

**AR-CO2 GAS MIXTURE**

**1 PRODUCT AND COMPANY IDENTIFICATION**

**Product Identifier:** AR-CO2 GAS MIXTURE  
**Common Name:** Argon, Carbon Dioxide Mixtures  
**SDS Number:** 31  
**Revision Date:** 06/01/2015  
**Version:** 1.0  
**CAS Number:** N/a  
**Chemical Formula:** Mixture  
**Product Use:** Industrial Use  
**Supplier Details:** Roberts Oxygen Company, Inc.  
P.O. Box 5507  
Rockville, MD 20855

**Emergency:** Chemtrec: 24hr/day 7days/wk (800) 424-9300: for spills, leaks, fire, exposure or accidents involving this product  
**Phone:** Customer Service (301) 948-8100, Mon to Fri from 7:30am to 5:00pm EST  
**Web:** www.robertsoxygen.com

**2 HAZARDS IDENTIFICATION**

**Classification of the substance or mixture**

**GHS Classification in accordance with 29 CFR 1910 (OSHA HCS):**  
Physical, Gases Under Pressure, Compressed Gas

**GHS Label elements, including precautionary statements**

**GHS Signal Word:** ~~WARNING~~

**GHS Hazard Pictograms:**



**GHS Hazard Statements:**

- H280 - Contains gas under pressure; may explode if heated
- OSHA-H01 - MAY DISPLACE OXYGEN AND CAUSE RAPID SUFFOCATION.
- CGA-HG01 - MAY CAUSE FROSTBITE.
- CGA-HG03 - MAY INCREASE RESPIRATION AND HEART RATE.

**GHS Precautionary Statements:**

- P202 - Do not handle until all safety precautions have been read and understood.
- P261 - Avoid breathing dust/fume/gas/mist/vapors/spray.
- P262 - Do not get in eyes, on skin, or on clothing.
- P271 - Use only outdoors or in a well-ventilated area.
  
- P403 - Store in a well ventilated place.
- OSHA-PG01 - DO NOT REMOVE THIS PRODUCT LABEL (or equivalent wording).
- CGA-PG05 - Use a back flow preventive device in the piping.
- CGA-PG06 - Close valve after each use and when empty.
- CGA-PG10 - Use only with equipment rated for cylinder pressure.
- CGA-PG27 - Read and follow the Safety Data Sheet (SDS) before use.
- CGA-PG02 - Protect from sunlight when ambient temperature exceeds 52 °C (125 °F).

**Hazards not otherwise classified (HNOC) or not covered by GHS**

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**3 COMPOSITION/INFORMATION ON INGREDIENTS**

**Ingredients:**

Cas#	%	Chemical Name
7440-37-1	50-90%	Argon, compressed
124-38-9	10-50%	Carbon dioxide

**4 FIRST AID MEASURES**

- Inhalation:** Remove to fresh air and keep comfortable for breathing. If breathing is difficult, give oxygen. If breathing has stopped, give artificial respiration. Get medical attention immediately.
- Skin Contact:** For exposure, immediately warm frostbite area with warm water not to exceed 105°F (41 °C). Water temperature should be tolerable to normal skin. Maintain skin warming for at least 15 minutes or until normal coloring and sensation have returned to the affected area. In case of massive exposure, remove clothing while showering with warm water. Seek medical evaluation and treatment as soon as possible.
- Eye Contact:** Immediately flush eyes thoroughly with water for at least 15 minutes. Hold the eyelids open and away from the eyeballs to ensure that all surfaces are flushed thoroughly. Get immediate medical attention.
- Ingestion:** Ingestion is not considered a potential route of exposure

**5 FIRE FIGHTING MEASURES**

- Flammability:** N/a
- Flash Point:** N/a
- Flash Point Method:** N/a
- Burning Rate:** N/a
- Autoignition Temp:** N/a
- LEL:** N/a

**Firefighting Instructions:**  
Evacuate all personnel from the danger area. Use self-contained breathing apparatus (SCBA) and protective clothing. Immediately cool containers with water from maximum distance. Stop flow of gas if safe to do so, while continuing cooling water spray. Remove ignition sources if safe to do so. Remove containers from area of fire if safe to do so. On-site fire brigades must comply with OSHA 29 CFR 1910.156 and applicable standards under 29 CFR 1910 Subpart L-Fire Protection.

Compressed gas: Asphyxiant, suffocation hazard by lack of oxygen.

Special Protective Clothing and Equipment: Self Contained Breathing Apparatus) for fire fighters.

Use fire control measures appropriate for the surrounding fire. Exposure to fire and heat radiation may cause gas containers to rupture. Cool endangered containers with water spray jet from a protected position. Prevent water used in emergency cases from entering sewers and drainage systems. Stop flow of product if safe to do so. Use water spray or fog to knock down fire fumes if possible.

