

Argon/CO2/Oxygen Mixture

Safety Data Sheet E-6790 according to the Hazardous Products Regulation (February 11, 2015) Date of issue: 10-15-1979 Revision date: 02-14-2018 Supersedes: 10-15-2013

SECTION 1: Identification	
1.1. Product identifier	
Product form	: Mixture
Product name	: Argon/CO2/Oxygen Mixture
Other means of identification	: Stargon®,CS,StarGold ™31,HiDep, C162, C320, 522, ACO85, Extendapak 56, Robostar CS
Product group	: Standard Mixtures
1.2. Recommended use and restrict	ions on use
Recommended uses and restrictions	: Industrial use Use as directed.
1.3. Supplier	
Praxair Canada inc. 1200 – 1 City Centre Drive Mississauga - Canada L5B 1M2 T 1-905-803-1600 - F 1-905-803-1682 www.praxair.ca	
1.4. Emergency telephone number	
Emergency number	 1-800-363-0042 Call emergency number 24 hours a day only for spills, leaks, fire, exposure, or accidents involving this product. For routine information, contact your supplier or Praxair sales representative.
SECTION 2: Hazard identification	
2.1. Classification of the substance	or mixture
GHS-CA classification	
Compressed gas H280	
2.2. GHS Label elements, including	precautionary statements
GHS-CA labelling	
Hazard pictograms	
	GHS04
Signal word	: WARNING
Hazard statements	: CONTAINS GAS UNDER PRESSURE; MAY EXPLODE IF HEATED MAY INCREASE RESPIRATION AND HEART RATE.
Precautionary statements	 Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. Use and store only outdoors or in a well-ventilated area. Protect from sunlight when ambient temperature exceeds 52°C (125°F). Use a back flow preventive device in the piping. Close valve after each use and when empty. When returning cylinder, install leak tight valve outlet cap or plug.
2.3. Other hazards	
Other hazards not contributing to the classification	: Asphyxiant in high concentrations. Welding-specific: For unique hazards specific to welding see Sections 8.2 and 16.



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2.4. Unknown acute toxicity (GHS-CA)

No data available

SECTION 3: Composition/information on ingredients

3.1. **Substances**

Not applicable

3.2. **Mixtures**

Name	CAS No.	% (Vol)	Common Name (synonyms)
Argon	(CAS No) 7440-37-1	49 - 99	Argon, compressed
Carbon dioxide	(CAS No) 124-38-9	1 - 50	CARBON DIOXIDE
Oxygen	(CAS No) 7782-44-7	0.0001 - 14.45	Oxygen (dissolved) / Oxygen gas / Oxygen, compressed / Oxygen, dissolved

SECTION 4: First-aid measures	
4.1. Description of first aid measure	S
First-aid measures after inhalation	 Remove to fresh air and keep at rest in a position comfortable for breathing. If not breathing, give artificial respiration. If breathing is difficult, trained personnel should give oxygen. Call a physician.
First-aid measures after skin contact	: Wash with plenty of soap and water. 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.
First-aid measures after 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. Contact an ophthalmologist immediately Get immediate medical attention.
First-aid measures after ingestion	: Ingestion is not considered a potential route of exposure.
4.2. Most important symptoms and	effects (acute and delayed)
No additional information available	
4.3. Immediate medical attention an	d special treatment, if necessary

Other medical advice or treatment : None.

SECTION 5. Fire fighting measures	
SECTION 5: Fire-fighting measures	
5.1. Suitable extinguishing media	
Suitable extinguishing media	: Use extinguishing media appropriate for surrounding fire.
5.2. Unsuitable extinguishing media	
No additional information available	
5.3. Specific hazards arising from the ha	azardous product
Reactivity	: None.
Reactivity in case of fire	: No reactivity hazard other than the effects described in sub-sections below.
5.4. Special protective equipment and p	recautions for fire-fighters
Firefighting instructions	: WARNING: High pressure gas
	Compressed gas: asphyxiant
	Suffocation hazard by lack of oxygen
	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 their provincial and local fire code regulations.
Protection during firefighting	: Compressed gas: asphyxiant. Suffocation hazard by lack of oxygen.
Special protective equipment for fire fighters	: Standard protective clothing and equipment (Self Contained Breathing Apparatus) for fire fighters.



