

Ellenbarrie Industrial Gases Limited Material Safety Data Sheet

1. Chemical Product and Company Identification

Product Name: Compressed Argon, Carbon Dioxide mixture **Trade Name:** Not assigned

Product Use: Shielding gas mixtures

Chemical Name: Mixtures of Argon and Carbon Dioxide **Synonym:** Not available

Chemical Formula: Not applicable **Chemical Family:** Not Applicable

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Supplier Ellenbarrie Industrial Gases Limited.
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**Call emergency numbers 24 hours a day only for spills, leaks, fire, exposure, or accidents involving this product. For routine information, contact your supplier or Ellenbarrie Industrial Gases Limited sales representative.*

2. Composition and Information on Ingredients

INGREDIENTS	% (VOL)	CAS NUMBER	LD ₅₀ (Species & Routes)	LC ₅₀ (Rat, 4 hrs.)	TLV-TWA (ACGIH-2008)
Argon	70-98	7440-37-1	NA	NA	Simple asphyxiant.
Carbon Dioxide	30-2	124-38-9	NA	NA	5000 ppm*,

*TLV-TWA, 15 min STEL, 30,000 ppm, Carbon Dioxide
IDLH= 40,000 ppm (Carbon Dioxide)

3. Hazards Identification

Emergency Overview

CAUTION! High-pressure gas. Can cause rapid suffocation. May cause dizziness and drowsiness. Can increase respiration and heart rate. May cause nervous system damage. Self-contained breathing apparatus may be required by rescue workers. Under ambient conditions, this is a colourless gas with no odor.

OSHA REGULATORY STATUS: The components of this mixture are considered hazardous by the OSHA hazard communication standard (29 CFR 1910.1200)

EFFECTS OF A SINGLE (ACUTE) OVEREXPOSURE:

INHALATION: Asphyxiant. Effects are due to lack of oxygen. The Carbon Dioxide component is physiologically active affecting circulation and breathing. Moderate concentrations may cause headaches, drowsiness, dizziness, stinging of the nose and throat, rapid breathing and heart rate, excitation, excess salivation, vomiting, and unconsciousness. Lack of oxygen can kill.

SKIN CONTACT: No harm expected.

SKIN ABSORPTION: No harm expected.

SWALLOWING: This product is a gas at normal temperature and pressure.

EYE CONTACT: No harm expected.

EFFECTS OF REPEATED (CHRONIC) OVER-EXPOSURE: No harm expected

Other effects of overexposure: Damage to the retinal ganglion cells and CNS may occur

OTHER EFFECTS OF OVER-EXPOSURE:

None known.

MEDICAL CONDITIONS AGGRAVATED BY OVER-EXPOSURE:

A knowledge of the available toxicology information and of the physical and chemical properties of the material suggests that overexposure is unlikely to aggravate existing medical conditions.

SIGNIFICANT LABORATORY DATA WITH POSSIBLE RELEVANCE TO HUMAN HEALTH HAZARD EVALUATION:

None currently known.

CARCINOGENICITY:

Not listed as carcinogen by OSHA, NTP or IARC.

4. First Aid Measures

INHALATION:

If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention immediately.

SKIN CONTACT:

Flush with water. Get medical attention.

SWALLOWING:

This product is a gas at normal temperature and pressure.

EYE CONTACT:

Flush with water. Get medical attention.

NOTES TO PHYSICIAN:

This product is inert. There is no specific antidote. Treatment of over-exposure should be directed at the control of symptoms and the clinical condition.

5. Fire Fighting Measures

FLAMMABLE : No. **IF YES, UNDER WHAT CONDITIONS?** Not applicable.

FLASH POINT (test method) Not applicable. **AUTOIGNITION TEMPERATURE** Not applicable.

FLAMMABLE LIMITS IN AIR, % by volume: **LOWER:** Not applicable. **UPPER:** Not applicable.

EXTINGUISHING MEDIA:

This material cannot catch fire. Use media appropriate for surrounding fire.

SPECIAL FIRE FIGHTING PROCEDURES:

CAUTION! High-pressure gas! Asphyxiant. Effects are due to lack of oxygen. Evacuate all personnel from danger area. Immediately deluge cylinders with water from maximum distance until cool; then move them away from fire area if without risk. Shutoff leak if without risk. Arcs and sparks can ignite combustion. Self-contained breathing apparatus may be required by rescue workers and fire fighter with full turn out gear.

UNUSUAL FIRE AND EXPLOSION HAZARD: Heat of fire can build pressure in cylinder and cause it to rupture.

HAZARDOUS COMBUSTION PRODUCTS: None.

SENSITIVITY TO IMPACT: Avoid impact against container.

SENSITIVITY TO STATIC DISCHARGE: Not applicable.

