



Safety Data Sheet

40% CARBON DIOXIDE IN CARBON MONOXIDE CERTIFIED

Section 1: Product and Company Identification

Purity Cylinder Gases, Inc.
2580 28th St SW
Wyoming, MI 49519
P: (616)532-2375
www.puritygas.com

Product Code: 40% CARBON DIOXIDE IN CARBON MONOXIDE CERTIFIED
Part Number: SP 60C/40C

Synonyms:
Recommended Use:
Usage Restrictions:

Section 2: Hazards Identification



Danger

Hazard Classification:

Flammable (Category 1)
Gases Under Pressure
Reproductive Toxicity (Category 1.A)
Specific target organ toxicity (Repeated Exposure) (Category 1)

Hazard Statements:

Causes damage to organs through prolonged or repeated exposure
Contains gas under pressure; may explode if heated
Extremely flammable gas
May damage fertility or the unborn child

Precautionary Statements

Prevention:

Wash thoroughly after handling.
Do not eat, drink or smoke when using this product.
Do not handle until all safety precautions have been read and understood.
Do not breathe dust/fume/gas/mist/ vapors/spray..
Wear protective gloves, protective clothing, eye protection and face protection.
Obtain special instructions before use.
Keep away from heat/sparks/open flames/hot surfaces. - No smoking.

Response:

Call a poison center or doctor if you feel unwell.
Eliminate all ignition sources if safe to do so.

Leaking gas fire: Do not extinguish, unless leak can be stopped safely.
 If exposed or concerned: Get medical advice/attention.

Storage:

Protect from sunlight.
 Store in well-ventilated place.
 Store locked up.

Disposal:

Dispose of contents and/or container in accordance with applicable regulations.

Section 3: Composition/Information on Ingredients

| | CAS # | Concentration |
|-----------------|----------|---------------|
| Carbon Dioxide | 124-38-9 | 40 |
| Carbon Monoxide | 630-08-0 | 60 |

| | Chemical Substance | Chemical Family | Trade Names |
|-----------------|---------------------|-----------------|---|
| Carbon Dioxide | CARBON DIOXIDE, GAS | Inorganic gases | CARBONIC ACID GAS; CARBONIC ANHYDRIDE; CARBON DIOXIDE; CARBON OXIDE; UN 1013; CO ₂ |
| Carbon Monoxide | CARBON MONOXIDE | Inorganic gases | CARBON OXIDE; CARBON OXIDE (CO); UN 1016; CO |

Section 4: First Aid Measures

| | Skin Contact | Eye Contact | Ingestion | Inhalation | Note to Physicians |
|-----------------|--|---|--|--|----------------------------------|
| Carbon Dioxide | If frostbite or freezing occur, immediately flush with plenty of lukewarm water (105-115 F; 41-46 C). DO NOT USE HOT WATER. If warm water is not available, gently wrap affected parts in blankets. Get immediate medical attention. | Contact with liquid: Immediately flush eyes with plenty of water for at least 15 minutes. Then get immediate medical attention. | Do not induce vomiting. | 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. | For inhalation, consider oxygen. |
| Carbon Monoxide | 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. | Flush eyes with plenty of water for at least 15 minutes. Then get immediate medical attention. | If a large amount is swallowed, get medical attention. | 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. | For inhalation, consider oxygen. |

Section 5: Fire Fighting Measures

| | Suitable Extinguishing Media | Products of Combustion | Protection of Firefighters |
|----------------|------------------------------|------------------------|---|
| Carbon Dioxide | Non-flammable | Non-flammable | <ul style="list-style-type: none"> ▪ Any appropriate escape-type, self-contained breathing apparatus. ▪ Non-flammable |

| | Suitable Extinguishing Media | Products of Combustion | Protection of Firefighters |
|------------------------|---|------------------------|--|
| Carbon Monoxide | Carbon dioxide, regular dry chemical Large fires: Use regular foam or flood with fine water spray. | Carbon dioxide | <ul style="list-style-type: none"> 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 supplied-air respirator with full facepiece and operated in a pressure-demand or other positive-pressure mode in combination with a separate escape supply. |