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Other information : Containers are equipped with a pressure relief device. (Exceptions may exist where authorized.) **SECTION 6: Accidental release measures** Personal precautions, protective equipment and emergency procedures 6.1 General measures : WARNING: High-pressure gas. Evacuate personnel to a safe area. Appropriate selfcontained breathing apparatus may be required. Approach suspected leak area with caution. Remove all sources of ignition. if safe to do so. Reduce gas with fog or fine water spray. Stop flow of product if safe to do so. Ventilate area or move container to a well-ventilated area. Before entering the area, especially a confined area, test for sufficient oxygen. 6.2. Methods and materials for containment and cleaning up 6.3. **Reference to other sections** For further information refer to section 8: Exposure controls/personal protection SECTION 7: Handling and storage 7.1. Precautions for safe handling Precautions for safe handling 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 other precautions in using this product, see section 16. Conditions for safe storage, including any incompatibilities 7.2. Store in a cool, well-ventilated place. Store and use with adequate ventilation. Store only where Storage conditions temperature will not exceed 125°F (52°C). 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

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; then repair the leak. Never place a container where it may become part of an electrical circuit.

SECTION 8: Exposure controls/personal protection

Carbon dioxide (124-38	-9)		
USA - ACGIH	ACGIH TLV-TWA (ppm)	5000 ppm	
USA - ACGIH	ACGIH TLV-STEL (ppm)	30000 ppm	
USA - OSHA	OSHA PEL (TWA) (mg/m ³)	9000 mg/m³	
USA - OSHA	OSHA PEL (TWA) (ppm)	5000 ppm	
Canada (Quebec)	VECD (mg/m ³)	54000 mg/m ³	
Canada (Quebec)	VECD (ppm)	30000 ppm	
Canada (Quebec)	VEMP (mg/m ³)	9000 mg/m ³	
Canada (Quebec)	VEMP (ppm)	5000 ppm	
Alberta	OEL STEL (mg/m ³)	54000 mg/m ³	
Alberta	OEL STEL (ppm)	30000 ppm	



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Carbon dioxide (124-38-9)		
Alberta	OEL TWA (mg/m ³)	9000 mg/m ³
Alberta	OEL TWA (ppm)	5000 ppm
British Columbia	OEL STEL (ppm)	15000 ppm
British Columbia	OEL TWA (ppm)	5000 ppm
Manitoba	OEL STEL (ppm)	30000 ppm
Manitoba	OEL TWA (ppm)	5000 ppm
New Brunswick	OEL STEL (mg/m ³)	54000 mg/m ³
New Brunswick	OEL STEL (ppm)	30000 ppm
New Brunswick	OEL TWA (mg/m³)	9000 mg/m ³
New Brunswick	OEL TWA (ppm)	5000 ppm
New Foundland & Labrador	OEL STEL (ppm)	30000 ppm
New Foundland & Labrador	OEL TWA (ppm)	5000 ppm
Nova Scotia	OEL STEL (ppm)	30000 ppm
Nova Scotia	OEL TWA (ppm)	5000 ppm
Nunavut	OEL STEL (mg/m ³)	27000 mg/m ³
Nunavut	OEL STEL (ppm)	15000 ppm
Nunavut	OEL TWA (mg/m³)	9000 mg/m ³
Nunavut	OEL TWA (ppm)	5000 ppm
Northwest Territories	OEL STEL (ppm)	30000 ppm
Northwest Territories	OEL TWA (ppm)	5000 ppm
Ontario	OEL STEL (ppm)	30000 ppm
Ontario	OEL TWA (ppm)	5000 ppm
Prince Edward Island	OEL STEL (ppm)	30000 ppm
Prince Edward Island	OEL TWA (ppm)	5000 ppm
Québec	VECD (mg/m ³)	54000 mg/m ³
Québec	VECD (ppm)	30000 ppm
Québec	VEMP (mg/m ³)	9000 mg/m ³
Québec	VEMP (ppm)	5000 ppm
Saskatchewan	OEL STEL (ppm)	30000 ppm
Saskatchewan	OEL TWA (ppm)	5000 ppm
Yukon	OEL STEL (mg/m ³)	27000 mg/m ³
Yukon	OEL STEL (ppm)	15000 ppm
Yukon	OEL TWA (mg/m ³)	9000 mg/m ³
Yukon	OEL TWA (ppm)	5000 ppm

Appropriate engineering controls

: Use a local exhaust system with sufficient flow velocity to maintain an adequate supply of air in the worker's breathing zone. Mechanical (general): General exhaust ventilation may be acceptable if it can maintain an adequate supply of air. Ensure exposure is below occupational exposure limits (where available). Provide adequate general and local exhaust ventilation.

