

**Safety Data Sheet according to Regulation (EC)
No. 1907/2006 (REACH)**

Printed 30.11.2010
Revision 30.11.2010 (GB) Version 9.2



Carbon monoxide
0500-0503

1. Identification of the substance/mixture and of the company/undertaking

Product identifier

Name of product Carbon monoxide
Art-Nr.: 0500-0503
Name of substance carbon-monoxide
Index No 006-001-00-2
EC No 211-128-3
CAS No 630-08-0

Manufacturer/distributor

GHC Gerling, Holz & Co. Handels GmbH
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Advice

Phone +49 (0) 40 853 123-0
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Emergency advice

GHC Gerling, Holz & Co. Handels GmbH
Phone +49 (0) 40 853 123-0

Recommended intended purpose(s)

Basic substance.

2. Hazards identification

Classification according to 67/548/EEC or 1999/45/EC

F+; R12
T; R23
T; R48/23
Repr. Cat. 1; R61
Repr. Cat. 2; R61

R-phrases

61 May cause harm to the unborn child.
12 Extremely flammable.
23 Also toxic by inhalation.
48/23 Also toxic: danger of serious damage to health by prolonged exposure through inhalation.

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

Hazard classes and Hazard categories	Hazard Statements	Classification procedure
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Flam. Gas 1	H220
Compr. Gas	H280
Acute Tox. 3	H331
Repr. 1A	H360D
STOT RE 1	H372

Hazard statements for physical hazards

H220 Extremely flammable gas.
H280 Contains gas under pressure; may explode if heated.

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Hazard statements for health hazards

H331 Toxic if inhaled.
H360D May damage the unborn child.
H372 Causes damage to organs through prolonged or repeated exposure.

Additional hints

Listed substance (Regulation (EC) No 1272/2008, Annex VI, part 3).

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



GHS02



GHS04



GHS06



GHS08

Signal word

Danger

Hazard statements for physical hazards

H220 Extremely flammable gas.
H280 Contains gas under pressure; may explode if heated.

Hazard statements for health hazards

H331 Toxic if inhaled.
H360D May damage the unborn child.
H372 Causes damage to organs through prolonged or repeated exposure.

Precautionary Statements

Prevention

P202 Do not handle until all safety precautions have been read and understood.
P210 Keep away from heat/sparks/open flames/hot surfaces. – No smoking.
P260 Do not breathe gas/vapours.
P280 Wear protective gloves/protective clothing/eye protection/face protection.

Response

P304 + P340 IF INHALED: Remove to fresh air and keep at rest in a position comfortable for breathing.
P308 + P313 IF exposed or concerned: Get medical advice/attention.

Storage

P403 Store in a well-ventilated place.
P405 Store locked up.

Special rules for supplemental label elements for certain mixtures

Restricted to professional users.

Information pertaining to special dangers for human and environment

Can form explosive mixture with air.
Receptacle under pressure.
No odour warning properties.

3. Composition/information on ingredients

CAS No 630-08-0

carbon-monoxide

EC No 211-128-3

Index No 006-001-00-2

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4. First aid measures

General information

Remove contaminated soaked clothing immediately and dispose it safely.
Adhere to personal protective measures when giving first aid.
Seek medical advice immediately.

In case of inhalation

Remove the casualty into fresh air and keep him immobile.
In case of breathing difficulties give oxygen.
In case of respiratory standstill give artificial respiration by respiratory bag (Ambu bag) or respirator. Send for a doctor.

In case of skin contact

In case of contact with skin wash off immediately with soap and water.
Care for immobility and protect against heat loss.

In case of ingestion

Ingestion is not considered a potential route of exposure.

Physician's information / possible dangers

Risk of pulmonary oedema

Treatment (Advice to doctor)

Continue to monitor for pneumonia and pulmonary oedema.
Monitor circulation.

5. Firefighting measures

Suitable extinguishing media

Dry powder
Carbon dioxide

Extinguishing media which must not be used for safety reasons

no

Special hazards arising from the substance or mixture

Formation of explosive gas mixtures in air.

Special protective equipment for fire-fighters

Use breathing apparatus with independent air supply (isolated).
Wear full protective clothing.

Additional information

Cool endangered containers with water spray jet.
Exposure to fire may cause containers to rupture/explode.
Do not extinguish a leaking gas flame unless absolutely necessary. Spontaneous/explosive re-ignition may occur.
Extinguish any other fire.

6. Accidental release measures

Personal precautions

See chapter 8.
Remove persons to safety.
Evacuate area.
Keep people away and stay on the upwind side.

Environmental precautions

If possible, stop flow of product.

Methods for cleaning up

Ensure adequate air ventilation.

Additional Information

Informations for personal protective equipment see chapter 8.

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! 7. Handling and storage

! Advice on safe handling

- Use only in thoroughly ventilated areas.
- Transfer and handle only in enclosed systems.
- Prevent cylinders from falling over.
- Ensure valve outlet cap nut or plug is correctly fitted.
- Ensure valve protection device is correctly fitted.
- Open valve slowly to avoid pressure shock.
- Use only properly specified equipment which is suitable for this product, its supply pressure and temperature.
- Do not allow backfeed into the container.
- Suck back of water into the container must be prevented.
- No water to valves, flanges and other fittings.
- Purging of pipes and valves with inert gases - to avoid: water, solvents.

Advice on protection against fire and explosion

- Do not smoke.
- The product is combustible.
- Formation of explosive gas mixtures in air.
- Avoid effect of heat.

Requirements for storage rooms and vessels

- Ventilate store-rooms thoroughly.
- Use transportable pressure equipment.
- Suitable materials: Normalised steel and carbon steel, tempered steel, aluminium alloys, stainless steel.
- Valve: Suitable materials: Brass, copper alloys, carbon steels, aluminium alloys, stainless steel.

