



Material Safety Data Sheet

1. Product and Company Identification

Product name : **Carbon Monoxide**

Chemical formula : CO

Synonyms : Carbon Oxide; Carbon Oxide (CO);

Company : Specialty Gases of America, Inc
6055 Brent Dr.
Toledo, OH 43611

Telephone : 419-729-7732

Emergency : 800-424-9300

2. Composition/Information on Ingredients

Components	CAS Number	% Volume
Carbon Monoxide	630-08-0	100%

3. Hazards Identification

Emergency Overview

Flammable gas. May cause flash fire. Flash back hazard.
May cause blood damage, suffocation.

Potential Health Effects

Inhalation : Changes in body temperature, changes in blood pressure, nausea, vomiting, chest pain, difficulty breathing, irregular heartbeat, headache, drowsiness, dizziness, disorientation, hallucination, pain in extremities, tremors, loss of coordination, hearing loss, visual disturbances, eye damage, suffocation, blood disorders, convulsion, coma. May cause loss of appetite, heart damage, nerve damage, birth defects, brain damage in long term exposure.

Eye contact : No information on significant adverse effects.

Skin contact : No information on significant adverse effects.

Ingestion : Ingestion of a gas is unlikely.

Chronic Health Hazard : Not applicable.

4. First Aid Measures

General advice : None.

Eye contact : Immediately flush eyes with plenty of water for at least 15 minutes. Then get immediate medical attention.

Skin contact : Wash skin with soap and water for at least 15 minutes while removing contaminated clothing and shoes. Get medical attention, if needed. Thoroughly clean and dry contaminated clothing and shoes before reuse.

Ingestion : If a large amount is swallowed, get medical attention.

Inhalation : If adverse effects occur, remove to uncontaminated area. Give artificial respiration if not breathing. If breathing is difficult, oxygen should be administered by qualified personnel. Get immediate medical attention.

5. Fire-Fighting Measures

Suitable extinguishing media : Carbon dioxide, regular dry chemical. Large fires: Use regular foam or flood with fine water spray.

Specific hazards : Severe explosion hazard. Vapor/air mixtures are explosive. Pressurized containers may rupture or explode if exposed to sufficient heat. Vapors or gases may ignite at distant ignition sources and flash back.

Fire fighting : Move container from fire area if it can be done without risk. Cool containers with water spray until well after the fire is out. Stay away from the ends of tanks. For fires in cargo or storage area: If this is impossible then take the following precautions: Keep unnecessary people away, isolate hazard area and deny entry. Let the fire burn. Withdraw immediately in case of rising sound from venting safety device or any discoloration of tanks due to fire. For tank, rail car or tank truck: Let burn unless leak can be stopped immediately. For smaller tanks or cylinders, extinguish and isolate from other flammables. Evacuation radius: 800 meters (1/2 mile). Do not attempt to extinguish fire unless flow of material can be stopped first. Flood with fine water spray. Cool containers with water. Apply water from a protected location or from a safe distance. Avoid inhalation of material or combustion by-products. Stay upwind and keep out of low areas. Stop flow of gas.

6. Accidental Release Measures

Personal precautions : None.

Environmental precautions : Water release – Subject to California Safe Drinking Water and Toxic Enforcement Act of 1986 (Proposition 65). Keep out of water supplies and sewers.

Methods for cleaning up : Avoid heat, flames, sparks and other sources of ignition. Stop leak if possible without personal risk. Reduce vapors with water spray. Keep unnecessary people away. Isolate hazard area and deny entry. Remove sources of ignition. Ventilate closed spaces before entering.

Additional advice : None.

7. Handling and Storage

Handling

Secure cylinder when using to protect from falling. Use suitable hand truck to move cylinders.

Storage

Store in accordance with all current regulations and standards. Grounding and bonding required. Subject to storage regulation: U.S. OSHA 29 CFR 1910.101. Keep separated from incompatible substances.

8. Exposure Controls / Personal Protection

Exposure limits

50 ppm (55 mg/m³) OSHA TWA
35 ppm (40 mg/m³) OSHA TWA (vacated by 58 FR 35338, June 30, 1993)
200 ppm (229 mg/m³) OSHA ceiling (vacated by 58 FR 35338, June 30, 1993)
25 ppm ACGIH TWA
35 ppm (40 mg/m³) NIOSH recommended TWA 10 hour(s)
200 ppm (229 mg/m³) NIOSH recommended ceiling

Engineering measures

Not available.