**6 ACCIDENTAL RELEASE MEASURES**

- Stop the release or leak if safe to do.
- Evacuate the area.
- Wear self contained breathing apparatus, when entering area unless the atmosphere is proven to be safe.

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**HANDLING AND STORAGE**

**Handling Precautions:**

Wear leather safety gloves and safety shoes when handling cylinders. Protect cylinders from physical damage; do not drag, roll, slide or drop. While moving cylinder, always keep in place removable valve cover. Never attempt to lift a cylinder by its cap; the cap is intended solely to protect the valve. When moving cylinders, even for short distances, use a cart (trolley, hand truck, etc.) designed to transport cylinders. Never insert an object (e.g., wrench, screwdriver, pry bar) into cap openings; doing so may damage the valve and cause a leak. Use an adjustable strap wrench to remove over-tight or rusted caps. Slowly open the valve. If the valve is hard to open, discontinue use and contact your supplier. Close the container valve after each use; keep closed even when empty. Never apply flame or localized heat directly to any part of the container. High temperatures may damage the container and could cause the pressure relief device to fail prematurely, venting the container contents.

For additional handling recommendations, consult Compressed Gas Association's Pamphlet P-1.

**Storage Requirements:**

Store in a cool, well-ventilated place. Store and use with adequate ventilation. Store only where temperature will not exceed 125°F (52°C). Post No Smoking or Open Flame signs in storage and use areas. There must be no source of ignition. Separate packages to protect against potential fire and/or explosion damage following appropriate codes and requirements (e.g. NFPA 30, NFPA 55, NFPA 70 and/or NFPA 221) or according to requirements determined by the Authority Having Jurisdiction.

Firmly secure containers upright to keep them from falling or being knocked over. Install valve protection cap, if provided, firmly in place by hand. Store full and empty containers separately. Use a first-in, first-out inventory system to prevent storing full containers for long periods.

**OTHER PRECAUTIONS FOR HANDLING, STORAGE, AND USE:** When handling product under pressure, use piping and equipment adequately designed to withstand the pressures to be encountered. Never work on a pressurized system. Use a back flow preventive device in the piping. Gases can cause rapid suffocation because of oxygen deficiency; store and use with adequate ventilation. If a leak occurs, close the container valve and blow down the system in a safe and environmentally correct manner in compliance with all international, federal/national, state/provincial, and local laws; and then repair the leak. Never place a container where it may become part of an electrical circuit.

For additional storage recommendations, consult Compressed Gas Association's Pamphlet P-1

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**3 EXPOSURE CONTROLS/PERSONAL PROTECTION**

**Engineering Controls:** Oxygen detectors should be used when asphyxiating gases may be released. Systems under pressure should be regularly checked for leakages. Provide adequate general and local exhaust ventilation. Consider work permit system e.g. for maintenance activities.

**Personal Protective Equipment:** Eye protection: Wear safety glasses with side shields. Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

Hand protection: Handle gas containers with working gloves. Gloves must be inspected prior to use.

Respiratory Protections: Self-contained breathing apparatus (SCBA) or positive pressure airline with mask are to be used in oxygen-deficient atmospheres.

Skin and body protection: Wear hand, head, and body protection to help prevent injury from process associated hazards. The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace and the user process and may include arm protectors, hats, and shoulder protection worn over substantial clothing.

Hygiene measures: Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday.

Other: Wear leather safety gloves and safety shoes when handling cylinders.

Argon, compressed (7440-37-1) [50-90%] : no data available

Carbon dioxide (124-38-9) [10-50%]

Components with workplace control parameters

TWA	5,000 ppm	USA. ACGIH Threshold Limit Values (TLV)
Asphyxia		
STEL	30,000 ppm	USA. ACGIH Threshold Limit Values (TLV)
Asphyxia		
TWA	10,000 ppm	USA. OSHA - TABLE Z-1 Limits for Air Contaminants -
	18,000 mg/m <sup>3</sup>	1910.1000
Exposures under 10,000 ppm to be cited as de minimus.		
STEL	30,000 ppm	USA. OSHA - TABLE Z-1 Limits for Air Contaminants -
	54,000 mg/m <sup>3</sup>	1910.1000
TWA	5,000 ppm	USA. Occupational Exposure Limits (OSHA) - Table Z- 1
	9,000 mg/m <sup>3</sup>	Limits for Air Contaminants
The value in mg/m <sup>3</sup> is approximate.		
TWA	5,000 ppm	USA. NIOSH Recommended Exposure Limits
	9,000 mg/m <sup>3</sup>	
Normal constituent of air (about 300 ppm).		
ST	30,000 ppm	USA. NIOSH Recommended Exposure Limits
	54,000 mg/m <sup>3</sup>	
Normal constituent of air (about 300 ppm).		