Advice on storage compatibility

- Do not store together with animal feedstuffs.
- Do not store together with food.
- Do not store together with oxidizing agents.

Further information on storage conditions

- Ensure valve protection device is correctly fitted.
- Store closed container at cool and aired place.
- Store only in original container at temperature of 50°C maximum (=122°F).
- Prevent cylinders from falling over.
- Protect from heat/overheating.

Information on storage stability

Unlimited stability.

Recommendation(s) for intended use

no

8. Exposure controls/personal protection

Ingredients with occupational exposure limits to be monitored

CAS No	Name	Code	[mg/m ³]	[ppm]	Remark
630-08-0	Carbon monoxide	WEL, 8 hours	35	30	Bmgv
		Short-term	232	200	
630-08-0	carbon-monoxide	OEL, 8 hours	23	20	SCOEL / EU
		Short-term	117	100	

Respiratory protection

Keep self contained breathing apparatus readily available for emergency use.

Hand protection

Leather gloves

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Eye protection

safety goggles, in case of increased risk add protective face shield

Skin protection

flame-stopping and antistatic protective clothing

General protective measures

Do not inhale gases/vapours/aerosols.

Hygiene measures

At work do not eat, drink, smoke or take drugs.

Wash hands before breaks and after work.

9. Physical and chemical properties

Form

compressed gas

Colour

colourless

Odour

odourless

Important health, safety and environmental information

	Value	Temperature	at	Method	Remark
pH value in delivery state	not applicable				
Acid number	not applicable				
boiling point	-191,5 °C		1013 hPa		
melting point	-205 °C				
Flash point	-191 °C				
Flammable solid	not applicable				
Flammability (gas)	-191 °C				
Ignition temperature	620 °C				
Autoignition	no				
Lower explosion limit	10,9 Vol-%				
Upper explosion limit	76 Vol-%				
Vapour pressure	5480 hPa	100 K			
Density	0,789 g/cm ³	81,66 K	1013 hPa		information concerns to liquid phase
Bulk density	not applicable				

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	Value	Temperature	at	Method	Remark
Rel. vapour density	0,97				
Solubility in water	30 mg/l	20 °C			
Solubility/other					soluble in organic solvent
Partition coefficient (log p_{OW})	not determined				
Viscosity dynamic	0,154 mPa*s	81,66 K			information concerns to liquid phase
Viscosit dynamic	0,0935 mPa*s	100 K			information concerns to liquid phase
Solvent concentration	not applicable				

10. Stability and reactivity

Conditions to avoid

Heat sources / heat - risk of bursting.
Sources of ignition.

Materials to avoid

Reactions with oxidising agents.
Reactions with oxygen.
Reactions with metals in powder form.
Reactions with peroxides.
Formation of explosive gas/air mixtures.

Additional information

Stable under normal conditions.

11. Toxicological information

Acute toxicity/Irritability/Sensitization

	Value/Validation	Species	Method	Remark
LC50 acute inhalation	1807 ppm (4 h)	rat		

Subacute Toxicity - Carcinogenicity

	Value	Species	Method	Validation
Mutagenicity	not determined			

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	Value	Species	Method	Validation
Reproduction-Toxicity				May cause harm to the unborn child.
Carcinogenicity	not determined			

12. Ecological information**Data on elimination (persistence and degradability)**

	Elimination rate	Method of analysis	Method	Validation
Physico-chemical degradability				not determined
Biological degradability	Inorganic product, cannot be eliminated from the water by biological purification processes.			

Ecotoxicological effects

	Value	Species	Method	Validation
Fish	LC50 1,5 ppm (1 h)	minnow		

Additional ecological information

	Value	Method	Remark
COD			not determined
BOD			not determined

13. Disposal considerations**Waste code No.**

16 05 04*

Name of waste

gases in pressure containers (including halons) containing dangerous substances

Wastes marked with an asterisk are considered to be hazardous waste pursuant to Directive 91/689/EEC on hazardous waste.

Recommendations for the product

Dispose in accordance with local official regulations.

Recommendations for packaging

Transportable pressure equipment (empty, residual pressure): Return to supplier / manufacturer.

14. Transport information**Land and inland navigation transport ADR/RID**

UN 1016 CARBON MONOXIDE, COMPRESSED, 2.3 (2.1), (B/D), Classification code: 1TF

Marine transport IMDG

UN 1016 CARBON MONOXIDE, COMPRESSED, 2.3 (2.1)

Ems: F-D, S-U

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Air transport ICAO/IATA-DGR
UN 1016 Carbon monoxide, compressed, 2.3 (2.1)

15. Regulatory information

16. Other information

Recommend uses and restrictions

National and local regulations concerning chemicals shall be observed.

Further information

All declarations of safety-data-sheet refer to pure substance.

The information contained herein is based on the state of our knowledge. It characterizes the product with regard to the appropriate safety precautions. It does not represent a guarantee of the properties of the product.

Wording of the R/H-phrases specified in chapter 3 (not the classification of the mixture!)

R 12 Extremely flammable.

R 23 Toxic by inhalation.

R 48/23 Toxic: danger of serious damage to health by prolonged exposure through inhalation.

R 61 May cause harm to the unborn child.

H220 Extremely flammable gas.

H280 Contains gas under pressure; may explode if heated.

H331 Toxic if inhaled.

H360D May damage fertility or the unborn child (state specific effect if known) (state route of exposure if it is conclusively proven that no other routes of exposure cause the hazard).

H372 Causes damage to organs (or state all organs affected, if known) through prolonged or repeated exposure (state route of exposure if it is conclusively proven that no other routes of exposure cause the hazard).