

Product : **Carbon monoxide**

Page :1/4

MSDS Nr : 445-00-0001BOC(U)

Version : 1.01

Date : 04/08/2000

1 IDENTIFICATION OF THE SUBSTANCE/PREPARATION AND OF THE COMPANY

Product name	Carbon monoxide
Chemical formula	CO
Company identification	see heading and/or footer
Emergency phone numbers	see heading and/or footer

2 COMPOSITION/INFORMATION ON INGREDIENTS

Substance/Preparation	Substance.
Components/Impurities	Contains no other components or impurities which will influence the classification of the product.
CAS Nr	00630-08-0
EC Nr (from EINECS)	211-128-3

3 HAZARDS IDENTIFICATION

Hazards identification	Extremely flammable Toxic by inhalation. May cause harm to the unborn child. Compressed gas
------------------------	--

4 FIRST AID MEASURES

Inhalation	Toxic by inhalation. Remove victim to uncontaminated area wearing self contained breathing apparatus. Keep victim warm and rested. Call a doctor. Apply artificial respiration if breathing stopped. Delayed adverse effects possible.
Ingestion	Ingestion is not considered a potential route of exposure.

5 FIRE FIGHTING MEASURES

Specific hazards	Exposure to fire may cause containers to rupture/explode.
Hazardous combustion products	None that are more toxic than the product itself.
Suitable extinguishing media	All known extinguishants can be used.
Specific methods	If possible, stop flow of product. Move away from the container and cool with water from a protected position. Do not extinguish a leaking gas flame unless absolutely necessary. Spontaneous/explosive re-ignition may occur. Extinguish any other fire.
Special protective equipment for fire fighters	Use self-contained breathing apparatus.

6 ACCIDENTAL RELEASE MEASURES

Personal precautions	Evacuate area. Eliminate ignition sources. Ensure adequate air ventilation. Wear self-contained breathing apparatus when entering area unless atmosphere is proved to be safe.
----------------------	---

Safety Data Sheet

Product : **Carbon monoxide**

Page :2/4

MSDS Nr : 445-00-0001BOC(U)

Version : 1.01

Date : 04/08/2000

Environmental precautions

Try to stop release.

Clean up methods

Ventilate area.

7 HANDLING AND STORAGE

Handling and storage

Ensure equipment is adequately earthed.
Suck back of water into the container must be prevented.
Purge air from system before introducing gas.
Do not allow backfeed into the container.
Use only properly specified equipment which is suitable for this product, its supply pressure and temperature. Contact your gas supplier if in doubt.
Keep away from ignition sources (including static discharges).
Segregate from oxidant gases and other oxidants in store.
Refer to supplier's container handling instructions.
Keep container below 50°C in a well ventilated place.

8 EXPOSURE CONTROLS/PERSONAL PROTECTION

Exposure limit value for country

UK: Carbon monoxide - LTEL: 30ppm; STEL: 200ppm (EH40/2005)
Germany: Carbon monoxide - MAK: 30ppm
France: Carbon monoxide - VME: 50ppm

Personal protection

Ensure adequate ventilation.
Do not smoke while handling product.
Keep self contained breathing apparatus readily available for emergency use.

9 PHYSICAL AND CHEMICAL PROPERTIES

Molecular weight	28
Melting point	-205 °C
Boiling point	-192 °C
Critical temperature	-140 °C
Relative density, gas	1 (air=1)
Relative density, liquid	Not applicable.
Solubility mg/l water	30 mg/l
Appearance/Colour	Colourless gas
Odour	No odour warning properties.
Autoignition temperature	620 °C
Flammability range	12.5-74 vol% in air.

10 STABILITY AND REACTIVITY

Stability and reactivity

Can form explosive mixture with air.
May react violently with oxidants.

Safety Data Sheet

Product :

Carbon monoxide

Page :3/4

MSDS Nr : 445-00-0001BOC(U)

Version : 1.01

Date : 04/08/2000

11 TOXICOLOGICAL INFORMATION

General Damage to red blood cells (haemolytic poison).
May impair fertility and cause harm to the unborn child.
Delayed adverse effects possible.

LC50/1h (ppm) 3760 ppm

12 ECOLOGICAL INFORMATION

General No known ecological damage caused by this product.

13 DISPOSAL CONSIDERATIONS

General Avoid discharge to atmosphere.
Do not discharge into any place where its accumulation could be dangerous.
Do not discharge into areas where there is a risk of forming an explosive mixture with air.
Waste gas should be flared through a suitable burner with flash back arrestor.
Contact supplier if guidance is required.

14 TRANSPORT INFORMATION

UN Nr 1016
Class 2.3
Subsidiary risk 2.1
ADR/RID Classification code 1TF
ADR/RID Hazard Nr 263
Labelling ADR Label 2.1: flammable gas
Label 2.3: toxic substance.

Other transport information 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 that they are firmly secured and:
- cylinder valve is closed and not leaking
- valve outlet cap nut or plug (where provided) is correctly fitted
- valve protection device (where provided) is correctly fitted
- there is adequate ventilation.
- compliance with applicable regulations.

15 REGULATORY INFORMATION

Number in Annex I of Dir 67/548 006-001-00-2.
EC Classification F+; R12|Repr.Cat.1; R61|T; R23-48/23
-Symbols F+: Extremely flammable
T: Toxic

Safety Data Sheet

Product :

Carbon monoxide

Page :4/4

MSDS Nr : 445-00-0001BOC(U)

Version : 1.01

Date : 04/08/2000

Labelling of cylinders

-Symbols

Label 2.1: flammable gas

Label 2.3: toxic substance.

-Risk phrases

R12 Extremely flammable.

R23 Toxic by inhalation.

R48/23 Toxic: danger of serious damage to health by prolonged exposure through inhalation.

R61 May cause harm to the unborn child.

-Safety phrases

S9 Keep container in well ventilated place.

S16 Keep away from ignition sources - No smoking.

S33 Take precautionary measures against static discharges.

S36 Wear suitable protective clothing.

S45 In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible).

S53 Avoid exposure, obtain special instructions before use.

16 OTHER INFORMATION

Ensure all national/local regulations are observed.

Ensure operators understand the flammability hazard.

Users of breathing apparatus must be trained.

Ensure operators understand the toxicity hazard.

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.

Number of pages :4