

Safety Data Sheet

according to Regulation (EC) No. 1907/2006 (REACH) with its amendment Regulation (EU) 2015/830

20 ppm Carbon Monoxide in Air

Date of issue: 02/02/2017

Supersedes:

Revision date:

Version: 1.0

SDS reference: 20 ppm Carbon Monoxide in Air

Warning



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

1.1. Product identifier

Trade name : 20 ppm Carbon Monoxide in Air
SDS no : 20 ppm Carbon Monoxide in Air

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.
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 : Calgaz Ltd
Units 1 + 2 Speedwell Road Parkhouse Industrial Estate
ST5 7RG Newcastle Under Lyme UNITED KINGDOM
+44 (0) 1782 566 897
www.calgaz.com
info@calgaz.com (not 24hr)

1.4. Emergency telephone number

Emergency telephone number : Tel 24hr (EU): +44 (0) 1235 239670

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

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

Physical hazards : Gases under pressure : Compressed gas H280

2.2. Label elements

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

Hazard pictograms (CLP) :



GHS04

Signal word (CLP) : Warning

Hazard statements (CLP) : H280 - Contains gas under pressure; may explode if heated.

Precautionary statements (CLP)

- Storage : 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	78.9984	Press. Gas (Comp.), H280
Oxygen	(CAS No) 7782-44-7 (EC No) 231-956-9 (EC Index No) 008-001-00-8 (REACH-no) *1	20.9996	Ox. Gas 1, H270 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	0.002	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.

*2: Registration deadline not expired.

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

SECTION 4: First aid measures**4.1. Description of first aid measures**

- Inhalation : Adverse effects not expected from this product.
- 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

: None.

SECTION 5: Fire-fighting 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 : None that are more hazardous 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 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.
- Stay upwind.

6.2. Environmental precautions

- : None.

6.3. Methods and material for containment and cleaning up

- : None.

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.
 - Use only properly specified equipment which is suitable for this product, its supply pressure and temperature. Contact your gas supplier if in doubt.
 - Use only oxygen approved lubricants and oxygen approved sealings.
 - Avoid suck back of water, acid and alkalis.
 - 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.
- 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

- : 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

Carbon monoxide (630-08-0)		
OEL : Occupational Exposure Limits		
Austria	TWA (AT) OEL 8h [mg/m³]	33 mg/m³
	TWA (AT) OEL 8h [ppm]	30 ppm
	STEL (AT) OEL 15min [mg/m³]	66 mg/m³
	STEL (AT) OEL 15min [ppm]	60 ppm
Belgium	TWA (BE) OEL 8h [mg/m³]	29 mg/m³
	TWA (BE) OEL 8h [ppm]	25 ppm
Bulgaria	TWA (BG) OEL 8h [mg/m³]	40 mg/m³
	STEL (BG) OEL 15min [mg/m³]	200 mg/m³
Estonia	TWA (EE) OEL 8h [mg/m³]	25 mg/m³
	TWA (EE) OEL 8h [ppm]	20 ppm
	STEL (EE) OEL 15min [mg/m³]	120 mg/m³
	STEL (EE) OEL 15min [ppm]	100 ppm
France	TWA (FR) OEL 8h [mg/m³]	55 mg/m³

