

# Safety Data Sheet

Argon, Helium, Carbon Dioxide,  
mixture

US Cylinder Gas  
Alsip, IL



## Section 1: Product and Company Identification

US Cylinder Gas  
Alsip, IL

Product Code: **Argon, Helium, Carbon Dioxide**

Part Number: Ar/He/CO2 Mix

**Synonyms:**

**Recommended Use:** Industrial use. Use as directed.

**Usage Restrictions:**

## Section 2: Hazards Identification



**Warning**

Hazard Classification:

Gases Under Pressure, H280  
Simple Asphyxiant, OSHA-H01

Hazard Statements:

H280: Contains gas under pressure; may explode if heated  
CGA-HG03: MAY INCREASE RESPIRATION AND HEARTRATE.  
OSHA-H01: MAY DISPLACE OXYGEN AND CAUSE RAPID SUFFOCATION.

Precautionary Statements

P202: Do not handle until all safety precautions have been read and understood.  
P261: Avoid breathing.  
P271+P403: Use and store only outdoors or in a well-ventilated place.  
CGA-PG02: Protect from sunlight when ambient temperature exceeds 52C (125F).  
CGA-PG05: Use a back flow preventive device in the piping.  
CGA-PG06: Close valve after each use and when empty.  
CGA-PG10+CGA-PG20: Use only with equipment of compatible materials of construction and rated for cylinder pressure.  
CGA-PG11: Never put cylinders into unventilated areas of passenger vehicles.  
CGA-PG12: Do not open valve until connected to equipment prepared for use.  
CGA-PG27: Read and follow the Safety Data Sheet (SDS) before use.

### Section 3: Composition/Information on Ingredients

	CAS #	Concentration
Carbon Dioxide	124-38-9	0 - 5%
Helium	7440-59-7	0 - 38.5%
Argon	7440-37-1	Balance

	Chemical Substance	Chemical Family	Trade Names
Carbon Dioxide	CARBON DIOXIDE, GAS	Inorganic gases	CARBONIC ACID GAS; CARBONIC ANHYDRIDE; CARBON DIOXIDE; CARBON OXIDE; UN 1013; CO2
Helium	HELIUM	Inorganic gases	HELIUM GAS; HELIUM COMPRESSED; HELIUM-4; ATOMIC HELIUM; UN 1046; He
Argon	ARGON, COMPRESSED	Inorganic gases	ARGON; UN 1006; AR

### 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.
Helium	Wash exposed skin with soap and water.	Flush eyes with plenty of water.	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.
Argon	Not applicable route of exposure	Flush eyes with plenty of water.	Not applicable route of exposure	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"> <li>▪ Any appropriate escape-type, self-contained breathing apparatus.</li> <li>▪ non-flammable</li> </ul>
Helium	Non-flammable. use suitable extinguishing media for surrounding fire.	Non-flammable	<ul style="list-style-type: none"> <li>▪ Non-flammable</li> <li>▪ non-flammable</li> </ul>
Argon	Non-flammable gas	Not applicable	<ul style="list-style-type: none"> <li>▪ N/a</li> <li>▪ N/A</li> </ul>

## Section 6: Accidental Release Measures

	Personal Precautions	Environmental Precautions	Methods for Containment
<b>Carbon Dioxide</b>	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.
<b>Helium</b>	Keep unnecessary people away, isolate hazard area and deny entry. Stay upwind and keep out of low areas.	Avoid soil, waterways, drains and sewers	Stop leak if possible without personal risk.
<b>Argon</b>	Keep unnecessary people away, isolate hazard area and deny entry. Stay upwind and keep out of low areas.	None known.	Stop leak if possible without personal risk.

	Methods for Cleanup	Other Information
<b>Carbon Dioxide</b>	Stop leak, evacuate, remove source of ignition.	None
<b>Helium</b>	Stop leak, evacuate area. Contact emergency personnel.	None
<b>Argon</b>	Leaks may be detected by a soapy-water solution.	

## Section 7: Handling and Storage

	Handling	Storage
<b>Carbon Dioxide</b>	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
<b>Helium</b>	Store and handle in accordance with all current regulations and standards. Subject to storage regulations: U.S. OSHA 29 CFR 1910.101.	Keep separated from incompatible substances.
<b>Argon</b>	Store and handle in accordance with all current regulations and standards. Subject to storage regulations: U.S. OSHA 29 CFR 1910.101. Keep separated from incompatible substances.	Avoid using in confined spaces.

## Section 8: Exposure Controls/Personal Protection

	Exposure Guidelines
<b>Carbon Dioxide</b>	CARBON DIOXIDE, GAS: CARBON DIOXIDE: 5000 ppm (9000 mg/m3) OSHA TWA 10000 ppm (18000 mg/m3) OSHA TWA (vacated by 58 FR 35338, June 30, 1993) 30000 ppm (54000 mg/m3) OSHA STEL (vacated by 58 FR 35338, June 30, 1993) 5000 ppm ACGIH TWA 30000 ppm ACGIH STEL 5000 ppm (9000 mg/m3) NIOSH recommended TWA 10 hour(s) 30000 ppm (54000 mg/m3) NIOSH recommended STEL
<b>Helium</b>	HELIUM: ACGIH (simple asphyxiant)
<b>Argon</b>	ARGON, COMPRESSED: ARGON: ACGIH (simple asphyxiant)

### Engineering Controls

Handle only in fully enclosed systems.

