



Safety advice.

Compressed gases

Safety Data Sheet

Carbon Dioxide in Argon

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1. PRODUCT AND COMPANY IDENTIFICATION

TradeName	Argon Carbon Dioxide Mixture (Ref: Section 3)
UN-No	UN 1956
Recommended Use	Gas Metal Arc Welding
Manufacturer's Registered Office	Oxygen House, P-43 Taratala Road, Kolkata - 700088
Telephone Number	(+91 33) 66021600
24 Hour Emergency Contact No:	(+91) 9831851034

Linde India Limited

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2. HAZARDS IDENTIFICATION

WARNING!	EMERGENCY OVERVIEW	
	Simple asphyxiant - this product does not contain oxygen and may cause suffocation if released in a confined area. Maintain oxygen levels above 19.5%	
	High pressure compressed gas Keep at temperatures below 52°C / 125°F	
Appearance Colorless	Physical State Compressed gas	Odor Odorless

Potential Health Effects

Principal Routes of Exposure Inhalation.

Acute Toxicity

Inhalation Simple asphyxiant. May cause suffocation by displacing the oxygen in the air. Exposure to an oxygen-deficient atmosphere (<19.5%) may cause dizziness, drowsiness, nausea, vomiting, excess salivation, diminished mental alertness, loss of consciousness, and death. Exposure to atmospheres containing 8-10 % or less oxygen will bring about unconsciousness without warning and so quickly that the individuals cannot help or protect themselves. Lack of sufficient oxygen may cause serious injury or death.

Depending on concentration and duration of exposure to carbon dioxide may cause increased respiration, headache, mild narcotic effects, increased blood pressure and pulse, and asphyxiation. Symptoms of overexposure become more apparent when atmospheric oxygen is decreased to 15-17%.

Eyes None known. Contact with rapidly expanding gas near the point of release may cause severe harm.

Skin None known.

Skin Absorption Hazard No known hazard by skin absorption.

Ingestion Not an expected route of exposure.

Chronic Effects Chronic harmful effects are not known from repeated inhalation of concentrations below PEL/TLV.

Aggravated Medical Conditions Respiratory disorders.

Environmental Hazard See Section 12 for additional Ecological Information.

3. COMPOSITION/INFORMATION ON INGREDIENTS

Chemical Name	CAS-No	Volume %	Chemical Formula
Argon	7440-37-1	15.0 to 98.0	Ar
Carbon dioxide	124-38-9	85.0 to 2.0	CO ₂

4. FIRST AID MEASURES

Eye Contact None under normal use. Get medical attention if symptoms occur.

Skin Contact None under normal use. Get medical attention if symptoms occur.

Inhalation PROMPT MEDICAL ATTENTION IS MANDATORY IN ALL CASES OF INHALATION OVEREXPOSURE. RESCUE PERSONNEL SHOULD BE EQUIPPED WITH SELF-CONTAINED BREATHING APPARATUS (SCBA).
Conscious inhalation victims should be assisted to an uncontaminated area and inhale fresh air. If breathing is difficult, Administer oxygen under medical supervision / trained personnel supervision. Unconscious persons should be moved to an uncontaminated area and, as necessary, given artificial resuscitation and supplemental oxygen. Treatment should be symptomatic and supportive.

Ingestion None under normal use. Get medical attention if symptoms occur.

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5. FIRE-FIGHTING MEASURES

Flammable Properties	Not flammable. Does not support combustion.
Suitable Extinguishing Media	Use extinguishing agent suitable for type of surrounding fire.
Explosion Data	
Sensitivity to Mechanical Impact	None
Sensitivity to Static Discharge	None
Specific Hazards Arising from the Chemical	Cylinders may rupture under extreme heat. Continue to cool fire-exposed cylinders until flames are extinguished. Damaged cylinders should be handled only by specialists.
Protective Equipment and Precautions for Firefighters	As in any fire, wear self-contained breathing apparatus pressure-demand, NIOSH (approved or equivalent) and full protective gear.