Germany	TWA (FR) OEL 8h [ppm]	50 ppm
	TWA (DE) OEL 8h [mg/m ³] TRGS 900	35 mg/m ³
	TWA (DE) OEL 8h [ppm] TRGS 900	30 ppm
Greece	TWA (GR) OEL 8h [mg/m ³]	55 mg/m ³
	TWA (GR) OEL 8h [ppm]	50 ppm
	STEL (GR) OEL 15min [mg/m ³]	330 mg/m ³
	STEL (GR) OEL 15min [ppm]	300 ppm
ACGIH	ACGIH TWA (ppm)	25 ppm
Latvia	TWA (LV) OEL 8h [mg/m ³]	20 mg/m ³
Slovenia	TWA (SL) OEL 8h [mg/m ³]	35 mg/m ³
	TWA (SL) OEL 8h [ppm]	30 ppm
Spain	TWA (ES) OEL 8h [mg/m ³]	29 mg/m ³
	TWA (ES) OEL 8h [ppm]	25 ppm
	NotesNotes	TR1A (cuando las pruebas utilizadas para la clasificación procedan principalmente de datos en humanos), VLB® (Agente químico que tiene Valor Límite Biológico específico en este documento.)
Switzerland	STEL (CH) OEL 15min [mg/m ³]	35 mg/m ³
	STEL (CH) OEL 15min [ppm]	30 ppm
	TWA (CH) OEL 8h [mg/m ³]	35 mg/m ³
	TWA (CH) OEL 8h [ppm]	30 ppm
	Remark (CH)	15 min
Netherlands	MAC TWA 8H (NL) [mg/m ³]	29 mg/m ³
United Kingdom	WEL - LTEL - UK [mg/m ³]	35 mg/m ³
	WEL - LTEL - UK [ppm]	30 ppm
	WEL - STEL - UK [mg/m ³]	232 mg/m ³
	WEL - STEL - UK [ppm]	200 ppm
	Remark (WEL)	BMGV (Biological monitoring guidance values are listed in Table 2)
Czech Republic	TWA (CZ) OEL 8h [mg/m ³]	30 mg/m ³
	TWA (CZ) OEL 8h [ppm]	26.2 ppm
	STEL (CZ) OEL 15min [mg/m ³]	150 mg/m ³
	STEL (CZ) OEL 15min [ppm]	131 ppm
	Remark (CZ)	P
Denmark	TWA (DK) OEL 8h [mg/m ³]	29 mg/m ³
	TWA (DK) OEL 8h [ppm]	25 ppm
Finland	TWA (FI) OEL 8h [mg/m ³]	35 mg/m ³
	TWA (FI) OEL 8h [ppm]	30 ppm
	STEL (FI) OEL 15min [mg/m ³]	87 mg/m ³
	STEL (FI) OEL 15min [ppm]	75 ppm
Hungary	TWA (HU) OEL 8h [mg/m ³]	33 mg/m ³
	STEL (HU) OEL 15min [mg/m ³]	66 mg/m ³
	Megjegyzések (HU)	II.1.
Ireland	OEL (IE)-(8-hour reference period) [mg/m ³]	23 mg/m ³
	OEL (IE)-(8-hour reference period) [ppm]	20 ppm
	OEL (IE)-(15min reference period) [mg/m ³]	115 mg/m ³
	OEL (IE)-(15min reference period) [ppm]	100 ppm
	Notes (IE)	Repr1A
Lithuania	TWA (LT) OEL 8h [mg/m ³]	40 mg/m ³
	TWA (LT) OEL 8h [ppm]	35 ppm
	STEL (LT) OEL 15min [mg/m ³]	120 mg/m ³
	STEL (LT) OEL 15min [ppm]	100 ppm
Norway	TWA (NO) OEL 8h [mg/m ³]	29 mg/m ³
	TWA (NO) OEL 8h [ppm]	25 ppm

Poland	TWA (PL) OEL 8h [mg/m³]	23 mg/m³
	STEL (PL) OEL 15min [mg/m³]	117 mg/m³
Romania	TWA (RO) OEL 8h [mg/m³]	20 mg/m³
	TWA (RO) OEL 8h [ppm]	17.5 ppm
	STEL (RO) OEL 15min [mg/m³]	30 mg/m³
	STEL (RO) OEL 15min [ppm]	26 ppm
Slovakia	Maximum permissible exposure limit, average, 8h (SK) [mg/m³]	35 mg/m³
	Maximum permissible exposure limit, average, 8h (SK) [ppm]	30 ppm
Sweden	TWA (SV) OEL 8h [mg/m³]	40 mg/m³
	TWA (SV) OEL 8h [ppm]	35 ppm
	STEL (SV) OEL 15min [mg/m³]	120 mg/m³
	STEL (SV) OEL 15min [ppm]	100 ppm
Portugal	TWA (PT) OEL 8h [ppm]	25 ppm

Nitrogen (7727-37-9)

OEL : Occupational Exposure Limits

Belgium	Remark (BE)	A
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.)
Ireland	Notes (IE)	Asphx

Carbon monoxide (630-08-0)

DNEL: Derived no effect level (Workers)