	Eye Protection	Skin Protection	Respiratory Protection
<b>Carbon Dioxide</b>	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. Wear insulated gloves.	Any appropriate escape-type, self-contained breathing apparatus.
<b>Helium</b>	Eye protection not required, but recommended.	Protective clothing is not required. Protective gloves are not required.	Non-flammable
<b>Argon</b>	Eye protection not required, but recommended.	Protective clothing is not required. Wear appropriate chemical resistant gloves.	N/a

### 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
<b>Carbon Dioxide</b>	Gas	Colorless	Colorless	N/A	Gas	Odorless
<b>Helium</b>	Gas	Colorless	Colorless	N/A	Gas	Odorless
<b>Argon</b>	Gas	Colorless	Colorless	N/A	Gas	Odorless

	Taste	Flash Point	Flammability	Partition Coefficient	Autoignition Temperature	Upper Explosive Limits
<b>Carbon Dioxide</b>	Acid taste	Not flammable	Not available	N/A	Nonflammable	Nonflammable
<b>Helium</b>	Tasteless	Not flammable	Not available	Not available	Nonflammable	Nonflammable
<b>Argon</b>	Tasteless	Not flammable			Nonflammable	Nonflammable

	Lower Explosive Limits	Boiling Point	Freezing Point	Vapor Pressure	Vapor Density	Specific Gravity
<b>Carbon Dioxide</b>	Nonflammable	Not available	-71 F (-57 C) @ 4000 mmHg	43700 mmHg @ 21 C	1.5 (Air=1)	1.522 @ 21 C
<b>Helium</b>	Nonflammable	-452 F (-269 C)	-458 F (-272 C) @ 26 atm	1719 mmHg @ -268 C	0.138 (Air=1)	Not applicable
<b>Argon</b>	Nonflammable	-303 F (-186 C)	-308 F (-189 C)	500 mmHg @ -190 C	1.38 (Air=1)	Not applicable

	Water Solubility	pH	Odor Threshold	Evaporation Rate	Viscosity	Molecular Weight
<b>Carbon Dioxide</b>	Soluble	3.7 (saturated aqueous solution) @ 101.3 kPa (carbonic acid)	Not available	Not applicable	0.01657 cP @ 0 C	44.01
<b>Helium</b>	0.94% @ 0 C	Not applicable	Not available	Not applicable	0.02012 cP @ 26.8 C	4.0026
<b>Argon</b>	3.36% @ 20 C	Not applicable	Not available	Not applicable	0.0225 cP @ 25 C	39.948

	Molecular Formula	Density	Weight per Gallon	Volatility by Volume	Volatility	Solvent Solubility
<b>Carbon Dioxide</b>	C-O2	0.114	Not available	Not applicable	Not applicable	Soluble : Alcohol, acetone, hydrocarbons, organic solvents
<b>Helium</b>	He	0.1785 g/L @ 0 C	Not available	100%	Not applicable	Insoluble : Not available
<b>Argon</b>	AR	1.784 g/L @ 0 C	Not available	100%	Not applicable	Soluble : Organic solvents

## Section 10: Stability and Reactivity

	Stability	Conditions to Avoid	Incompatible Materials
<b>Carbon Dioxide</b>	Stable at normal temperatures and pressure.	Protect from physical damage and heat. Containers may rupture or explode if exposed to heat. Avoid contact with water or moisture.	Combustible materials, oxidizing materials, metal salts, reducing agents, metal carbide, metals, bases
<b>Helium</b>	Stable at normal temperatures and pressure.	Protect from physical damage and heat. Containers may rupture or explode if exposed to heat. Keep liquid helium from contact with air.	No data available.
<b>Argon</b>	Stable at normal temperatures and pressure.	Protect from physical damage and heat. Containers may rupture or explode if exposed to heat.	No data available.

	Hazardous Decomposition Products	Possibility of Hazardous Reactions
<b>Carbon Dioxide</b>	Carbon monoxide	Will not polymerize.
<b>Helium</b>	Miscellaneous decomposition products	Will not polymerize.
<b>Argon</b>	No data available.	Will not polymerize.