Section 6: Accidental Release Measures

| | Personal Precautions | Environmental Precautions | Methods for Containment |
|------------------------|---|--|--|
| Carbon Dioxide | Keep unnecessary people away, isolate hazard area and deny entry. Ventilate closed spaces before entering. Do not touch spilled material. | Subject to California Safe Drinking Water and Toxic Enforcement Act of 1986 (Proposition 65). Keep out of water supplies and sewers. | Stop leak if possible without personal risk. |
| Carbon Monoxide | Keep unnecessary people away, isolate hazard area and deny entry. Ventilate closed spaces before entering. | Avoid heat, flames, sparks and other sources of ignition. Keep out of water supplies and sewers. | Stop leak if possible without personal risk. Reduce vapors with water spray. Remove sources of ignition. |

| | Methods for Cleanup | Other Information |
|------------------------|--|---|
| Carbon Dioxide | Stop leak, evacuate, remove source of ignition. | None |
| Carbon Monoxide | Stop leak, evacuate area. Wear protective equipment. | Subject to California Safe Drinking Water and Toxic Enforcement Act of 1986 (Proposition 65). |

Section 7: Handling and Storage

| | Handling | Storage |
|------------------------|---|---|
| Carbon Dioxide | Subject to storage regulations: U.S. OSHA 29 CFR 1910.101. Keep separated from incompatible substances. | Store and handle in accordance with all current regulations and standards |
| Carbon Monoxide | Keep separated from incompatible substances. | Store and handle in accordance with all current regulations and standards. Grounding and bonding required. Subject to storage regulations: U.S. OSHA 29 CFR 1910.101. |

Section 8: Exposure Controls/Personal Protection

| | Exposure Guidelines |
|------------------------|---|
| Carbon Dioxide | CARBON DIOXIDE, GAS: CARBON DIOXIDE: 5000 ppm (9000 mg/m ³) OSHA TWA 10000 ppm (18000 mg/m ³) OSHA TWA (vacated by 58 FR 35338, June 30, 1993) 30000 ppm (54000 mg/m ³) OSHA STEL (vacated by 58 FR 35338, June 30, 1993) 5000 ppm ACGIH TWA 30000 ppm ACGIH STEL 5000 ppm (9000 mg/m ³) NIOSH recommended TWA 10 hour(s) 30000 ppm (54000 mg/m ³) NIOSH recommended STEL |
| Carbon Monoxide | CARBON MONOXIDE: 50 ppm (55 mg/m ³) OSHA TWA 35 ppm (40 mg/m ³) OSHA TWA (vacated by 58 FR 35338, June 30, 1993) 200 ppm (229 mg/m ³) OSHA ceiling (vacated by 58 FR 35338, June 30, 1993) 25 ppm ACGIH TWA 35 ppm (40 mg/m ³) NIOSH recommended TWA 10 hour(s) 200 ppm (229 mg/m ³) NIOSH recommended ceiling |

Engineering Controls

Handle only in fully enclosed systems.

| | Eye Protection | Skin Protection | Respiratory Protection |
|-----------------------|--|--|--|
| Carbon Dioxide | For the gas: Eye protection not required, but recommended. For the liquid: Wear splash resistant safety goggles. Contact lenses should not be worn. Provide an emergency eye wash fountain and quick drench shower in the immediate work area. | For the gas: Protective clothing is not required. For the liquid: Wear appropriate protective, cold insulating clothing. | Any appropriate escape-type, self-contained breathing apparatus. |

| | Eye Protection | Skin Protection | Respiratory Protection |
|------------------------|---|--------------------------------------|---|
| Carbon Monoxide | Eye protection not required, but recommended. | Protective clothing is not required. | 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. |

General Hygiene considerations

- Avoid breathing vapor or mist
- Avoid contact with eyes and skin
- Wash thoroughly after handling and before eating or drinking

Section 9: Physical and Chemical Properties

| | Physical State | Appearance | Color | Change in Appearance | Physical Form | Odor | Taste |
|------------------------|----------------|------------|-----------|----------------------|---------------|----------|------------|
| Carbon Dioxide | Gas | Colorless | Colorless | N/A | Gas | Odorless | Acid taste |
| Carbon Monoxide | Gas | Colorless | Colorless | N/A | Gas | Odorless | Tasteless |

| | Flash Point | Flammability | Partition Coefficient | Autoignition Temperature | Upper Explosive Limits | Lower Explosive Limits |
|------------------------|---------------|---------------|---|--------------------------|------------------------|------------------------|
| Carbon Dioxide | Not flammable | Not available | N/A | Nonflammable | Nonflammable | Nonflammable |
| Carbon Monoxide | Flammable | Not available | 1479.11 (log = 3.17) (estimated from water solubility) | 1128-1202 F (609-650 C) | 0.74 | 12.0-12.5% |

