

Safety Data Sheet

Helium/Argon/Carbon Dioxide, compressed

United States Cylinder Gas

11618 S Mayfield Ave, Alsip, Illinois, 60803

Emergency Phone: CHEMTREC 1-800-424-9300

www.uscylgas.com

Section 1: Product and Company Identification

United States Cylinder Gas

11618 S Mayfield Ave, Alsip, Illinois, 60803

(708) 389-1402

Emergency Phone: CHEMTREC 1-800-424-9300

www.uscylgas.com

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

Part Number: HE/AR/CO2 Mix

Synonyms: Helium Tri-Mix

Recommended Use: Industrial use. Use as directed.

Usage Restrictions:

Section 2: Hazards Identification



Hazard Classification:

Gases Under Pressure, H280

Simple Asphyxiant, OSHA-H01

Hazard Statements:

H280: Contains gas under pressure; may explode if heated

OSHA-H01: MAY DISPLACE OXYGEN AND CAUSE RAPID SUFFOCATION.

Precautionary Statements

P202: Do not handle until all safety precautions have been read and understood.

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-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	0.1-11%
Argon	7440-37-1	0.1-22%

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Part Number: HE/AR/CO2 Mix

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Date of Preparation: 4/3/2025 12:28:54 PM

	CAS #	Concentration
Helium	7440-59-7	Balance

	Trade Names
Carbon Dioxide	Carbon dioxide carbonic anhydride Dry ice 124-38-9 carbonic acid gas Carbonic acid anhydride
Argon	Ar, Argon, Argon-40, Argon36, argon atom, argon(0)
Helium	He, Helium, Atomic helium, Helium-4, p-Helium, O-Helium

Section 4: First Aid Measures

IF ON SKIN: wash with plenty of water. IF INHALED: Remove person to fresh air and keep comfortable for breathing. Get medical advice/attention.
IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses if present and easy to do - continue rinsing.

Section 5: Fire Fighting Measures

Suitable Extinguishing Media:

Use suitable extinguishing material for surrounding fire.

Protection of Firefighters:

Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.

	Products of Combustion
Carbon Dioxide	Carbon monoxide
Argon	No data available.
Helium	Miscellaneous decomposition products

Section 6: Accidental Release Measures

Personal Precautions:

Keep unnecessary people away, isolate hazard area and deny entry. Ventilate closed spaces before entering.

Environmental Precautions:

Keep away from drains, surface and ground water. Avoid heat, flames, sparks and other sources of ignition.

Methods for Containment and Cleanup:

Stop leak if possible without personal risk. Reduce vapors with water spray. Remove sources of ignition. If necessary, cover drains.
Absorb large spills, dispose in appropriate containers.

Section 7: Handling and Storage

Handling:

See precautions in Section 2. Only trained personnel should handle this product. Always use approved personal protective equipment.

Storage:

Keep container tightly closed in a dry and well-ventilated place. Containers which are opened must be carefully resealed and kept upright to prevent leakage.

Store and handle in accordance with all current regulations and standards. Store in a well-ventilated area. Keep separated from incompatible substances.

	Incompatibilities	Conditions to avoid
Carbon Dioxide	Combustible materials, oxidizing materials, metal salts, reducing agents, metal carbide, metals, bases	Protect from physical damage and heat. Containers may rupture or explode if exposed to heat. Avoid contact with water or moisture.
Argon	No data available.	Protect from physical damage and heat. Containers may rupture or explode if exposed to heat.
Helium	No data available.	Protect from physical damage and heat. Containers may rupture or explode if exposed to heat. Keep liquid helium from contact with air.

Section 8: Exposure Controls/Personal Protection

Exposure Guidelines	Threshold Limit Value -TLV (ppm)
Carbon Dioxide	5000
Argon	Not Available
Helium	Not Available

Engineering Controls

No specific controls are needed.

Eye Protection	Wear splash resistant safety goggles.
Skin Protection	Wear chemical protective clothing, including gloves.
Respiratory Protection	Use self-contained breathing apparatus.

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 / Physical Form	Appearance / Color	Odor	Flash Point	Flammability	Partition Coefficient
Carbon Dioxide	Gas	Colorless	Odorless	Not flammable	False	1
Argon	Gas	Colorless	Odorless	Not flammable	False	0
Helium	Gas	Colorless	Odorless	Not flammable	False	0

	Autoignition Temperature	Upper Explosive Limits	Lower Explosive Limits	Boiling Point	Freezing Point	Vapor Pressure
Carbon Dioxide	Nonflammable	Not Available	Not Available	Not available	-71 F (-57 C) @ 4000 mmHg	844.7
Argon	Nonflammable	Not Available	Not Available	-303 F (-186 C)	-308 F (-189 C)	Not Available
Helium	Nonflammable	Not Available	Not Available	-452 F (-269 C)	-458 F (-272 C) @ 26 atm	Not Available

	Vapor Density	Specific Gravity	Water Solubility	pH	Evaporation Rate	Viscosity
Carbon Dioxide	1.5	1.522 @ 21 C	Soluble	0	Not applicable	0.01657 cP @ 0 C
Argon	1.38	Not applicable	3.36% @ 20 C	0	Not applicable	0.0225 cP @ 25 C
Helium	0.138	Not applicable	0.94% @ 0 C	0	Not applicable	0.02012 cP @ 26.8 C

