

SAFETY DATA SHEET (SDS)

GHS and OSHA 29 CFR §1910.1200 (eCFR) compliant

UN1013



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CARBON DIOXIDE, COMPRESSED GAS

CO₂,

Carbon dioxide (Fire and Technical), Carbonic acid gas, Dry ice (solid phase)

UN 1013

STOODY INDUSTRIAL AND WELDING SUPPLY, INC.

3316 National Ave., San Diego, Ca. 92113

Phone: 619-234-6750

WWW.STOODYIND.COM

PHONE NUMBERS

Product Information: 619-234-6750

24-hour Emergency Response
Professional Emergency Resource Services

800-633-8253

MILITARY EMERGENCY RESPONSE

800-851-8061

Technical	Fire
6830-00-281-3053	6830-01-433-3717

6830-01-433-3721

SUPPLIER INFORMATION:

Safety and handling equipment, gas cylinders and refills, personal protection equipment, fire extinguishers, cylinder services, respirators, etc. are available at Stody Industrial and Welding Supply, Inc. Our main location is at 3316 National Avenue, (near the 32nd Street Naval Base) in San Diego California 92113. Call 1-619-234-6750 or visit our web site, stodyind.com for more information.

DISCLAIMER: The information contained herein is accurate to the best of our knowledge. Stody Industry and Welding Supply Inc., does not assume any responsibility or liability for user's reliance or consequences of reliance on the information provided in this SDS. **Stody industrial and Welding Supply, Inc. makes no warranty or guarantee of any kind, expressed or implied, concerning the safe use of this material in your process or in combination with other substances.**

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CARBON DIOXIDE, COMPRESSED GAS

1 IDENTIFICATION

- 1(a) **Product identifier used on label**
Carbon dioxide, compressed gas
- 1(b) **Other means of identification:** CO2, Carbon dioxide (Fire and Technical), Carbonic acid gas, Dry ice (solid phase)
- 1(c) **Recommended use of the chemical and restrictions on use**
Recommended use: Welding, Pneumatics, Fire Extinguishers; Food, Chemical and Oil industry
Restriction on use: NONE
- 1(d) **Name, address, and telephone number of the chemical manufacturer, importer, or other responsible party**
Chemical Manufacturer: STOODY INDUSTRIAL AND WELDING SUPPLY, INC
3316 National Avenue
San Diego, CA 92113
1-619-234-6750
- 1(e) **Emergency phone number**
Professional Emergency Resource Services: 800-633-8253
Military Emergency Resource: 800-851-8061

2 HAZARD(S) IDENTIFICATION

- 2(a) **Classification of chemical in accordance with paragraph (d) of §1910.1200**
Nonflammable
- 2(b) **Signal word, hazard statement(s), symbol(s) and precautionary statement(s) in accordance with paragraph (f) of §1910.1200**

Signal Word	Hazard Statement(s)	Symbol(s)	Precautionary Statements
Warning	May displace oxygen and cause rapid suffocation. (H280) Contains Gases under Pressure; may explode if heated.	 Compressed Gas	(P410 + P403) Protect from sunlight. Store in a well-ventilated place.

- 2(c) **Describe any hazard not otherwise classified that have been identified during the classification process**
Carbon dioxide is heavier than air and may accumulate in lowered spaces causing a deficiency of oxygen. Ruptured cylinder may rocket.
- 2(d) **Where an ingredient with unknown acute toxicity is used in a mixture at a concentration = 1% and the mixture is not classified based on testing of the mixture as a whole, a statement that X% of the mixture consist of ingredient(s) of unknown acute toxicity is required.**
Carbon dioxide consists of 0% of unknown acute toxicity.

3 COMPOSITION / INFORMATION ON INGREDIENTS

- 3(a) **Chemical name;** Carbon Dioxide
- 3(b) **Common name;** Dry Ice
- 3(c) **CAS number and other unique identifiers;**
CAS Number 124-38-9 Other unique identifiers No applicable information is available.
- 3(d) **Impurities and stabilizing additives which are themselves classified and which contribute to the classification of the substance.**
No applicable information is available.

4 FIRST-AID MEASURES

- 4(a) **Description of necessary measures, subdivided according to the different routes of exposure, i.e., inhalation, skin and eye contact, and ingestion;**

GASEOUS STATE, (1 atm), ROUTES OF EXPOSURE (yes or no)

INHALATION: Yes	SKIN: Yes	EYE CONTACT: Yes	INGESTION: No
Effects: Simple Asphyxiate	Effects: Not harmful	Effects: Not harmful	Effects: None known

RAPIDLY EXPANDING STATE ROUTES OF EXPOSURE/DRY ICE (yes or no)

INHALATION: Yes	SKIN: Yes	EYE CONTACT: Yes	INGESTION: No
Effects: Asphyxiation	Effects: frostbite	Effects: frostbite	Effects: None expected

FIRST-AID: (No action shall be taken involving any personal risk or without suitable training.)