| | Boiling Point | Freezing Point | Vapor Pressure | Vapor Density | Specific Gravity | Water Solubility | pH | Odor Threshold | Evaporation Rate | Viscosity |
|------------------------|---------------------|---------------------------|--|---------------|------------------|------------------|--|----------------|------------------|------------------|
| Carbon Dioxide | Not available | -71 F (-57 C) @ 4000 mmHg | 43700 mmHg @ 21 C | 1.5 (Air=1) | 1.522 @ 21 C | Soluble | 3.7 (saturated aqueous solution) @ 101.3 kPa (carbonic acid) | Not available | Not applicable | 0.01657 cP @ 0 C |
| Carbon Monoxide | -312.7 F (-191.5 C) | -326 F (-199 C) | 760 mmHg @ -191 C gas; cannot be liquefied at room temperature | 0.968 (Air=1) | Not applicable | 2.3% @ 20 C | Not applicable | Not available | Not applicable | 0.01657 cP @ 0 C |

| | Molecular Weight | Molecular Formula | Density | Weight per Gallon | Volatility by Volume | Volatility | Solvent Solubility |
|------------------------|------------------|-------------------|-----------------|-------------------|----------------------|----------------|---|
| Carbon Dioxide | 44.01 | C-O ₂ | 0.114 | Not available | Not applicable | Not applicable | Soluble: Alcohol, acetone, hydrocarbons, organic solvents |
| Carbon Monoxide | 28.01 | C-O | 1.250 g/L @ 0 C | Not available | 100% | Not applicable | Soluble: Alcohol, benzene, acetic acid, ethyl acetate, chloroform, cuprous chloride solutions |

Section 10: Stability and Reactivity

| | Stability | Conditions to Avoid | Incompatible Materials |
|------------------------|---|---|--|
| Carbon Dioxide | Stable at normal temperatures and pressure. | Stable at normal temperatures and pressure. | Combustible materials, oxidizing materials, metal salts, reducing agents, metal carbide, metals, bases |
| Carbon Monoxide | Stable at normal temperatures and pressure. | Stable at normal temperatures and pressure. | Oxidizing materials, halogens, metal oxides, metals, combustible materials, lithium |

| | Hazardous Decomposition Products | Possibility of Hazardous Reactions |
|------------------------|----------------------------------|------------------------------------|
| Carbon Dioxide | Carbon monoxide | Will not polymerize. |
| Carbon Monoxide | Oxides of carbon | Will not polymerize. |

Section 11: Toxicology Information

Acute Effects

| | Oral LD50 | Dermal LD50 | Inhalation |
|------------------------|---|-----------------|--|
| Carbon Dioxide | Not established | Not established | Ringling in the ears, nausea, irregular heartbeat, headache, drowsiness, dizziness, tingling sensation, visual disturbances, suffocation, convulsions, coma |
| Carbon Monoxide | LC50 Inhalation Gas. Rat 1807 ppm 4 hours | Not available | Changes in body temperature, changes in blood pressure, nausea, vomiting, chest pain, difficulty breathing, irregular heartbeat, headache, drowsiness, dizziness, disorientation, hallucinations, pain in extremities, tremors, loss of coordination, hearing loss, visual disturbances, eye damage, suffocation, blood disorders, convulsions, coma |

| | Eye Irritation | Skin Irritation | Sensitization |
|------------------------|---|---|---|
| Carbon Dioxide | Irritation, frostbite, blurred vision | Liquid: blisters, frostbite | Difficulty breathing |
| Carbon Monoxide | No information on significant adverse effects | No information on significant adverse effects | Acute toxicity, Category 3, inhalation; H331: Toxic if inhaled. Reproductive toxicity, Category 1A; H360D: May damage the unborn child. Specific Target Organ Toxicity (repeated exposure), Category 1; H372: Causes damage to organs through prolonged or repeated exposure. |

Chronic Effects

| | Carcinogenicity | Mutagenicity | Reproductive Effects | Developmental Effects |
|------------------------|-----------------|-----------------|----------------------|-----------------------|
| Carbon Dioxide | Not available | Not established | Available. | No data |
| Carbon Monoxide | Not available | Available. | Available. | No data |

Section 12: Ecological Information

Fate and Transport

| | Eco toxicity | Persistence / Degradability | Bioaccumulation / Accumulation | Mobility in Environment |
|------------------------|--|---|--|---|
| Carbon Dioxide | Fish toxicity: 150000 ug/L 48 day(s) (Mortality) Brown trout (<i>Salmo trutta</i>) Invertebrate toxicity: Not available Algal toxicity: Not available Phyto toxicity: Not available Other toxicity: Not available | Relatively non-persistent in the environment. Moderately volatile from water. | Accumulates very little in the bodies of living organisms. | Leaches through the soil |
| Carbon Monoxide | Fish toxicity: 75000 ug/L 1 day(s) LC100 (Mortality) Orangespotted sunfish (<i>Lepomis humilis</i>) Invertebrate toxicity: Not available Algal toxicity: Not available Phyto toxicity: Not available Other toxicity: Not available | Relatively non-persistent in the environment. Highly volatile from water. | Not available | Not expected to leach through the soil or the sediment. |