8.3. Individual protection measures/Personal protective equipment

Personal protective equipment

: Safety glasses. Face shield. Gloves.



Hand protection

: Wear work gloves when handling containers; welding gloves for welding. Gloves must be free of oil and grease.



Eye protection	 Wear safety glasses with side shields. Select in accordance with the current CSA standard Z94.3, "Industrial Eye and Face Protection", and any provincial regulations, local bylaws or guidelines.
Skin and body protection	: Wear work gloves when handling containers. Wear heavy rubber gloves where contact with product may occur. As needed for welding, wear hand, head, and body protection to help prevent injury from radiation and sparks. (See ANSI Z49.1.) At a minimum, this includes welder's gloves and protective goggles, and may include arm protectors, aprons, hats, and shoulder protection as well as substantial clothing. Wear metatarsal shoes and work gloves for cylinder handling, and protective clothing where needed. Wear appropriate chemical gloves during cylinder changeout or wherever contact with product is possible.
Respiratory protection	: Choose in accordance with provincial directives and regulations. Selection should also be based on the current CSA standards Z94.4, "Selection, care and use of respirators." Respirators should be approved by NIOSH and MSHA. Respiratory protection: Use respirable fume respirator or air supplied respirator when working in confined space or where local exhaust or ventilation does not keep exposure below TLV. Select in accordance with provincial regulations, local bylaws or guidelines. Selection should be based on the current CSA standard Z94.4, "Selection, Care, and Use of Respirators." Respirators should also be approved by NIOSH and MSHA. For emergencies or instances with unknown exposure levels, use a self-contained breathing apparatus (SCBA).
Thermal hazard protection	: Wear cold insulating gloves when transfilling or breaking transfer connections.
Other information	: Other protection : Safety shoes for general handling at customer sites. Metatarsal shoes and cuffless trousers for cylinder handling at packaging and filling plants. Select in accordance with the current CSA standard Z195, "Protective Foot Wear", and any provincial regulations, local bylaws or guidelines. For working with flammable and oxidizing materials, consider the use of

flame resistant anti-static safety clothing.

SECTION 9: Physical and chemical	properties
9.1. Information on basic physical and o	chemical properties
Physical state	: Gas
Appearance	: Colourless gas.
Colour	: Colourless.
Odour	: Odourless.
Odour threshold	: No data available
рН	: Not applicable.
pH solution	: No data available
Relative evaporation rate (butylacetate=1)	: No data available
Relative evaporation rate (ether=1)	: Not applicable.
Melting point	: <= °C
Freezing point	: No data available
Boiling point	: No data available
Flash point	: No data available
Auto-ignition temperature	: No data available
Decomposition temperature	: No data available
Vapour pressure	: Not applicable.
Vapour pressure at 50 °C	: No data available
Relative vapour density at 20 °C	: No data available
Relative density	: No data available
Relative density of saturated gas/air mixture	: No data available
Density	: 1.166 - 1.275 kg/m³
Relative gas density	: 0.962 - 1.062
Solubility	: Water: No data available
Log Pow	: Not applicable.
Log Kow	: Not applicable.
Viscosity, kinematic	: Not applicable.
Viscosity, dynamic	: Not applicable.
Viscosity, kinematic (calculated value) (40 °C)	: No data available



Explosive properties	: Not applicable.	
Oxidizing properties	: None.	
Flammability (solid, gas)	: Non flammable	

9.2. **Other information**

No additional information available

SECTION 10: Stability and reactivity	
10.1. Reactivity	
Reactivity	: None.
Chemical stability	: Stable under normal conditions.
Incompatible materials	: 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).
Hazardous decomposition products	: 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.