	Molecular Weight	Molecular Formula	Density	Volatility	Solvent Solubility
Carbon Dioxide	44.009	CO2	Not Available	Not applicable	Soluble : Alcohol, acetone, hydrocarbons, organic solvents
Argon	39.95	Ar	Not Available	Not applicable	Soluble : Organic solvents
Helium	4.002602	He	Not Available	Not applicable	Insoluble : Not available

Section 10: Stability and Reactivity

	Stability	Conditions to Avoid	Incompatible Materials
Carbon Dioxide	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
Argon	Stable at normal temperatures and pressure.	Protect from physical damage and heat. Containers may rupture or explode if exposed to heat.	No data available.
Helium	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.

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

Section 11: Toxicology Information

The toxicology information is calculated for the mixture.

Acute Toxicity Estimates (ATE) of the mixture.

Oral ATE (mg/kg)	Not Available
Inhalation ATE (ppm)	Not Available
Dermal ATE (mg/kg)	Not Available

Additional health hazards:

OSHA-H01: MAY DISPLACE OXYGEN AND CAUSE RAPID SUFFOCATION.

Skin Corrosion/Irritation	Not Available
Eye Damage/Irritation	Not Available
Respiratory or Skin Sensitization	Not Available
Germ Cell Mutagenicity	Not Available
Carcinogenicity	Not Available
Reproductive Toxicity	Not Available
STOT – single exposure	Not Available
STOT – repeated exposure	Not Available
Aspiration Hazard	Not Available

Section 12: Ecological Information

Fate and Transport

	Eco toxicity	Persistence / Degradability	Bioaccumulation / Accumulation	Mobility in Environment
Carbon Dioxide	Fish toxicity: 0 Invertebrate toxicity: Algal toxicity: Phyto toxicity: Other toxicity:	Relatively non-persistent in the environment. Moderately volatile from water.	Accumulates very little in the bodies of living organisms.	Leaches through the soil
Argon	Fish toxicity: 0 Invertebrate toxicity: Algal toxicity: Phyto toxicity: Other toxicity:	Not available	Not available	Not available
Helium	Fish toxicity: 0 Invertebrate toxicity: Algal toxicity: Phyto toxicity: Other toxicity:	Not available	Not available	Not available

Section 13: Disposal Considerations

Dispose in accordance with all applicable regulations. Do not dispose in sewers or waterways. Recycle if possible to do so. Return to manufacturer for disposal if needed.

Section 14: Transportation Information

U.S. DOT 49 CFR 172.101

DOT Information For This Mixture

Shipping Name	Compressed gas, n.o.s. (Carbon Dioxide, Argon, Helium)
UN Number	UN1956
Hazard Class	2.2
Hazard Information	NonFlammable Gas

Individual Component Information

	Proper Shipping Name	ID Number	Hazard Class or Division	Packing Group	Passenger Aircraft or Railcar Quantity Limitations	Cargo Aircraft Only Quantity Limitations	Additional Shipping Description
Carbon Dioxide	Carbon Dioxide	UN1013	2.2	Not available	75 kg	150 kg	Not available
Argon	Argon, Compressed	UN1006	2.2	Not available	Not available	Not available	Not available
Helium	Helium, Compressed	UN1046	2.2	Not available	Not available	Not available	Not available

Canadian Transportation of Dangerous Goods

	Shipping Name	UN Number	Class	Packing Group / Risk Group
Carbon Dioxide	Carbon Dioxide	UN1013	2.2	Not Available
Argon	Argon, Compressed	UN1006	2.2	Not Available
Helium	Helium, Compressed	UN1046	2.2	Not Available

Section 15: Regulatory Information

U.S. Regulations

	CERCLA Sections	SARA 355.30	SARA 355.40
Carbon Dioxide	Not Regulated.	Not Regulated.	Not Regulated.

Argon	Not Regulated.	Not Regulated.	Not Regulated.
Helium	Not Regulated.	Not Regulated.	Not Regulated.

SARA 370.21

	Acute	Chronic	Fire	Reactive	Sudden Release
Carbon Dioxide	Yes	No	No	No	Yes
Argon	Yes	No	No	No	Yes
Helium	Yes	No	No	No	Yes

SARA 372.65

Carbon Dioxide	Not Regulated.
Argon	Not Regulated.
Helium	Not Regulated.

OSHA Process Safety

Carbon Dioxide	Not regulated.
Argon	Not regulated.
Helium	Not regulated.

State Regulations

	CA Proposition 65
Carbon Dioxide	Not regulated.
Argon	Not regulated.
Helium	Not regulated.

Canadian Regulations

	WHMIS Classification
Carbon Dioxide	A
Argon	A
Helium	A

National Inventory Status

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

Section 16: Other Information

	NFPA Rating
Carbon Dioxide	Health = 2 Fire = 0 Reactivity = 0
Argon	Health = 3 Fire = 0 Reactivity = 0
Helium	Health = 1 Fire = 0 Reactivity = 0

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