Inhalation (asphyxiation); persons suffering from lack of oxygen should be removed to fresh air. If victim is not breathing, administer artificial respiration. If breathing is difficult, administer oxygen. Obtain prompt medical attention.

Skin frostbite; flush with lukewarm water, and obtain immediate medical attention. **DO NOT RUB EFFECTED AREA.**

Eye frostbite; flush eyes with cool water for 15 minutes and obtain immediate medical attention.

Ingestion; if symptoms occur, get immediate medical attention.

SDS - CARBON DIOXIDE, COMPRESSED GAS

5 FIRE-FIGHTING MEASURES

- 5(a) Suitable (and unsuitable) extinguishing media**
 Use extinguishing media appropriate, e.g., dry chemical or CO₂, for surrounding fire.
 Move containers from fire area if you can do it without risk.
 Damaged cylinders should be handled only specialists.
- 5(b) Specific hazards arising from the chemical (e.g., nature of any hazardous combustion products).**
 Pressure in a cylinder can build due to nearby fire heat and may rupture if pressure relief devices should fail to function.

6 ACCIDENTAL RELEASE MEASURES

- SHUT OFF LEAK SOURCE, IF POSSIBLE. IF LEAKING FROM CYLINDER OR CYLINDER VALVE, CONTACT YOUR SUPPLIER.
- 6(a) Personal precautions, protective equipment, emergency procedures.**
 Evacuate all personnel from the affected area. Monitor oxygen level ($\geq 19.5\%$). Use appropriate air-fed respirator or self-contained breathing apparatus if oxygen level is unknown or $<19.5\%$. Ventilate area or remove cylinders to an outdoor location. Shut off leak source when it can be done safely. If leaking from cylinder or cylinder valve, contact your supplier.
- 6(b) Method and materials for containment and cleaning up.**
 Isolate area until gas has dispersed.

7 HANDLING AND STORAGE

- 7(a) Precautions for safe handling.**
 See Para. 2(b)
- 7(b) Conditions for safe storage, including any incompatibilities.**

Conditions for safe storage	Incompatibilities
<ol style="list-style-type: none"> 1. Store and use with adequate ventilation. 2. Cylinders should be stored upright with valve protection cap in place and firmly secured to prevent falling or being knocked over. 3. Protect cylinders from physical damage; do not drag, roll, slide or drop. 4. Full and empty cylinders should be segregated. 5. Do not allow storage area temperature to exceed 125°F (52°C). Full and empty cylinders should be segregated. 6. Use a first-in, first-out inventory system to prevent full containers from being stored for long periods of time. 7. Compressed gas cylinders to be refilled by qualified producers of compressed gases only. 8. Use a suitable hand truck for cylinder movement. 9. Never attempt to lift a cylinder by its valve protection cap. 10. Keep cylinders and their valves free from oil and grease. 11. Open valve slowly. 12. If user experiences difficulty operating cylinder valve, discontinue use and contact supplier. 13. Never insert an object (e.g., wrench, screwdriver, pry bar, etc.) into valve cap openings. Doing so may damage valve, causing a leak to occur. 14. Never strike an arc on a compressed gas cylinder or make a cylinder a part of an electrical circuit. 15. Use an adjustable strap wrench to remove over-tight or rusted caps. 	<p>See Para. 10(f)</p>

8 EXPOSURE CONTROLS / PERSONAL PROTECTION

- 8(a) OSHA permissible exposure limit (PEL), American Conference of Governments Industrial Hygienists (ACGIH) Threshold Limits Value (TLV), and any other exposure limit used or recommended by the chemical manufacturer, importer, or employer preparing the safety data sheet, where available.**
 OSHA PEL*: 5000 ppm; STEL 30000 ppm
 ACGIH*: 5000 ppm; STEL 30000 ppm
 NIOSH*: 5000 ppm; STEL 30000 ppm
- *Source: The National Institute for Occupational Safety and Health (NIOSH)
- Maritime:** [29 CFR 1915.1000 Table Z-Shipyards](#) – PEL (CarbonDioxide) 5000 ppm
- 8(b) Appropriate engineering controls.** — Natural or mechanical air circulation is needed to maintain oxygen levels.
- 8(c) Individual protection measures, such as personal protective equipment.** — Safety glasses/goggles, work gloves (gloves must be clean and free of oil or grease), and safety shoes are recommended when handling cylinders.