Acute - local effects, inhalation	100 ppm
Acute - systemic effects, inhalation	100 ppm
Long-term - local effects, inhalation	20 ppm
Long-term - systemic effects, inhalation	20 ppm

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

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

8.2. Exposure controls

8.2.1. Appropriate engineering controls

- : Provide adequate general and local exhaust ventilation.
- Systems under pressure should be regularly checked for leakages.
- Ensure exposure is below occupational exposure limits (where available).
- 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.
Gas filters do not protect against oxygen deficiency.
Standard EN 14387 - Gas filter(s), combined filter(s) and full face mask - EN 136.
- Thermal hazards : None in addition to the above sections.

8.2.3. Environmental exposure controls

: None necessary.

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.
- pH : Not applicable for gases and gas mixtures.
- Melting point / Freezing point : Not applicable for gas mixtures.
- Boiling point : Not applicable for gas mixtures.
- Flash point : Not applicable for gases and gas mixtures.
- Evaporation rate : Not applicable for gases and gas mixtures.
- Flammability (solid, gas) : Non flammable.
- Explosive limits : Non flammable.
- Vapour pressure [20°C] : Not applicable.
- Vapour pressure [50°C] : Not applicable.
- Vapour density : 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.
- Decomposition temperature : Not applicable.
- Viscosity : No reliable data available.
- 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

: Refer to section 10.1 on Reactivity.

10.4. Conditions to avoid

: Refer to Section 10 on Incompatible Materials.

10.5. Incompatible materials

: Consult supplier(s) of these materials for specific recommendations.
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 toxicological effects

Acute toxicity : Classification criteria are not met.

Carbon monoxide (630-08-0)

LC50 inhalation rat (ppm)	1880 ppm/4h
---------------------------	-------------

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 : Classification criteria are not met.

STOT-single exposure : No known effects from this product.

STOT-repeated exposure : Classification criteria are not met.

Aspiration hazard : Not applicable for gases and gas mixtures.

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.

Carbon monoxide (630-08-0)

EC50 48h - Daphnia magna [mg/l]	Study scientifically unjustified.
---------------------------------	-----------------------------------

EC50 72h - Algae [mg/l]	Study scientifically unjustified.
-------------------------	-----------------------------------

LC50 96 h - Fish [mg/l]	Study scientifically unjustified.
-------------------------	-----------------------------------

12.2. Persistence and degradability

Assessment : No data available.

12.3. Bioaccumulative potential

Assessment : No data available.

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. Other adverse effects

Other adverse effects : No known effects from this product.
 Effect on the ozone layer : None.
 Effect on global warming : Contains greenhouse gas(es).

SECTION 13: Disposal considerations

13.1. Waste treatment methods

May be vented to atmosphere in a well ventilated place.
 Return unused product in original cylinder to supplier.
 List of hazardous waste codes (from Commission Decision 2001/118/EC) : 16 05 05 : Gases in pressure containers other than those mentioned in 16 05 04.

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

UN-No. : 1956

14.2. UN proper shipping name

Transport by road/rail (ADR/RID) : COMPRESSED GAS, N.O.S. (Nitrogen, Oxygen MIXTURE)
 Transport by air (ICAO-TI / IATA-DGR) : Compressed gas, n.o.s. (Nitrogen, Oxygen MIXTURE)
 Transport by sea (IMDG) : COMPRESSED GAS, N.O.S. (Nitrogen, Oxygen MIXTURE)

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 : None.

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

National regulations

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

Water hazard class (WGK) : nwg - Non-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 N°2015/830.
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 - European 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
Training advice	: None.
Further information	: Classification using data from databases maintained by the European Industrial Gases Association (EIGA). Classification in accordance with 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
Ox. Gas 1	Oxidising Gases, Category 1
Press. Gas (Comp.)	Gases under pressure : Compressed gas
Repr. 1A	Reproductive toxicity, Category 1A
STOT RE 1	Specific target organ toxicity — Repeated exposure, Category 1
H220	Extremely flammable gas
H270	May cause or intensify fire; oxidizer
H280	Contains gas under pressure; may explode if heated
H331	Toxic if inhaled
H360D	May damage the unborn child
H372	Causes 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.

