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GASES • AUTOMATION • DRY ICE • WELDING SUPPLIES

# Safety Data Sheet

## Argon, 10-20% Helium, 1-5% Carbon Dioxide

### Section 1: Product and Company Identification

**Oxygen Service Company**

1111 Pierce Butler Rte.  
Saint Paul, MN 55104  
(651) 644-7273  
<https://www.oxygenservicecompany.com>  
CHEMTREC (800) 424-9300

Product Code: Argon, 10-20% Helium, 1-5% Carbon Dioxide

**Synonyms:** SS Diamond MIG 1

**Recommended Use:**

**Usage Restrictions:**

### Section 2: Hazards Identification



## Warning

**Hazard Classification:**

Gases Under Pressure

**Hazard Statements:**

Contains gas under pressure; may explode if heated

**Precautionary Statements****Storage:**

Protect from sunlight.  
Store in well-ventilated place.

### Section 3: Composition/Information on Ingredients

	CAS #	Concentration
Argon	7440-37-1	82%
Helium	7440-59-7	15%

	CAS #	Concentration
Carbon Dioxide	124-38-9	3%

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

## Section 4: First Aid Measures

	Skin Contact	Eye Contact	Ingestion	Inhalation	Note to Physicians
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.
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.
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.

## Section 5: Fire Fighting Measures

	Suitable Extinguishing Media	Products of Combustion	Protection of Firefighters
Argon	Non-flammable gas	Not applicable	<ul style="list-style-type: none"> <li>▪ N/A</li> <li>▪ N/A</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>
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>

## Section 6: Accidental Release Measures

	Personal Precautions	Environmental Precautions	Methods for Containment
<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.
<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>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.

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

## Section 7: Handling and Storage

	Handling	Storage
<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.
<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>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

## Section 8: Exposure Controls/Personal Protection

	Exposure Guidelines
<b>Argon</b>	ARGON, COMPRESSED: ARGON: ACGIH (simple asphyxiant)
<b>Helium</b>	HELIUM: ACGIH (simple asphyxiant)
<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

### Engineering Controls

Handle only in fully enclosed systems.

	Eye Protection	Skin Protection	Respiratory Protection
<b>Argon</b>	Eye protection not required, but recommended.	Protective clothing is not required.	N/A
<b>Helium</b>	Eye protection not required, but recommended.	Protective clothing is not required.	Non-flammable
<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.	Any appropriate escape-type, 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	Appearance	Color	Change in Appearance	Physical Form	Odor	Taste
<b>Argon</b>	Gas	Colorless	Colorless	N/A	Gas	Odorless	Tasteless
<b>Helium</b>	Gas	Colorless	Colorless	N/A	Gas	Odorless	Tasteless
<b>Carbon Dioxide</b>	Gas	Colorless	Colorless	N/A	Gas	Odorless	Acid taste

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

	Boiling Point	Freezing Point	Vapor Pressure	Vapor Density	Specific Gravity	Water Solubility	pH	Odor Threshold	Evaporation Rate	Viscosity
<b>Argon</b>	-303 F (-186 C)	-308 F (-189 C)	500 mmHg @ -190 C	1.38 (Air=1)	Not applicable	3.36% @ 20 C	Not applicable	Not available	Not applicable	0.0225 cP @ 25 C
<b>Helium</b>	-452 F (-269 C)	-458 F (-272 C) at 26 atm	1719 mmHg at -268 C	0.138 (Air=1)	Not applicable	0.94% at 0 C	Not applicable	Not available	Not applicable	0.02012 cP at 26.8 C
<b>Carbon Dioxide</b>	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

	Molecular Weight	Molecular Formula	Density	Weight per Gallon	Volatility by Volume	Volatility	Solvent Solubility
<b>Argon</b>	39.948	AR	1.784 g/L @ 0 C	Not available	100%	Not applicable	Soluble: Organic solvents
<b>Helium</b>	4.0026	He	0.1785 g/L at 0 C	Not available	100%	Not applicable	Insoluble: Not available
<b>Carbon Dioxide</b>	44.01	C-O2	0.114	Not available	Not applicable	Not applicable	Soluble: Alcohol, acetone, hydrocarbons, organic solvents

## Section 10: Stability and Reactivity

	Stability	Conditions to Avoid	Incompatible Materials
<b>Argon</b>	Stable at normal temperatures and pressure.	Stable at normal temperatures and pressure.	No data available.
<b>Helium</b>	Stable at normal temperatures and pressure.	Stable at normal temperatures and pressure.	No data available.
<b>Carbon Dioxide</b>	Stable at normal temperatures and pressure.	Stable at normal temperatures and pressure.	Combustible materials, oxidizing materials, metal salts, reducing agents, metal carbide, metals, bases

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

## Section 11: Toxicology Information

### Acute Effects

	Oral LD50	Dermal LD50	Inhalation
<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
<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>Carbon Dioxide</b>	Not established	Not established	ringing in the ears, nausea, irregular heartbeat, headache, drowsiness, dizziness, tingling sensation, visual disturbances, suffocation, convulsions, coma

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

### Chronic Effects

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

## Section 12: Ecological Information

### Fate and Transport

	Eco toxicity	Persistence / Degradability	Bioaccumulation / Accumulation	Mobility in Environment
<b>Argon</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>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>Carbon Dioxide</b>	Fish toxicity: 150000 ug/L 48 day(s) (Mortality) Brown trout (Salmo trutta) 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

## Section 13: Disposal Considerations

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

## Section 14: Transportation Information

U.S. DOT 49 CFR 172.101

### DOT Information For This Mixture

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

### Canadian Transportation of Dangerous Goods

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

## Section 15: Regulatory Information

### U.S. Regulations

	CERCLA Sections	SARA 355.30	SARA 355.40
Argon	Not regulated.	Not regulated.	Not regulated.
Helium	Not regulated.	Not regulated.	Not regulated.
Carbon Dioxide	Not regulated.	Not regulated.	Not regulated.

### SARA 370.21

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

### SARA 372.65

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

### OSHA Process Safety

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

### State Regulations

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

## Canadian Regulations

	WHMIS Classification
Argon	A
Helium	A
Carbon Dioxide	A

## National Inventory Status

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

## Section 16: Other Information

	NFPA Rating
Argon	HEALTH=0 FIRE=0 REACTIVITY=0 SPECIAL=SA
Helium	HEALTH=0 FIRE=0 REACTIVITY=0 SPECIAL=SA
Carbon Dioxide	HEALTH=3 FIRE=0 REACTIVITY=0 SPECIAL=SA

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