9 PHYSICAL and CHEMICAL PROPERTIES

a) Appearance (physical state, color, etc.)	Colorless liquefied compressed gas. White color, in solid dry ice form.
b) Odor	Odorless (5-10% concentration noticeable sharp odor)
c) Odor threshold	Not applicable
d) pH	3.7 @ 1 atm (for carbonic acid)
e) Melting point/freezing point	-69.9°F (-56.56°C) [Triple point @ 60.4 psig (416 kPa)]
f) Initial boiling point	-109.3°F(-78.5°C) @ 1 atm (sublimation point)
g) Flash point	Not applicable
h) Evaporation rate	Not applicable
i) Flammability (solid, gas)	Not applicable
j) Upper/lower flammability or explosive limits	Not applicable
k) Vapor pressure	569 mmHg @ -116° F (-82 °C)
l) Vapor density	0.1144 lb/ft ³ (1.833 kg/m ³) @ 70°F (21.1°C) and 1 atm
m) Relative density	1.5, Air =1
n) Solubility(ies)	Water, 0.90% @ 68°F (20°C)
o) Partition coefficient: n-octanol/water	Not applicable
p) Auto-ignition temperature	Will not occur
q) Decomposition temperature	None
r) Viscosity	0.00000701 Pa.s @ 68° F (20° C)

10 STABILITY and REACTIVITY

10(a) Reactivity

Not considered to be reactive

10(b) Chemical stability

Stable

10(c) Possibility of hazardous reactions

Will not polymerize

10(d) Conditions to avoid (e.g., static discharge, shock, or vibration)

Avoid contact with water or moisture.

10(f) Incompatible materials

Dusts of various metals, such as magnesium, zirconium, titanium, aluminum, chromium & manganese are ignitable and explosive when suspended in carbon dioxide. Forms carbonic acid in water.

10(g) Hazardous decomposition products

Oxides of carbon, oxygen

11 TOXICOLOGICAL INFORMATION

Description of the various toxicological (health) effects and available data used to identify those effects, including:

11(a) Information on likely routes of exposure (inhalation, ingestion, skin and eye contact);

Carbon dioxide can be absorbed into the body by inhalation. Target organ: respiratory system, cardiovascular system.

11(b) Symptoms related to the physical, chemical and toxicological characteristics;

Headache, dizziness, restlessness, paresthesia; dyspnea (breathing difficulty); sweating, malaise (vague feeling of discomfort); increased heart rate, cardiac output, blood pressure; coma; asphyxia; convulsions; frostbite (liquid, dry ice) (see Section 16, Affects of CO2 concentration in Air)

11(c) Delayed and immediate effects and also chronic effects from short- and long-term exposure;

Immediate effects: Possible asphyxiation. No delayed, short-and long term exposure effects have been identified.

11(d) Numerical measures of toxicity (such as acute toxicity estimates);

No identifiable acute toxicity.

11(e) Whether the hazardous chemical is listed in the International Toxicology Program (NTP) Report on Carcinogenic (latest edition) or has been found to be a potential carcinogenic in the International Agency for Research on Cancer (IARC) Monographs (latest edition), or by OSHA.

Carbon dioxide is not listed as a carcinogenic or potential carcinogenic by NTP, OSHA or IARC.

12 ECOLOGICAL INFORMATION

- 12(a) Ecotoxicity (aquatic and terrestrial, where available)**
This product is not known to contain ecotoxicological properties, aquatic or terrestrial
- 12(b) Persistence and degradability**
No adverse information found
- 12(c) Bioaccumulative potential**
This product does not have a bioaccumulative potential
- 12(d) Mobility in soil**
No adverse information found
- 12(e) Other adverse effects (such as hazardous to the ozone layer)**
No adverse ecological effects are expected. Carbon dioxide does not contain any Class I or Class II ozone depleting chemicals (40 CFR Part 82). Carbon dioxide is not listed as a marine pollutant by DOT (49 CFR Part 171).

13 DISPOSAL CONSIDERATIONS

- 13(a) Description of waste residue and information on their safe handling and method of disposal, including the disposal of any contaminated packaging.**
Do not attempt to dispose of cylinder or its contents. Cylinder(s) and unused contents should be returned to supplier for disposal in accordance with appropriate Federal, State, local regulation.