SECTION 11: Toxicological information	
11.1. Information on toxicological effects	
Acute toxicity (oral)	: Not classified
Acute toxicity (dermal)	: Not classified
Acute toxicity (inhalation)	: Not classified
Skin corrosion/irritation	: Not classified
	pH: Not applicable.
Serious eye damage/irritation	: Not classified
	pH: Not applicable.
Respiratory or skin sensitization	: Not classified
Germ cell mutagenicity	: Not classified
Carcinogenicity	: Not classified
Reproductive toxicity	: Not classified
Specific target organ toxicity (single exposure)	: Not classified
Specific target organ toxicity (repeated exposure)	: Not classified
Aspiration hazard	: Not classified

SECTION 12: Ecological Information				
No ecological damage caused by this product.				
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No ecological damage caused by this product.				
Argon (7440-37-1)				
No ecological damage caused by this product.				



Carbon dioxide (124-38-9)				
Persistence and degradability	No ecological damage caused by this product.			
Oxygen (7782-44-7)				
Persistence and degradability	No ecological damage caused by this product.			
2.3. Bioaccumulative potential				
Argon/CO2/Oxygen Mixture				
Log Pow	Not applicable.			
Log Kow	Not applicable.			
Bioaccumulative potential	No ecological damage caused by this product.			
Argon (7440-37-1)				
Log Pow	Not applicable.			
Log Kow	Not applicable.			
Bioaccumulative potential	No ecological damage caused by this product.			
Carbon dioxide (124-38-9)				
BCF fish 1	(no bioaccumulation)			
Log Pow	0.83			
Log Kow	Not applicable.			
Bioaccumulative potential	No ecological damage caused by this product.			
Oxygen (7782-44-7)				
Log Pow	Not applicable.			
Log Kow	Not applicable.			
Bioaccumulative potential	No ecological damage caused by this product.			
2.4. Mobility in soil				
Argon/CO2/Oxygen Mixture				
Mobility in soil	No data available.			
Log Pow	Not applicable.			
Log Kow	Not applicable.			
Argon (7440-37-1)				
Mobility in soil	No data available.			
Log Pow	Not applicable.			
Log Kow	Not applicable.			
Ecology - soil	No ecological damage caused by this product.			
Carbon dioxide (124-38-9)				
Mobility in soil	No data available.			
Log Pow	0.83			
Log Kow	Not applicable.			
Ecology - soil	No ecological damage caused by this product.			
Oxygen (7782-44-7)				
Mobility in soil	No data available.			
Log Pow	Not applicable.			
Log Kow	Not applicable.			
Ecology - soil	No ecological damage caused by this product.			
2.5. Other adverse effects				
iffect on the ozone layer	: None.			

SECTION 13: Disposal considerations					
13.1.	Disposal methods				
Product/	Packaging disposal recommendations	: Dispose of contents/container to in accordance with local/regional/national/international regulations. Contact supplier for any special requirements. Dispose of contents/container in accordance with local/regional/national/international regulations. Contact supplier for any special requirements.			