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**9 PHYSICAL AND CHEMICAL PROPERTIES**

<b>Appearance:</b>	Colorless gas	<b>Odor:</b>	No odor
<b>Physical State:</b>	Gas	<b>Molecular Formula:</b>	AR/CO2 Mixture
<b>Odor Threshold:</b>	Not applicable	<b>Solubility:</b>	Water: 61 mg/l
<b>Particle Size:</b>	Not applicable	<b>Softening Point:</b>	Not applicable
<b>Spec Grav./Density:</b>	No Data Available	<b>Percent Volatile:</b>	Not applicable
<b>Viscosity:</b>	Not applicable	<b>Heat Value:</b>	Not applicable
<b>Sat. Vap. Conc.:</b>	Not applicable	<b>Freezing/Melting Pt.:</b>	No data available
<b>Boiling Point:</b>	No data available	<b>Flash Point:</b>	No data available
<b>Flammability:</b>	Non-Flammable	<b>Octanol:</b>	Not applicable
<b>Partition Coefficient:</b>	Not applicable	<b>Vapor Density:</b>	No data available
<b>Vapor Pressure:</b>	Not applicable	<b>VOC:</b>	Not applicable
<b>pH:</b>	Not applicable	<b>Bulk Density:</b>	Not applicable
<b>Evap. Rate:</b>	Not applicable	<b>Auto-Ignition Temp:</b>	Not applicable
<b>Molecular weight:</b>	No data available	<b>UFL/LFL:</b>	Not applicable
<b>Decomp Temp:</b>	Not applicable		

**10 STABILITY AND REACTIVITY**

<b>Stability:</b>	No reactivity
<b>Conditions to Avoid:</b>	None under recommended storage and handling conditions
<b>Materials to Avoid:</b>	Using this product in welding and cutting applications may create additional hazards. The arc from electric arc welding may form gaseous reaction products such as carbon monoxide and carbon dioxide. Ozone and nitrogen oxides may be formed by the radiation from the arc.
<b>Hazardous Decomposition:</b>	Alkali metals, Alkaline earth metals, Acetylide forming metals, Chromium, Titanium > 1022 °F (550 °C), Uranium (U) > 1382 °F (750 °C), Magnesium > 1427 °F (775 °C). Using this product in welding and cutting may create additional hazards. The arc from electric arc welding may form gaseous reaction products such as carbon monoxide and carbon dioxide. Ozone and nitrogen oxides may be formed by the radiation from the arc. Other decomposition products of arc welding and cutting originate from the volatilization, reaction, and oxidization of the material being worked.
<b>Hazardous Polymerization:</b>	None

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**TOXICOLOGICAL INFORMATION**

Argon, compressed (7440-37-1) [50-90%]

Information on toxicological effects

Acute toxicity:

Oral LD50 no data available

Inhalation LC50

Dermal LD50

Other information on acute toxicity

Skin corrosion/irritation: No data available

Serious eye damage/eye irritation: No data available

Respiratory or skin sensitization: No data available

Germ cell mutagenicity: No data available

Carcinogenicity:

IARC: No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen

ACGIH: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen

NTP: No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen

OSHA: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen

Reproductive toxicity: No data available

Teratogenicity: No data available

Specific target organ toxicity - single exposure (Globally Harmonized System): No data available

Specific target organ toxicity - repeated exposure (Globally Harmonized System): No data available

Aspiration hazard: No data available

Potential health effects: Inhalation May be harmful if inhaled. May cause respiratory tract irritation. Ingestion May be harmful if swallowed.

Skin May be harmful if absorbed through skin. May cause skin and eye irritation.

Medical Signs and Symptoms of Exposure: Nausea, Dizziness, Headache

Synergistic effects: no data available

Carbon dioxide (124-38-9) [10-50%]

Information on toxicological effects

Acute toxicity:

Oral LD50 no data available

Inhalation LC50

Dermal LD50

Other information on acute toxicity

Skin corrosion/irritation: No data available

Serious eye damage/eye irritation: No data available

Respiratory or skin sensitization: No data available

Germ cell mutagenicity: No data available

Carcinogenicity:

IARC: No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen.

ACGIH: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen b

NTP: No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen

OSHA: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen

Reproductive toxicity: No data available

Teratogenicity: No data available

Specific target organ toxicity - single exposure (Globally Harmonized System): No data available

Specific target organ toxicity - repeated exposure (Globally Harmonized System): No data available

Aspiration hazard: No data available

Potential health effects: Inhalation May be harmful if inhaled. May cause respiratory tract irritation. Ingestion May be harmful if swallowed.