6. Accidental Release Measures

STEPS TO BE TAKEN IF MATERIAL IS RELEASED OR SPILLED:

CAUTION! High-pressure gas! Evacuate all personnel from danger area. Use self-contained breathing apparatus where needed. Shut off flow if you can do so without risk. Ventilate area or move cylinder to a well-ventilated area. Test for sufficient oxygen, especially in confined spaces, before allowing reentry.

WASTE DISPOSAL METHOD:

Prevent waste from contaminating the surrounding environment. Discard any product, residue, disposable container, or liner in an environmentally acceptable manner, in full compliance with federal, provincial, and local regulations. If necessary, call your local supplier for assistance.

7. Handling and Storage

PRECAUTIONS TO BE TAKEN IN STORAGE:

Store and use with adequate ventilation. Firmly secure cylinders upright to keep them from falling or being knocked over. Screw valve protection cap firmly in place by hand. Store away from heat and direct sunlight. No part of a container should be subjected to a temperature higher than 52°C. Store full and empty cylinders separately. Use a first-in, first-out inventory system to prevent storing full cylinders for long periods.

PRECAUTIONS TO BE TAKEN IN HANDLING:

Protect cylinders from damage. Use a suitable hand truck to move cylinders; do not drag, roll, slide, or drop. Never attempt to lift a cylinder by its cap; the cap is intended solely to protect the valve. Never insert an object (e.g., wrench, screwdriver, and 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. Open valve slowly. If valve is hard to open, discontinue use and contact your supplier.

OTHER HAZARDOUS CONDITIONS OF HANDLING, STORAGE, AND USE:

High pressure gas!!! Use piping and equipment adequately designed to withstand pressures to be encountered. **Gas can cause rapid suffocation due to oxygen deficiency.** Store and use with adequate ventilation. Close valve after each use; keep closed even when empty. **Prevent reverse flow.** Reverse flow into cylinder may cause rupture. Use a check valve or other protective device in any line or piping from the cylinder. **Never work on a pressurized system.** If there is a leak, close the cylinder valve. Blow the system down in a safe and environmentally sound manner and then repair the leak. When using compressed gas cylinders in and around welding applications never ground the cylinders. **Never place a compressed gas cylinder where it may become part of an electrical circuit. Arcs and Sparks can ignite combustible materials.**

Fumes and gases cannot be classified simply. The composition and quantity of both are dependent upon the metal being worked and the process, procedure, equipment, and supplies used. Other conditions which also influence the composition and quantity of the fumes and gases to which workers may be exposed include: coatings on the metal being worked (such as paint, plating, or galvanizing), the number of workers and the volume of the work area, the quality and amount of ventilation, the position of the worker's head with respect to the fume plume, as well as the presence of contaminants in the atmosphere (such as chlorinated hydrocarbon vapours from cleaning and degreasing activities). One recommended way to determine the composition and quantity of fumes and gases to which the workers are exposed is to take an air sample from inside the worker's helmet if worn or in the worker's breathing zone.

8. Exposure Controls/Personal Protection

VENTILATION/ENGINEERING CONTROLS:

LOCAL EXHAUST: Use a local exhaust system, if necessary, to maintain an adequate supply of oxygen in the worker's breathing zone.

MECHANICAL (general): General exhaust ventilation may be acceptable if it can maintain an adequate supply of air.

SPECIAL: None.

OTHER: None.

PERSONAL PROTECTION:

RESPIRATORY PROTECTION: Use 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 by-laws or guidelines. Respirators should also be approved by NIOSH and MSHA.

SKIN PROTECTION: Wear work gloves when handling cylinders and welding gloves while welding.

EYE PROTECTION: Wear safety glasses while handling cylinders and face shield with a filter lens.

OTHER PROTECTIVE EQUIPMENT: As needed, wear hand, head, and body protection which help to prevent injury from radiation, sparks and electrical shock. See ANSI Z49.1. At a minimum this includes welder's gloves and a protective face shield, and may include arm protectors, aprons, hats, shoulder protection, as well as dark substantial clothing. Train the worker not to touch live electrical parts.

9. Physical and Chemical Properties

PHYSICAL STATE: Gas at NTP	MELTING POINT: NA	pH: Not available.
BOILING POINT PRESSURE: NA	VAPOUR: Not applicable	MOLECULAR WEIGHT: NA
SPECIFIC GRAVITY: LIQUID (Water = 1): Not applicable.	SOLUBILITY IN WATER: Negligible	
SPECIFIC GRAVITY: VAPOUR (air = 1): 1.39-1.45	EVAPORATION RATE (Butyl Acetate=1): Not available.	COEFFICIENT OF WATER/OIL DISTRIBUTION: Not applicable.
VAPOUR DENSITY: NA	% VOLATILES BY VOLUME: 100% (v/v).	ODOUR THRESHOLD: NA
APPEARANCE & ODOUR: Colourless.	Odourless.	