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SECTION 14: Transport information				
14.1. Basic shipping description				
In accordance with TDG				
TDG				
UN-No. (TDG)	: UN1956			
TDG Primary Hazard Classes	: 2.2 - Class 2.2 - Non-Flammable, Non-Toxic Gas.			
Proper shipping name	: COMPRESSED GAS, N.O.S.			
Fundacional Lineita en el Lineita el Oucantitur la deur				
Explosive Limit and Limited Quantity Index Passenger Carrying Road Vehicle or Passenger	: 0.125 L			
Carrying Railway Vehicle Index	. 75 L			
14.3. Air and sea transport				
•				
	. 1050			
UN-No. (IMDG) Broper Shipping Name (IMDG)	: 1956 · COMPRESSED CAS NOS			
Proper Shipping Name (IMDG) Class (IMDG)	: COMPRESSED GAS, N.O.S.			
	: 2.2 - Non-flammable, non-toxic gases			
UN-No. (IATA)	: 1956			
Proper Shipping Name (IATA)	: COMPRESSED GAS, N.O.S.			
Class (IATA)	: 2			
· · · ·				
SECTION 15: Regulatory information				
15.1. National regulations				
Argon (7440-37-1)				
Listed on the Canadian DSL (Domestic Substances List)				
Carbon dioxide (124-38-9)				
Listed on the Canadian DSL (Domestic Substan	nces List)			
Oxygen (7782-44-7)				
Listed on the Canadian DSL (Domestic Substan	nces List)			
15.2. International regulations				
Argon (7440-37-1)				
Listed on the AICS (Australian Inventory of Che				
Listed on IECSC (Inventory of Existing Chemica	al Substances Produced or Imported in China) n Inventory of Existing Commercial Chemical Substances)			
Listed on the Korean ECL (Existing Chemicals				
Listed on NZIoC (New Zealand Inventory of Chemicals)				
Listed on PICCS (Philippines Inventory of Chemicals and Chemical Substances) Listed on the United States TSCA (Toxic Substances Control Act) inventory				
Listed on INSQ (Mexican National Inventory of Chemical Substances)				
Carbon dioxide (124-38-9)				
Listed on the AICS (Australian Inventory of Chemical Substances)				
Listed on IECSC (Inventory of Existing Chemical Substances Produced or Imported in China) Listed on the EEC inventory EINECS (European Inventory of Existing Commercial Chemical Substances)				
Listed on the Japanese ENCS (Existing & New Chemical Substances) inventory				
Listed on the Korean ECL (Existing Chemicals List)				
Listed on NZIoC (New Zealand Inventory of Chemicals) Listed on PICCS (Philippines Inventory of Chemicals and Chemical Substances)				
Listed on the United States TSCA (Toxic Substances Control Act) inventory				
Listed on INSQ (Mexican National Inventory of				
Listed on CICR (Turkish Inventory and Control of Chemicals)				

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Oxygen (7782-44-7)

Listed on the AICS (Australian Inventory of Chemical Substances)

- Listed on IECSC (Inventory of Existing Chemical Substances Produced or Imported in China)
- Listed on the EEC inventory EINECS (European Inventory of Existing Commercial Chemical Substances)

Listed on the Korean ECL (Existing Chemicals List)

Listed on NZIoC (New Zealand Inventory of Chemicals)

Listed on PICCS (Philippines Inventory of Chemicals and Chemical Substances)

Listed on the United States TSCA (Toxic Substances Control Act) inventory

Listed on INSQ (Mexican National Inventory of Chemical Substances)

SECTION 16: Other inform	
Date of issue	: 15/10/1979
Revision date	: 14/02/2018
Supersedes	: 15/10/2013
Indication of changes:	
Other information	 When you mix two or more chemicals, you can create additional, unexpected hazards. Obtain and evaluate the safety information for each component before you produce the mixture. Consult an industrial hygienist or other trained person when you evaluate the end product. Before using any plastics, confirm their compatibility with this product.
	Praxair asks users of this product to study this SDS and become aware of the product hazards and safety information. To promote safe use of this product, a user should (1) notify employees, agents, and contractors of the information in this SDS and of any other known product hazards and safety information, (2) furnish this information to each purchaser of the product, and (3) ask each purchaser to notify its employees and customers of the product hazards and safety information.
	The opinions expressed herein are those of qualified experts within Praxair, Inc. We believe that the information contained herein is current as of the date of this Safety Data Sheet. Since the use of this information and the conditions of use are not within the control of Praxair, Inc, it is the user's obligation to determine the conditions of safe use of the product.
	PRAXAIR and the Flowing Airstream design are trademarks or registered trademarks of Praxair Technology, Inc. in the United States and/or other countries.
NFPA health hazard	: 1 - Exposure could cause irritation but only minor residual injury even if no treatment is given.
NFPA fire hazard	: 0 - Materials that will not burn.
NFPA reactivity	: 0 - Normally stable, even under fire exposure conditions, and are not reactive with water.
HMIS III Rating	
Health	: 0 Minimal Hazard - No significant risk to health
Flammability	: 0 Minimal Hazard - Materials that will not burn
Physical	: 2 Moderate Hazard - Materials that are unstable and may undergo violent chemical changes at normal temperature and pressure with low risk for explosion. Materials may react violently with water or form peroxides upon exposure to air.

SDS Canada (GHS) - Praxair

This information is based on our current knowledge and is intended to describe the product for the purposes of health, safety and environmental requirements only. It should not therefore be construed as guaranteeing any specific property of the product.