causes damage to organs through prolonged or repeated exposure.
H373	May cause damage to organs through prolonged or repeated exposure.

**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.