6. ACCIDENTAL RELEASE MEASURES

Personal Precautions	Ensure adequate ventilation. Evacuate personnel to safe areas. Use personal protective equipment. Monitor oxygen level.
Environmental Precautions	Prevent the spreading of vapors through sewers, ventilation systems, and confined areas.
Methods for Containment	Stop the flow of gas or remove the cylinder to an outdoor location if this can be done without risk. If the leak is in the container or container valve, contact the appropriate emergency telephone number in Section 1 or call your closest Linde location.
Methods for Cleaning Up	Return cylinder to Linde India Limited.
Other Information	Ventilate the area.

7. HANDLING AND STORAGE

Handling	Use only in ventilated areas. Never attempt to lift a cylinder by its valve protection cap.
	Protect cylinders from physical damage do not drag, roll, slide or drop. When moving cylinders, even for short distances, use a trolley designed to transport cylinders. Use equipment rated for cylinder pressure. Use a backflow preventive device in the piping. Never insert an object (e.g., wrench, screwdriver, pry bar, etc.) into valve cap openings. Doing so may damage the valve, causing a leak to occur.
	Close valve after each use and when empty. If the user experiences any difficulty operating the cylinder valve discontinue use and contact the supplier.
	Never put cylinders into trunks of cars or unventilated areas of passenger vehicles. Never attempt to re-fill a compressed gas cylinder without the owner's written consent. Never strike an arc on a compressed gas cylinder or make a cylinder a part of an electrical circuit.
	For additional recommendations consult rule number 20 of the Gas Cylinders, Rules, 2016.
Storage	Protect from physical damage. Cylinders should be stored upright with a valve protection cap in place and firmly secured to prevent falling. Store in a cool, dry, well-ventilated area of non-combustible construction away from high traffic areas and emergency exits. Keep at temperatures below 52°C / 125°F. Full and empty cylinders should be segregated. Use a "First-In-First-Out" (FIFO) inventory system to prevent full cylinders from being stored for excessive periods of time. Always store and handle compressed gas cylinders in accordance with rule number 21 of the Gas Cylinders, Rules, 2016.

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8. EXPOSURE CONTROLS / PERSONAL PROTECTION Exposure

Guidelines

Chemical Name	ACGIH TLV	OSHA PEL	NIOSH IDLH
Carbon dioxide 124-38-9	STEL = 30000 ppm TWA: 5000 ppm	TWA: 5000 ppm TWA: 9000 mg/m ³ (vacated) TWA: 10000 ppm (vacated) TWA: 18000 mg/m ³ (vacated) STEL: 30000 ppm (vacated) STEL: 54000 mg/m ³ (vacated)	IDLH: 40000 ppm TWA: 5000 ppm TWA: 9000 mg/m ³ STEL: 54000 mg/m ³ STEL: 30000 ppm

Immediately Dangerous to Life or Health.

Other Exposure Guidelines	Vacated limits revoked by the Court of Appeals decision in AFL-CIO v. OSHA, 965 F.2d 962 (11th Cir., 1992).
Engineering Measures	Local exhaust ventilation to prevent accumulation of high concentrations and maintain air-oxygen levels at or above 19.5%.
Ventilation	Use ventilation adequate to keep exposures below recommended exposure limits.
Personal Protective Equipment	
Eye/Face Protection	Wear protective eyewear (safety glasses).
Skin and Body Protection	Work gloves and safety shoes are recommended when handling cylinders.
Respiratory Protection	
General Use	No respiratory equipment is needed if workplace oxygen levels are kept above 19.5%.
Emergency Use	Use positive pressure airline respirator with escape cylinder or self-contained breathing apparatus for oxygen-deficient atmospheres (<19.5%).
Hygiene Measures	Handle in accordance with good industrial hygiene and safety practices.

9. PHYSICAL AND CHEMICAL PROPERTIES

Product Information

Appearance	Colorless.	Odor	Odorless.
Odor Threshold	No information available.	Physical State	Compressed gas
Flash Point	Not applicable.	Autoignition Temperature	No information available
Flammability Limits in Air			
Upper	Not applicable		
Lower	Not applicable		

The following information is for the NON-INERT components of this mixture

Chemical Name	Boiling Point	Melting Point	Molecular Weight	Evaporation Rate	Water Solubility	Vapor Pressure	Vapor Density (Air=1)	Gas Density Kg/m ³ @20°C
Carbon dioxide	56 °C	-56 °C	44.00	-	0.145 g/ml @ 25°C	838 psig (5778 kPa) @ 21.1°C	1.52	1.84