## Section 11: Toxicology Information

### Acute Effects

	Oral LD50	Dermal LD50	Inhalation
<b>Carbon Dioxide</b>	Not established	Not established	Ringling in the ears, nausea, irregular heartbeat, headache, drowsiness, dizziness, tingling sensation, visual disturbances, suffocation, convulsions, coma
<b>Helium</b>	Not available	Not available	Nausea, vomiting, difficulty breathing, irregular heartbeat, headache, fatigue, dizziness, disorientation, emotional disturbances, tingling sensation, loss of coordination, suffocation, convulsions, unconsciousness, coma
<b>Argon</b>	Not established	Not established	Nausea, vomiting, difficulty breathing, irregular heartbeat, headache, dizziness, disorientation, mood swings, tingling sensation, loss of coordination, suffocation, convulsions, unconsciousness, coma

	Eye Irritation	Skin Irritation	Sensitization
<b>Carbon Dioxide</b>	Irritation, frostbite, blurred vision	Liquid: blisters, frostbite	Difficulty breathing
<b>Helium</b>	Liquid: frostbite, blurred vision	Liquid: frostbite	Difficulty breathing
<b>Argon</b>	No information on significant adverse effects	No information on significant adverse effects	

### Chronic Effects

	Carcinogenicity	Mutagenicity	Reproductive Effects	Developmental Effects
<b>Carbon Dioxide</b>	Not available	Not established	Available.	No data
<b>Helium</b>	Not available	Not available	Not available	No data
<b>Argon</b>	Not established	Not established	Not established	No data

## Section 12: Ecological Information

### Fate and Transport

	Eco toxicity	Persistence / Degradability	Bioaccumulation / Accumulation	Mobility in Environment
<b>Carbon Dioxide</b>	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
<b>Helium</b>	Fish toxicity: Not available Invertebrate toxicity: Not available Algal toxicity: Not available Phyto toxicity: Not available Other toxicity: Not available	Not available	Not available	Not available
<b>Argon</b>	Fish toxicity: Not available Invertebrate toxicity: Not available Algal toxicity: Not available Phyto toxicity: Not available	Not available	Not available	Not available

Other toxicity: Not available			
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## Section 13: Disposal Considerations

<b>Carbon Dioxide</b>	Dispose in accordance with all applicable regulations.
<b>Helium</b>	Dispose in accordance with all applicable regulations.
<b>Argon</b>	Dispose in accordance with all applicable regulations.

## Section 14: Transportation Information

### U.S. DOT 49 CFR 172.101

#### DOT Information For This Mixture

<b>Shipping Name</b>	Compressed gas, n.o.s. (Carbon Dioxide, Helium, Argon)
<b>UN Number</b>	UN1956
<b>Hazard Class</b>	2.2
<b>Hazard Information</b>	NonFlammable 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
<b>Carbon Dioxide</b>	Carbon dioxide	UN1013	2.2	Not applicable	2.2	75 kg or L	150kg	None
<b>Helium</b>	Helium, compressed	UN1046	2.2	Not applicable	2.2	75 kg or L	150 kg	N/A
<b>Argon</b>	Argon, compressed	UN1006	2.2	Not applicable	2.2	75 kg or L	150 kg	N/A

#### Canadian Transportation of Dangerous Goods

	Shipping Name	UN Number	Class	Packing Group / Risk Group
<b>Carbon Dioxide</b>	Carbon dioxide	UN1013	2.2	Not applicable
<b>Helium</b>	Helium, compressed	UN1046	2.2	Not applicable
<b>Argon</b>	Argon, compressed	UN1006	2.2	Not applicable

## Section 15: Regulatory Information

### U.S. Regulations

	CERCLA Sections	SARA 355.30	SARA 355.40
<b>Carbon Dioxide</b>	Not regulated.	Not regulated.	Not regulated.
<b>Helium</b>	Not regulated.	Not regulated.	Not regulated.
<b>Argon</b>	Not regulated.	Not regulated.	Not regulated.

### SARA 370.21

	Acute	Chronic	Fire	Reactive	Sudden Release
<b>Carbon Dioxide</b>	Yes	No	No	No	Yes
<b>Helium</b>	Yes	No	No	No	Yes
<b>Argon</b>	Yes	No	No	No	Yes

### SARA 372.65

<b>Carbon Dioxide</b>	Not regulated.
<b>Helium</b>	Not regulated.
<b>Argon</b>	Not regulated.

### OSHA Process Safety

<b>Carbon Dioxide</b>	Not regulated.
<b>Helium</b>	Not regulated.
<b>Argon</b>	Not regulated.

### State Regulations

	<b>CA Proposition 65</b>
<b>Carbon Dioxide</b>	Not regulated.
<b>Helium</b>	Not regulated.
<b>Argon</b>	Not regulated.

### Canadian Regulations

	<b>WHMIS Classification</b>
<b>Carbon Dioxide</b>	A
<b>Helium</b>	A
<b>Argon</b>	A

### National Inventory Status

	<b>US Inventory (TSCA)</b>	<b>TSCA 12b Export Notification</b>	<b>Canada Inventory (DSL/NDSL)</b>
<b>Carbon Dioxide</b>	Listed on inventory.	Not listed.	Listed on inventory.
<b>Helium</b>	Listed on inventory.	Not listed.	Not determined.
<b>Argon</b>	Listed on inventory.	Not listed.	Listed on inventory.

## Section 16: Other Information

	<b>NFPA Rating</b>
<b>Carbon Dioxide</b>	HEALTH=3 FIRE=0 REACTIVITY=0 SPECIAL=SA
<b>Helium</b>	HEALTH=0 FIRE=0 REACTIVITY=0 SPECIAL=SA
<b>Argon</b>	HEALTH=0 FIRE=0 REACTIVITY=0 SPECIAL=SA

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