



**MATERIAL SAFETY DATA SHEET**

**PRODUCT NAME: ARGOSHIELD GAS #5C, #8C, #10C, #15C, #25C AND #30C**

**1. Chemical Product and Company Identification**

**BOC Gases,  
Division of  
The BOC Group, Inc.  
575 Mountain Avenue  
Murray Hill, NJ 07974**

**BOC Gases  
Division of  
BOC Canada Limited  
5975 Falbourne Street, Unit 2  
Mississauga, Ontario L5R 3W6**

**TELEPHONE NUMBER:** (908) 464-8100  
**24-HOUR EMERGENCY TELEPHONE NUMBER:**  
**CHEMTREC** (800) 424-9300

**TELEPHONE NUMBER:** (905) 501-1700  
**24-HOUR EMERGENCY TELEPHONE NUMBER:**  
(905) 501-0802  
**EMERGENCY RESPONSE PLAN NO:** 20101

**PRODUCT NAME:** ARGOSHIELD GAS #5C, #8C, #10C, #15C, #25C AND #30C  
**CHEMICAL NAME:** Carbon Dioxide in Argon  
**COMMON NAMES/SYNONYMS:** Argon in Carbon Dioxide; ARGOSHIELD #10C; ARGOSHIELD #15C; ARGOSHIELD #25C; ARGOSHIELD #30C; ARGOSHIELD #5C; ARGOSHIELD #8C; Carbon Dioxide in Argon  
**TDG (Canada) CLASSIFICATION:** 2.2  
**WHMIS CLASSIFICATION:** A, D2B

**PREPARED BY:** Loss Control (908)464-8100/(905)501-1700  
**PREPARATION DATE:** 6/1/95  
**REVIEW DATES:** 6/7/96

**2. Composition, Information on Ingredients**

INGREDIENT	% VOLUME	PEL-OSHA <sup>1</sup>	TLV-ACGIH <sup>2</sup>	LD <sub>50</sub> or LC <sub>50</sub> Route/Species
Argon FORMULA: Ar CAS: 7440-37-1 RTECS #: CF2300000	15.0 to 95.0	Simple Asphyxiant	Simple Asphyxiant	Not Available
Carbon Dioxide FORMULA: CO <sub>2</sub> CAS: 124-38-9 RTECS #: FF6400000	5.0 to 85.0	5000 ppm TWA	5000 ppm TWA 30,000 ppm STEL	Not Available

<sup>1</sup> As stated in 29 CFR 1910, Subpart Z (revised July 1, 1993)

<sup>2</sup> As stated in the ACGIH 1994-95 Threshold Limit Values for Chemical Substances and Physical Agents

**3. Hazards Identification**

**EMERGENCY OVERVIEW**

This product does not contain oxygen and may cause asphyxia if released in a confined area. Carbon dioxide exposure can cause nausea and respiratory problems. High concentrations may cause vasodilation leading to circulatory collapse.

**ROUTE OF ENTRY:**

Skin Contact No	Skin Absorption No	Eye Contact No	Inhalation Yes	Ingestion No
--------------------	-----------------------	-------------------	-------------------	-----------------

PRODUCT NAME: ARGOSHIELD GAS #5C, #8C, #10C, #15C, #25C AND #30C

**HEALTH EFFECTS:**

Exposure Limits Yes	Irritant No	Sensitization No
Teratogen No	Reproductive Hazard No	Mutagen No
Synergistic Effects None Reported		

Carcinogenicity: -- NTP: No IARC: No OSHA: No

**EYE EFFECTS:**

None known or expected.

**SKIN EFFECTS:**

None known or expected.

**INGESTION EFFECTS:**

None known or expected.

**INHALATION EFFECTS:**

Carbon dioxide is the most powerful vasodilator known. Inhaling large concentrations cause rapid circulatory insufficiency leading to coma and death. Chronic harmful effects are not known from repeated inhalation of low concentrations of these mixtures (less than 0.5%). Concentrations of 3% to 5% carbon dioxide when inhaled with adequate oxygen in the air will cause an increase in the respiratory rate. Higher concentrations will cause headaches, dizziness, labored breathing and eventual unconsciousness.