Section 13: Disposal Considerations

| | |
|------------------------|---|
| Carbon Dioxide | Dispose in accordance with all applicable regulations. |
| Carbon Monoxide | Dispose in accordance with all applicable regulations. Subject to disposal regulations: U.S. EPA 40 CFR 262. Hazardous Waste Number(s): D001. |

Section 14: Transportation Information

U.S. DOT 49 CFR 172.101

DOT Information For This Mixture

| | |
|----------------------|---|
| Shipping Name | Compressed gas, flammable, n.o.s. (Carbon Monoxide, Carbon Dioxide) |
| UN Number | UN1954 |

| | |
|---------------------------|---------------|
| Hazard Class | 2.1 |
| Hazard Information | FLAMMABLE GAS |

Individual Component Information

| | Proper Shipping Name | ID Number | Hazard Class or Division | Packing Group | Labeling Requirements | Passenger Aircraft or Railcar Quantity Limitations | Cargo Aircraft Only Quantity Limitations | Additional Shipping Description |
|------------------------|-----------------------------|-----------|--------------------------|----------------|-----------------------|--|--|---------------------------------|
| Carbon Dioxide | Carbon dioxide | UN1013 | 2.2 | Not applicable | 2.2 | 75 kg or L | 150kg | None |
| Carbon Monoxide | Carbon monoxide, compressed | UN1016 | 2.3 | Not applicable | 2.3; 2.1 | Forbidden | 25 kg | Toxic-Inhalation Hazard Zone D |

Canadian Transportation of Dangerous Goods

| | Shipping Name | UN Number | Class | Packing Group / Risk Group |
|------------------------|-----------------------------|-----------|----------|----------------------------|
| Carbon Dioxide | Carbon dioxide | UN1013 | 2.2 | Not applicable |
| Carbon Monoxide | Carbon monoxide, compressed | UN1016 | 2.3; 2.1 | Not applicable |

Section 15: Regulatory Information

U.S. Regulations

| | CERCLA Sections | SARA 355.30 | SARA 355.40 |
|------------------------|-----------------|----------------|----------------|
| Carbon Dioxide | Not regulated. | Not regulated. | Not regulated. |
| Carbon Monoxide | Not regulated. | Not regulated. | Not regulated. |

SARA 370.21

| | Acute | Chronic | Fire | Reactive | Sudden Release |
|------------------------|-------|---------|------|----------|----------------|
| Carbon Dioxide | Yes | No | No | No | Yes |
| Carbon Monoxide | Yes | No | Yes | No | Yes |

SARA 372.65

| | |
|------------------------|----------------|
| Carbon Dioxide | Not regulated. |
| Carbon Monoxide | Not regulated. |

OSHA Process Safety

| | |
|------------------------|----------------|
| Carbon Dioxide | Not regulated. |
| Carbon Monoxide | Not regulated. |

State Regulations

| | CA Proposition 65 |
|------------------------|---|
| Carbon Dioxide | Not regulated. |
| Carbon Monoxide | WARNING: This product can expose you to chemicals including Carbon Monoxide, which is known to the State of California to cause birth defects or other reproductive harm. For more information go to www.P65Warnings.ca.gov . |

Canadian Regulations

| | WHMIS Classification |
|------------------------|----------------------|
| Carbon Dioxide | A |
| Carbon Monoxide | A, B1, D1A, D2A. |

National Inventory Status

| | US Inventory (TSCA) | TSCA 12b Export Notification | Canada Inventory (DSL/NDSL) |
|------------------------|----------------------|------------------------------|-----------------------------|
| Carbon Dioxide | Listed on inventory. | Not listed. | Listed on inventory. |
| Carbon Monoxide | Listed on inventory. | Not listed. | Listed on inventory. |

Section 16: Other Information

| | NFPA Rating |
|------------------------|---|
| Carbon Dioxide | HEALTH=3 FIRE=0 REACTIVITY=0 SPECIAL=SA |
| Carbon Monoxide | HEALTH=2 FIRE=4 REACTIVITY=0 |

0 = minimal hazard, 1 = slight hazard, 2 = moderate hazard, 3 = severe hazard, 4 = extreme hazard