



Date Prepared: November 1, 2007

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MATERIAL SAFETY DATA SHEET

Product Name: Special SUNARC

November 1, 2007

1. Chemical Product and Company Identification

Linweld, Inc
9911 Deer Park Road
Waverly, NE 68462

Telephone Number
Information: (402) 786-3330
Emergency: (402) 786-5277

Product Name: Special SUNARC
Chemical Name: Carbon dioxide and oxygen in argon
Common Names: Carbon dioxide and oxygen in argon

2. Hazard Ingredients and Identity Information

COMPONENT	% VOLUME	OSHA-PEL	ACGIH-TLV	CAS NUMBER
Carbon Dioxide	5 – 50	5000 ppm TWA	5000 ppm TWA 30000 ppm STEL	000124-38-9
Oxygen	6 – 10	N/A	N/A	007782-44-7
Argon	40 – 90	Simple Asphyxiant	Simple Asphyxiant	007440-37-1

3. Physical and Chemical Characteristics

	Argon	Carbon Dioxide	Oxygen
Gas Density	0.103 lb/cf (1.650 kg/m ³)	0.1144 lb/cf (1.8333 kg/m ³)	0.081 lb/cf (1.309 kg/m ³)
Specific Gravity	1.38	0.90	1.105
Solubility in Water	0.056	0.0491	0.032
Expansion Ratio	Not applicable	Not applicable	Not applicable
Freezing Point	-189.2° C (-308.9° F)	Not applicable	-218.4° C (-361.1° F)
Evaporation Rate	Not applicable	Not applicable	Not applicable
Boiling Point	-185.9° C (-302.6° F)	Sublimes	-182.9° C (-297.3° F)
Specific Volume	9.71 ft ³ /lb	8.741 ft ³ /lb	12.08 ft ³ /lb
Molecular Weight	39.95	44.01	31.9988
Odor Threshold	Not applicable	Not applicable	Not applicable
Vapor Pressure	Not applicable	838 psig @ 70° F	Not applicable

Appearance and Odor:

Colorless, odorless gas or may have a sharp odor, depending on the level of carbon dioxide.

How to Detect This Substance:

There are no distinct warning properties of the mixture, unless higher carbon dioxide level produces an odor. Leak detection solution may be applied to joints and fittings to identify leaks.

4. Fire and Explosion Hazard Data

Flammability Classification: Nonflammable Flash Point (F): N/A LEL (%): N/A
Ignition Temperature: N/A Method: N/A UEL (%): N/A

Extinguishing Media: N/A

Fire Fighting Procedures: N/A

Fire & Explosion Hazard: N/A

5. Reactivity Data

Stability: Stable at standard temperatures and pressures **Hazardous Polymerization:** Will not occur

Incompatibility: None

Conditions to Avoid: Contact with incompatible material, heat, spark or flame. Cylinders exposed to high temperatures or direct flame can rupture or burst.

Hazardous Decomposition or Byproducts: None **Other Reactivity Data:** N/A

6. Health Hazard Data

Route(s) of Entry:	Eye contact No	Skin Contact Yes	Skin Absorption No
	Inhalation Yes	Ingestion No	

Health Hazards:

Acute

Product is a simple asphyxiant. Effects of oxygen deficiency may include any, all or none of the following: rapid breathing, diminished mental alertness, impaired muscle coordination, blurred speech, and fatigue. As asphyxiation progresses nausea, vomiting, and loss of consciousness may occur, eventually leading to convulsions, coma and death. Carbon dioxide is an asphyxiant and powerful cerebral vasodilator. Inhalation of carbon dioxide concentrations between 2% and 10% can cause nausea, dizziness, headache, mental confusion, increased blood pressure and respiratory rate. Concentrations of low levels of carbon dioxide have no known permanent harmful effect.