Personal protective equipment

- Respiratory protection : The following respirators and maximum use concentrations are drawn from NIOSH and/or OSHA.
350 ppm – Any supplied-air respirator.
875 ppm – Any supplied-air respirator operated in a continuous flow mode.
1200 ppm – Any air-purifying respirator with a full facepiece and a canister providing protection against this substance. End of service life indicator required (ESLI). Any self-contained breathing apparatus with a full facepiece. Any supplied-air respirator with a full facepiece.
Escape – Any air-purifying respirator with a full facepiece and a canister providing protection against this substance. End of service life indicator required (ESLI). Any appropriate escape-type, self-contained breathing apparatus.
For unknown concentrations or immediately dangerous to life or death – Any supplied-air respirator with full facepiece and operated in a pressure-demand or other positive-pressure mode in combination with a separate escape supply. Any self-contained breathing apparatus with a full facepiece.
- Hand protection : Wear appropriate chemical resistant gloves.
- Eye protection : Eye protection is not required, but recommended.
- Skin and body protection : Protective clothing is not required.
- Ventilation : Ventilation equipment should be explosion-resistant if explosive concentrations of material are present. Provide local exhaust ventilation system. Ensure compliance with applicable exposure limits.

9. Physical and Chemical Properties

- Form : Gas.
Color : Colorless.
Odor : Odorless.
Taste : Tasteless.
Molecular weight : 28.01
Vapor pressure : 760 mmHg @ -191 C
Vapor density : 0.968 (air = 1)
Specific gravity : Not applicable.
Boiling point : -314 F (-192 C)
Freezing point : -326 F (-199 C)
Water solubility : 2.3% @ 20 C

10. Stability and Reactivity

- Stability : Stable at normal temperatures and conditions.
- Conditions to avoid : Avoid heat, flames, sparks and other sources of ignition. Minimize contact with material. Avoid inhalation of material or combustion by-products. Keep out of water supplies and sewers.
- Materials to avoid : Combustible materials, oxidizing materials, halogens, metal oxides, metals, lithium.
- Hazardous decomposition products : Thermal decomposition products: oxides of carbon.

11. Toxicological Information

Toxicity Data

1807 ppm/4 hour(s) inhalation-rat LC50.

Acute Health Hazard

Ingestion : Not available.
Inhalation : Toxic.
Skin : Not available.
Target organs : Blood.
Medical conditions aggravated by exposure : Blood system disorders, heart or cardiovascular disorders, hormonal disorders, respiratory disorders.

12. Ecological Information

Ecotoxicity Data

Fish toxicity : 75000 ug/L 1 day(s) LC100 (Mortality) Orangespotted sunfish (*Lepomis humilis*).

Fate and Transport

KOW : 1479.11 (log = 3.17) (estimated from water solubility).
KOC : 2760.58 (log = 3.44) (estimated from water solubility).
Henry's Law Constant : 1.2 E -3 atm-m³/mol.
Bioconcentration : 2.13 (estimated from water solubility).
Aquatic Processes : 1.3766993 hour(s) (River Model: 1 m deep, 1 m/s flow, 3 m/s wind).
Environmental summary : Relatively non-persistent in the environment. Not expected to leach through the soil or the sediment. Accumulates very little in the body of living organisms. Highly volatile from water.

13. Disposal Considerations

Waste from residues / unused products : Dispose in accordance with all applicable regulations. Subject to disposal regulations: U.S. EPA 40 CFR 262. Hazardous Waste Number(s): D001.
Contaminated packaging : Return cylinder to supplier.

14. Transport Information

DOT (US only)

Proper shipping name : Carbon Monoxide, Compressed
Class : 2.3
UN/ID No. : UN1016
Labeling : 2,3; 2.1
Additional shipping description : Toxic-Inhalation Hazard Zone D

Further information

Cylinders should be transported in a secure upright position in a well ventilated truck.

15. Regulatory Information

OSHA Process Safety (29 CFR 1910.119) Hazard Class(es)

Not regulated.

TCSA

Material is listed in TSCA inventory.

SARA Title III Section 302 Extremely Hazardous Substances (40 CFR 355.30)

Not regulated.

SARA Title III Section 304 Extremely Hazardous Substances (40 CFR 355.40)

Not regulated.

SARA Title III SARA Sections 311/312 Hazardous Categories (40 CFR 370.21)

Acute: Yes

Chronic: No

Fire: Yes

Reactive: No

Sudden Release: Yes

SARA Title III Section 313 (40 CFR 372.65)

Not regulated.

16. Other Information

Prepared by : Specialty Gases of America, Inc.

For additional information, please visit our website at www.americangasgroup.com.