Skin May cause severe frostbite. May be harmful if absorbed through skin. May cause skin and eye irritation. Aggravated Acts as a simple asphyxiant by displacing air.

Medical Condition Signs and Symptoms of Exposure: Nausea, Dizziness, Headache, Low to medium concentrations of carbon dioxide can: affect regulation of blood circulation, affect the acidity of body fluids, respiratory difficulties, At high concentrations:, Breathing difficulties,

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Increased pulse rate, change in body acidity, Very high concentrations can cause:, Unconsciousness, death  
Synergistic effects: No data available

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**ECOLOGICAL INFORMATION**

Argon, compressed (7440-37-1) [50-90%]

Information on ecological effects

Toxicity: no data available

Persistence and degradability: no data available

Bioaccumulative potential: no data available

Mobility in soil: no data available

PBT and vPvB assessment: no data available

Other adverse effects: no data available

Carbon dioxide (124-38-9) [10-50%]

Information on ecological effects

Toxicity: no data available

Persistence and degradability: no data available

Bioaccumulative potential: no data available

Mobility in soil: no data available

PBT and vPvB assessment: no data available

Other adverse effects: no data available

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**DISPOSAL CONSIDERATIONS**

Waste disposal recommendations:

Dispose of contents/container in accordance with local/regional/national/international regulations. Contact supplier for any special requirements.

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**14 TRANSPORT INFORMATION**

UN1956, Compressed gas, n.o.s., 2.2, (Argon, Carbon Dioxide)

Avoid transport on vehicles where the load space is not separated from the driver's compartment. Ensure vehicle driver is aware of the potential hazards of the load and knows what to do in the event of an accident or an emergency. Before transporting cylinders: Ensure there is adequate ventilation. Ensure that cylinders are firmly secured. Ensure cylinder valve is closed and not leaking. Ensure valve outlet cap cap (where provided) is correctly fitted. Ensure valve protection device (where provided) is correctly fitted.

**15 REGULATORY INFORMATION**

Component (CAS#) [%] - CODES

Argon, compressed (7440-37-1) [50-90%] MASS, PA, TSCA, TXAIR

Carbon dioxide (124-38-9) [10-50%] MASS, OSHAWAC, PA, TSCA, TXAIR

Listed on the United States TSCA (Toxic Substances Control Act) inventory  
SARA Section 311/312 Hazard Classes: Sudden release of pressure hazard Fire hazard

Regulatory CODE Descriptions

MASS = MA Massachusetts Hazardous Substances List

PA = PA Right-To-Know List of Hazardous Substances

NJ = NJ Right-To-Know List of Hazardous Substances

TSCA = Toxic Substances Control Act

OSHA = OSHA workplace Air Contaminants

TXAIR = TX Air Contaminants with Health Effects Screening Level



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**16 OTHER INFORMATION**

NFPA Health = 1, Fire = 0, Reactivity = 0, Specific Hazard = None



When two or more chemicals are mixed, additional, unexpected hazards can be created. It is the User's responsibility to obtain and understand the safety information for all mixture components prior to mixing. It may be necessary for the User to consult a trained professional to determine the hazards from mixing chemicals.

The information contained in this Safety Data Sheet is believed reliable, based on technical information and industry experience. Roberts Oxygen Company, Inc. provides no warranties or guarantees pertaining to the information provided in connection with the safety suggestions made. Moreover it should not be assumed that every acceptable safety procedure, precaution, or device is listed. Abnormal or unusual circumstances may warrant or suggest further requirements or additional precautions. Roberts Oxygen Company, Inc. requests users to thoroughly review this SDS and become aware of the product hazards and safety information. It is the User's responsibility to determine the conditions for safe use of the product and to confirm the compatibility of any other materials in their use or processes that come in contact with this product.

User acknowledges that the chemicals listed may be hazardous and must be handled accordingly. User further acknowledges its understanding that the chemicals listed may be classified by OSHA as hazardous chemicals, and that there are hazards associated with the possession, transportation and use of the chemical(s), containers, and related equipment and that the User must take proper account of those hazards and deal with them appropriately.

User shall warn all persons who may be exposed to any hazards relating to the chemical(s), containers, and related equipment. User acknowledges that the Seller has supplied the User with all relevant (Material) Safety Data Sheets (SDS) relating to the Products, and that additional copies of the SDS are available on request. OSHA regulations require User to develop and implement a written chemical hazard communications program for its employees regarding all hazardous chemicals.

Further, federal, state and local regulations may exist which are not addressed.