Chronic

N/A

Carcinogenicity:

NTP No	IARC Monographs No	OSHA No
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Signs and Symptoms of Exposure and Emergency First Aid Procedures:

Eye Contact N/A

Skin Contact N/A

Inhalation

Depending on concentration and duration of exposure, carbon dioxide may cause increased respiration, headache, mild narcotic effects, increased blood pressure and pulse, and asphyxiation. Symptoms of overexposure to carbon dioxide become more apparent when atmospheric oxygen is decreased to 15-17%. Chronic harmful effects are not known from repeated inhalation of concentrations below the PEL/TLV. Release of this gas mixture may result in an oxygen-deficient atmosphere. Effects may include disturbed muscular coordination, abnormal fatigue, respiratory disturbance, nausea, vomiting, or loss of consciousness. Death may occur due to asphyxiation. Oxygen is not acutely toxic under normal pressure. Prolonged inhalation of high oxygen concentrations (>75%) may affect coordination, attention, and cause tiredness or respiratory irritation. Oxygen is more toxic when inhaled at elevated pressures. Depending upon pressure and duration of exposure, pure oxygen at elevated pressures (i.e.: divers) may cause cramps, dizziness, difficulty breathing, convulsions, edema, and death. Elevated oxygen concentrations in incubators have caused visual impairment and blindness in premature infants. High oxygen concentrations primarily affect eyes which are not fully developed. Remove to fresh air, as quickly as possible. Only trained personnel should administer supplemental oxygen and/or cardio-pulmonary resuscitation, if necessary. Seek medical attention immediately.

Ingestion N/A

Medical Conditions Aggravated by Exposure:

Persons of ill health that may be aggravated by exposure to argon should not be allowed to work with this product.

7. Precautions for Safe Handling and Use**Actions if Released or Spilled:**

Evacuate all personnel from affected area. Use appropriate personal protective equipment.

Waste Disposal Method:

Do not attempt to dispose of waste or unused quantities. Return in properly labeled shipping container, with any valve outlet plugs or caps secured and valve protection caps in place.

Handling and Storage Precautions:

Use only in well-ventilated areas. Valve protection caps must remain in place unless cylinder is secured with valve outlet piped to point of use. Do not drag, slide or roll cylinders. Use a suitable hand truck for cylinder movement. Use a pressure-reducing regulator when connecting cylinder to lower pressure piping or systems. Do not heat cylinder. Use a check valve or trap in the discharge line to prevent hazardous backflow into the cylinder.

Protect cylinders from physical damage. Store in cool, dry, well-ventilated area away from heavy traffic areas and emergency exits. Do not allow temperature of cylinder storage area to exceed 125° F. Cylinders should be stored upright and firmly secured to prevent falling or being knocked over. Full and empty cylinders should be segregated.

Other Precautions:

Argon is noncorrosive and may be used with common structural materials. Dry carbon dioxide may be used with common structural materials. Moist carbon dioxide is generally corrosive by its formation of carbonic acid. For applications with moist carbon dioxide, 316, 309 and 310 stainless steels may be used as well as Hastelloy A, B, & C and Monel. Ferrous nickel alloys are slightly susceptible to corrosion. At normal temperatures, carbon dioxide is compatible with most plastics and elastomers.

Compressed gas cylinders should only be refilled by qualified personnel. Shipment of compressed gas cylinders that have been filled without the consent of the cylinder owner is a violation of federal law (49 CFR).

Always secure cylinders in an upright position during transportation. Never transport cylinders in enclosed space such as a vehicle truck or van.

For additional recommendations, see CGA Pamphlets P-1.

Transportation Information:

Shipping Name	Compressed Gas, NOS
Hazard Class	2.2
ID Number	UN1956
Shipping Label - 1	Nonflammable Gas

NFPA Rating:

Health: 0 **Flammability:** 0 **Reactivity:** 0

8. Control Measures**Eye Protection:**

Safety glasses or goggles as appropriate

Protective Gloves:

Protective gloves of any material.

Respiratory Protection:

Positive pressure air line with full mask or self-contained breathing apparatus should be available for emergency use.

Ventilation:

Local exhaust to prevent argon or carbon dioxide accumulation sufficient to reduce oxygen concentration below 19.5%.

Other Protective Clothing or Equipment:

Safety shoes as appropriate.

9. Regulatory Information

SARA TITLE III NOTIFICATIONS AND INFORMATION

SARA Title III – Section 313 Supplier Notification:

This product does not contain toxic chemicals subject to the reporting requirements of section 313 of the Emergency Planning and Community Right-To-Know Act (EPCRA) of 1986 and 40 CFR 372.

SARA Title III – Hazard Classes:

Sudden Release of Pressure Hazard

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