

SAFETY DATA SHEET

Carbon monoxide

Date: 14.10.2008
replaces version dated: 01/07/1997

Version: 3.0

SDS-No.: 019-Eng
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1 IDENTIFICATION OF THE SUBSTANCE/PREPARATION AND NAME OF THE COMPANY

Product name
Carbon monoxide, compressed.
Chemical formula: CO
Company identification
Linde Gas Singapore Pte. Ltd.
50 Jurong Island Highway
Singapore 627877
Emergency phone number: 65.6867 8998-850

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 No: 630-08-0
EEC No (from EINECS): 211-128-3

3 HAZARDS IDENTIFICATION

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

4 FIRST AID MEASURES

Inhalation
Toxic by inhalation. Symptoms may include dizziness, headache, nausea and loss of co-ordination. Remove victim to uncontaminated area wearing self contained breathing apparatus. Keep victim warm and rested. Call a doctor. Apply artificial respiration if breathing stopped.
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.
Suitable extinguishing media
All known extinguishants can be used.
Specific methods
If possible, stop flow of product. Move container away or 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 and chemically protective clothing.

6 ACCIDENTAL RELEASE MEASURES

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

Environmental precautions

Try to stop release.
Clean up methods
Ventilate area.

7 HANDLING AND STORAGE

Handling and storage
Suck back of water into the container must be prevented. 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. Refer to supplier's container handling instructions. Keep container below 50°C in a well ventilated place. Ensure equipment is adequately earthed. Segregate from oxidant gases and other oxidants in store. Keep away from ignition sources (including static discharges). Purge air from system before introducing gas.

8 EXPOSURE CONTROLS/PERSONAL PROTECTION

Exposure limit value TLV(ACGIH)
25 ppm (2000 edition)
Exposure limit value
Great Britain: LTEL: 50 ppm; STEL: 300 ppm (EH 40/95)
Germany: MAK: 30 ppm (TRGS 900 3/2002)
France: VME: 50 ppm
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: 0.79 (water=1)
Vapour pressure 20°C: Not applicable.
Solubility mg/l water: 30 mg/l
Appearance/Colour: Colourless gas
Odour: No odour warning properties.
Autoignition temperature: 620 °C
Flammability range: 12-74 vol% in air.

10 STABILITY AND REACTIVITY

Stability and reactivity
Can form explosive mixture with air. May react violently with oxidants.

11 TOXICOLOGICAL INFORMATION

General
Damage to red blood cells (haemolytic poison).
LC50/1h (ppm): 3760 ppm

12 ECOLOGICAL INFORMATION

General
No known ecological damage caused by this product.

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13 DISPOSAL CONSIDERATIONS

General

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

Proper shipping name:

Carbon monoxide, compressed

UN Nr.: 1016

Class/Division: 2.3

Subsidiary risk: 2.1

ADR/RID Item No.: 2, 1 TF

Labelling ADR

Label 2.1: flammable gas

Label 2.3: toxic substance.

ADR/RID Hazard No.: 263

CEFIC Tremcard No.: 827

CEFIC Groupcard No.: 20g05

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

End of document

- 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

Labelling of cylinders

-Symbols

F+: Extremely flammable

T: Toxic

-Risk phrases

R61 May cause harm to the unborn child.

R12 Extremely flammable.

R23 Toxic by inhalation

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

-Safety phrases

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. Ensure operators understand the toxicity hazard. Users of breathing apparatus must be trained. 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.