The following information is for the INERT components that may be part of this mixture:

Chemical Name	Boiling Point	Melting Point	Molecular	Evaporation Rate	Water Solubility	Vapor Pressure	Vapor Density (Air=1)	Gas Density Kg/m ³ @20°C
Argon	-185.9 °C	-189.4 °C	39.94	-	0.056 (vol/vol @ 0°C or 1 atm)	Above critical temperature	1.38	1.65

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10. STABILITY AND REACTIVITY

Stability	Stable.
Incompatible Products	Carbon dioxide is incompatible with: Certain reactive metals, hydrides, moist cesium monoxide, or lithium acetylene carbide di ammino may ignite. Passing carbon dioxide over a mixture of sodium peroxide and aluminum or magnesium may explode.
Conditions to Avoid	Due to the presence of Carbon dioxide, Carbonic acid is formed in the presence of moisture.
Hazardous Decomposition Products	None known.
Hazardous Polymerization	Does not occur.

11. TOXICOLOGICAL INFORMATION**Acute Toxicity Product****Information**

LD50 Oral: No information available.

LD50 Dermal: No information available.

LC50 Inhalation: No information available.

Inhalation

Acidosis, adrenal cortical exhaustion, and other metabolic stresses have resulted from prolonged continuous exposure to 1-2% carbon dioxide (10,000 ppm-20,000 ppm). The ACGIH TLV of 5,000 ppm is expected to provide a good margin of safety from asphyxiation and undue metabolic stress provided sufficient oxygen levels are maintained in the air. Increased physical activity, duration of exposure, and decreased oxygen content can affect systemic and respiratory effects resulting from exposure to carbon dioxide.

Repeated Dose Toxicity: No information available.

Component Information: No information available.

Chemical Name	LD50 Oral	LD50 Dermal	LC50 Inhalation
Carbon dioxide	—	—	470000 ppm (Rat)

Toxicity: Chronic harmful effects are not known from repeated inhalation of concentrations below PEL/TLV.

Carcinogenicity: Contains no ingredient listed as a carcinogen.

Irritation: No information available.

Sensitization: No information available.

Reproductive: No information available.

Developmental Toxicity: Oxygen deficiency during pregnancy has produced developmental abnormalities in humans and experimental animals.

Synergistic Materials: None known.

Target Organ Effects: Central vascular system (CVS), Respiratory system.

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Formerly known as BOC India Limited

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12. ECOLOGICAL INFORMATION

Ecotoxicity

The environmental impact of this product has not been fully investigated.

Ozone depletion potential; ODP; (R-11 = 1): Does not contain ozone depleting chemical.

13. DISPOSAL CONSIDERATIONS

Waste Disposal Methods Do not attempt to dispose of residual waste or unused quantities. Return in the shipping container PROPERLY LABELED WITH ANY VALVE OUTLET PLUGS OR CAPS SECURED AND VALVE PROTECTION CAP IN PLACE to Linde India Limited for proper disposal.

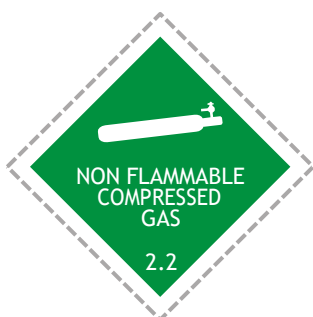
Contaminated Packaging Do not re-use empty containers.

14. TRANSPORT INFORMATION

Proper shipping name	Compressed gas, n.o.s.
Hazard Class	2.2
Subsidiary Class	None
UN-Number	UN1956
Description	UN1956, Compressed gas, n.o.s (Argon, Carbon Dioxide), 2.2

15. Regulatory Information

Labeling of cylinders	: Label 2.2: non-flammable non-toxic gas.
Risk phrases	: RAs Asphyxiate in high concentrations.
Safety phrases	: S9 Keep container in a well-ventilated place. S23 Do not breathe gas.



16. Other Information

General Ensure all national/local regulations are observed.
The hazard of asphyxiation is often overlooked and must be stressed during operator training.

Document Information In preparing this document help has been taken from MSDS for Linde (US)

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End of Safety Data Sheet

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