14 TRANSPORTATION INFORMATION

- 14(a) UN number:** UN 1013
- 14(b) UN proper shipping name:** Carbon dioxide
- 14(c) Transportation hazard class(es):** 2.2 (Nonflammable Gas)
- 14(d) Packing group, if applicable:** Product is not listed
- 14(e) Environmental hazards (e.g.,) Marine pollutant (yes/No):** No
- 14(f) Transport in bulk (according to Annex II of MARPOL 73/78 and IBC Code):**
Product does not fall under purview of cited regulations.
- 14(g) Special precautions which a user needs to be aware of, or needs to comply with, in connection with transport or conveyance either within or outside of their premises:**
Cylinders should be properly separated from non-compatible gas cylinders and transported in a upright, secure position, in a well ventilated vehicle. The transportation of compressed gas cylinders in automobiles or in closed-body vehicles can present serious safety hazards and should be discouraged.

15 REGULATORY INFORMATION

- 15(a) Safety, health and environmental regulations specific for the product in question.**
User(s) of this product is responsible for regulatory compliance on a federal, state, and local level.
U.S. FEDERAL REGULATIONS:
EPA - ENVIRONMENTAL PROTECTION AGENCY
40 CFR PART 68, Risk Management for Chemical Accidental Release, does not list carbon dioxide as a regulated substance.
CERCLA: Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (40 CFR Parts 117 and 302):
Reportable Quantity (RQ): None
SARA: Superfund Amendment and Reauthorization Act
SECTION 302/304: Requires emergency planning on threshold planning quantities (TPQ) and release reporting based on reportable quantities (RQ) of EPA's extremely hazardous substances (40 CFR Part 355).
Extremely Hazardous Substances: None
Threshold Planning Quantity (TPQ): None
SECTIONS 311/312: Require submission of material safety data sheets (MSDSs) and chemical inventory reporting with identification of EPA defined hazard classes (40 CFR Part 370). The hazard classes for this product are:
ACUTE HEALTH (Immediate): Yes CHRONIC HEALTH (Delayed): No
PRESSURE: Yes REACTIVITY: No
FIRE: Yes

15(a) continued on page 5

15 REGULATORY INFORMATION (continued from page 4)

TSCA: Toxic Substance Control Act: Carbon dioxide is not listed on the TSCA inventory.

OSHA - OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION:

29 CFR 1910.119, Appendix A, does not list carbon dioxide as a highly hazardous chemical.

No adverse ecological effects are expected. Carbon dioxide does not contain any Class I or Class II ozone depleting chemicals (40 CFR Part 82). Carbon dioxide is not listed as a marine pollutant by DOT (49 CFR Part 171).

Shipment of compressed gas cylinders which have not been filled with the owner's consent is a violation of Federal law (49 CFR Part 173.301 (b)).

CANADIAN REGULATIONS: WHIMS Classification: A (compressed gas)

16 OTHER INFORMATION, including date of preparation or last revision

16(a) OTHER INFORMATION:

DO NOT DISCHARGE TOWARD ANYONE

AFFECTS OF CO2 CONCENTRATIONS IN AIR: (Symptoms in humans)

- 1%** Slight increase in breathing rate
- 2%** Breathing rate increases to 50% above normal level. Prolonged exposure can cause headache, tiredness.
- 3%** Breathing increases to twice normal rate and becomes labored. Weak narcotic effect. Impaired hearing, headache, increase in blood pressure and pulse rate.
- 4-5%** Breathing increases to approximately four times normal rate, symptoms of intoxication become evident and slight choking may be felt.
- 5-10%** Characteristic sharp odor noticeable. Very labored breathing, headache, visual impairment and ringing in the ears. Judgment may be impaired, followed within minutes by loss of consciousness.
- 50-100%** Unconsciousness occurs more rapidly above 10% level. Prolonged exposure to high concentrations may eventually result in death from asphyxiation.

SPECIAL PRECAUTIONS: Use piping and equipment adequately designed to withstand pressures to be encountered. Use a check valve or other protective apparatus in any line or piping from the cylinder to prevent reverse flow.

NFPA RATINGS:

HEALTH-Blue: = 1 FLAMMABILITY-Red: = 0 INSTABILITY-Yellow: = 0 SPECIAL HAZARDS*-White: =SA

LEGEND: 0-4 – 0-least hazardous; 4-most hazardous

*OX (Oxidizers), W (Water reactives), SA (Simple Asphyxiants), (blank if no special hazard)

STANDARD VALVE CONNECTIONS FOR U.S. AND CANADA:

- THREADED:** CGA 320
- PIN INDEXED YOKE:** CGA 940 (Medical Use)
- ULTRA HIGH INTEGRITY:** 724
- FIRE SUPPRESSION:** Fire extinguisher valve/heads when provided on a cylinder for fire suppression.

Use the proper CGA connections, DO NOT USE ADAPTERS.

SUPPLIER INFORMATION:

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Information Sources: Data is compiled from a variety of sources, including publicly available documents, internal data and other sources.

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