The effects of exposure to high concentrations of argon in the air due to displacement of oxygen necessary for life are headaches, dizziness, labored breathing and eventual unconsciousness.

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

Other effects of oxygen deficiency resulting from simple asphyxiants may include: rapid breathing, diminished mental alertness, impaired muscular coordination, faulty judgement, depression of all sensations, emotional instability, and fatigue. As asphyxiation progresses, nausea, vomiting, prostration, and loss of consciousness may result eventually leading to convulsions, coma, and death.

**NFPA HAZARD CODES**

Health: 1  
Flammability: 0  
Reactivity: 0

**HMIS HAZARD CODES**

Health: 1  
Flammability: 0  
Reactivity: 0

**RATINGS SYSTEM**

0 = No Hazard  
1 = Slight Hazard  
2 = Moderate Hazard  
3 = Serious Hazard  
4 = Severe Hazard

#### 4. First Aid Measures

**EYES:**

None normally required.

**SKIN:**

None normally required.

**INGESTION:**

None required.

**INHALATION**

PROMPT MEDICAL ATTENTION IS MANDATORY IN ALL CASES OF OVEREXPOSURE. RESCUE PERSONNEL SHOULD BE EQUIPPED WITH SELF-CONTAINED BREATHING APPARATUS. Victims should be assisted to an uncontaminated area and inhale fresh air. Quick removal from the contaminated area is most important. Unconscious persons should be moved to an uncontaminated area. If they are not breathing, administer artificial resuscitation. Further treatment should be symptomatic and supportive.

#### 5. Fire Fighting Measures

Conditions of Flammability: Nonflammable		
Flash point: None	Method: Not Applicable	Autoignition Temperature: None
LEL(%): None	UEL(%): None	
Hazardous combustion products: None		
Sensitivity to mechanical shock: None		
Sensitivity to static discharge: None		

**FIRE AND EXPLOSION HAZARDS:**

None. Nonflammable.

**EXTINGUISHING MEDIA:**

Use extinguishing media suitable for combustible materials involved in the fire. Use water spray to cool fire exposed containers.

#### 6. Accidental Release Measures

Evacuate all personnel from affected area. Use appropriate protective equipment. If leak is in user's equipment, be certain to purge piping with inert gas prior to attempting repairs. If leak is in container or container valve, contact the appropriate emergency telephone number listed in Section 1 or call your closest BOC location.

#### 7. Handling and Storage

**Electrical Classification:**

Nonhazardous.

These mixtures are noncorrosive and may be used with any common structural material.

Use only in well-ventilated areas. Valve protection caps must remain in place unless container is secured with valve outlet piped to use point. Do not drag, slide or roll cylinders. Use a suitable hand truck for cylinder

**PRODUCT NAME: ARGOSHIELD GAS #5C, #8C, #10C, #15C, #25C AND #30C**

movement. Use a pressure reducing regulator when connecting cylinder to lower pressure (<3000 psig) piping or systems. Do not heat cylinder by any means to increase the discharge rate of product from the cylinder. Use a check valve or trap in the discharge line to prevent hazardous back flow into the system.

Protect cylinders from physical damage. Store in cool, dry, well-ventilated area away from heavily trafficked areas and emergency exits. Do not allow the temperature where cylinders are stored to exceed 125°F (52°C). Cylinders should be stored upright and firmly secured to prevent falling or being knocked over. Full and empty cylinders should be segregated. Use a "first in-first out" inventory system to prevent full cylinders being stored for excessive periods of time.

For additional storage recommendations, consult Compressed Gas Association's Pamphlets P-1, P-9 and Safety Bulletin SB-8.