10. Stability and Reactivity

STABILITY: The product is stable.

CONDITIONS OF CHEMICAL INSTABILITY: None.

INCOMPATIBILITY (materials to avoid): Alkali metals, alkaline earth metals, metal acetylides, chromium, titanium above 550°C, uranium above 750°C, magnesium above 775°C.

HAZARDOUS DECOMPOSITION PRODUCTS: The arc may form gaseous products such as carbon monoxide and carbon dioxide. Ozone and nitrogen oxides may be formed by the radiation from the arc. Other decomposition products originate from the volatilization, reaction, or oxidation of the material being worked.

HAZARDOUS REACTIONS: May occur.

CONDITIONS OF REACTIVITY: None.

11. Toxicological Information

ACUTE DOSE EFFECTS: For CO₂: LC_{LO} = 90000 ppm, 5 min., human

Welding process may generate hazardous fumes and gases.

Carbon dioxide is an asphyxiant. It initially stimulates respiration and then causes respiratory depression. High concentrations result in narcosis. Symptoms in humans are as follows:

EFFECTS:

	CO₂
	CONCENTRATION:
Breathing rate increases slightly.	1%
Breathing rate increases to 50% above normal level. Prolonged exposure can cause headache, tiredness.	2%
Breathing increases to twice normal rate and become labored. Weak narcotic effect, impaired hearing, headache, increased blood pressure and pulse rate.	3%
Breathing increases to approximately four times normal rate, symptoms of intoxication become evident, and slight choking may be felt.	4 - 5%
Characteristic sharp odor noticeable. Very labored breathing, headache, visual impairment, and ringing in the ears. Judgment may be impaired, followed within minutes by loss of consciousness.	5 - 10%
Unconsciousness occurs more rapidly above 10% level. Prolonged exposure to high concentrations may eventually result in death from asphyxiation.	10 - 100%

12. Ecological Information

No adverse ecological effects expected. This product does not contain any Class I or Class II ozone-depleting chemicals. The components of this mixture are not listed as marine pollutants by TDG Regulations.

13. Disposal Considerations

**WASTE DISPOSAL
METHOD:**

Do not attempt to dispose of residual or unused quantities. Return cylinder to supplier.

14. Transport Information

TDG/IMO SHIPPING NAME: Argon + Carbon Dioxide, Compressed**IDENTIFICATION#:** UN 1956**HAZARD CLASS:** 2.2

Non-flammable, Non-corrosive and non-poisonous gas.

SHIPPING LABEL(s): Non-flammable, non-poisonous gas**PLACARD (when required):** Non-flammable, non-poisonous gas**SPECIAL SHIPPING INFORMATION:**

Cylinders should be transported in a secure position, in a well-ventilated vehicle. Cylinders transported in an enclosed, non ventilated compartment of vehicle can present serious safety hazards.

15. Regulatory Information

The following selected regulatory requirements may apply to this product. Not all such requirements are identified. Users of this product are solely responsible for compliance with all applicable federal, provincial, and local regulations.

WHMIS(Canada) CLASS A: Compressed Gas**International Regulations****EINECS** Not available.**DSCL (EEC)** This product is not classified according to the EU regulations.**TSCA** Both the components of this mixture are enlisted in the Toxic Substance Control Act .

16. Other Information

MIXTURES:

When two or more gases or liquefied gases are mixed, their hazardous properties may combine to 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 make your safety evaluation of the end product. Remember, gases and liquids have properties which can cause serious injury or death.

HAZARD RATING SYSTEM:**HMIS RATINGS:**

HEALTH	0
FLAMMABILITY	0
PHYSICAL HAZARD	3

NFPA RATINGS:

HEALTH	1
FLAMMABILITY	0
PHYSICAL HAZARD	0

CONNECTION:

Use the proper connections. Additional limited-standard connections may apply. Compressed gas cylinders shall not be refilled without the express written permission of the owner. Shipment of a compress gas cylinder which has not been filled by the owner or with/her written consent is a violation of transportation regulations.

Disclaimer: The opinions expressed herein are those of qualified experts within Ellenbarrie Industrial Gases Limited. We believe that the information contained herein is current as of the date of this Material Safety Data Sheet. Since the use of this information and the conditions of use of the product are not within the control of Ellenbarrie Industrial Gases Limited it is the user's obligation to determine the conditions of safe use of the product.

Ellenbarrie Industrial Gases Limited requests the users of this product to study this Material Data Sheet (MSDS) and become aware of product hazards and safety information. To promote safe use of this product, a user should (1) notify its employees, agents and contractors of the information on this MSDS and any product hazards and safety information, (2) furnish this same information to each of its customers for the product, and (3) request such customers to notify their employees and customers for the product of the same product hazards and safety information.

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