## 8. Exposure Controls, Personal Protection

### EXPOSURE LIMITS<sup>1</sup>:

INGREDIENT	% VOLUME	PEL-OSHA <sup>2</sup>	TLV-ACGIH <sup>3</sup>	LD <sub>50</sub> or LC <sub>50</sub> Route/Species
Argon FORMULA: Ar CAS: 7440-37-1 RTECS #: CF2300000	15.0 to 95.0	Simple Asphyxiant	Simple Asphyxiant	Not Available
Carbon Dioxide FORMULA: CO <sub>2</sub> CAS: 124-38-9 RTECS #: FF6400000	5.0 to 85.0	5000 ppm TWA	5000 ppm TWA 30,000 ppm STEL	Not Available

<sup>1</sup> Refer to individual state or provincial regulations, as applicable, for limits which may be more stringent than those listed here.

<sup>2</sup> As stated in 29 CFR 1910, Subpart Z (revised July 1, 1993)

<sup>3</sup> As stated in the ACGIH 1994-1995 Threshold Limit Values for Chemical Substances and Physical Agents.

IDLH (Carbon Dioxide): 50,000 ppm

### ENGINEERING CONTROLS:

Use local exhaust and general ventilation to maintain minimum 19.5% oxygen level and less than 0.5% carbon dioxide level in ambient air.

### EYE/FACE PROTECTION:

Safety goggles or glasses.

### SKIN PROTECTION:

Protective industrial work gloves of any suitable material.

### RESPIRATORY PROTECTION:

A supplied air respirator with full facepiece equipped with an escape bottle or a self-contained breathing apparatus should be available for emergency use. Operate this equipment in the positive pressure demand mode.

### OTHER/GENERAL PROTECTION

Safety shoes.

## 9. Physical and Chemical Properties

PARAMETER	VALUE	UNITS
Physical state (gas, liquid, solid)	: Gas	
Vapor pressure	: Not Available	
Vapor density (Air = 1)	: Not Available	
Evaporation point	: Not Available	
Boiling point	: Not Available	
Freezing point	: Not Available	
pH	: Not Available	
Specific gravity (Air = 1)	: 1.39	
Oil/water partition coefficient	: Not Available	
Solubility (H2O)	: Slight	
Odor threshold	: Not Applicable	
Odor and appearance	: Odorless; colorless Gas	

## 10. Stability and Reactivity

### STABILITY:

Stable

### INCOMPATIBLE MATERIALS:

None

### HAZARDOUS DECOMPOSITION PRODUCTS:

None

### HAZARDOUS POLYMERIZATION:

Will not occur.

## 11. Toxicological Information

### REPRODUCTIVE:

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

## 12. Ecological Information

No data given.

## 13. Disposal Considerations

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 BOC Gases or authorized distributor for proper disposal.

PRODUCT NAME: ARGOSHIELD GAS #5C, #8C, #10C, #15C, #25C AND #30C

## 14. Transport Information

PARAMETER	United States DOT	Canada TDG
PROPER SHIPPING NAME:	Compressed gases,.n.o.s. (Argon, Carbon Dioxide)	Compressed gases,.n.o.s. (Argon, Carbon Dioxide)
HAZARD CLASS:	2.2	2.2
IDENTIFICATION NUMBER:	UN 1956	UN 1956
SHIPPING LABEL:	NONFLAMMABLE GAS	NONFLAMMABLE GAS

## 15. Regulatory Information

### SARA TITLE III NOTIFICATIONS AND INFORMATION

#### SARA TITLE III - HAZARD CLASSES:

Acute Health Hazard

Sudden Release of Pressure Hazard

## 16. Other Information

Compressed gas cylinders shall not be refilled without the express written permission of the owner. Shipment of a compressed gas cylinder which has not been filled by the owner or with his/her (written) consent is a violation of transportation regulations.

#### DISCLAIMER OF EXPRESSED AND IMPLIED WARRANTIES:

Although reasonable care has been taken in the preparation of this document, we extend no warranties and make no representations as to the accuracy or completeness of the information contained herein, and assume no responsibility regarding the suitability of this information for the user's intended purposes or for the consequences of its use. Each individual should make a determination as to the suitability of the information for their particular purpose(s).