



**MATERIAL SAFETY DATA SHEET**

**PRODUCT NAME: HELIUM, GAS**

**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: 2-0101**

**PRODUCT NAME: HELIUM, GAS  
CHEMICAL NAME: Helium  
COMMON NAMES/SYNONYMS: Helium; Helium, compressed; Helium-4  
TDG (Canada) CLASSIFICATION: 2.2  
WHMIS CLASSIFICATION: A**

**PREPARED BY: Loss Control (908)464-8100/(905)501-1700  
PREPARATION DATE: 6/1/95  
REVIEW DATES: 6/1/99**

**2. Composition, Information on Ingredients**

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

<b>INGREDIENT</b>	<b>% VOLUME</b>	<b>PEL-OSHA<sup>2</sup></b>	<b>TLV-ACGIH<sup>3</sup></b>	<b>LD<sub>50</sub> or LC<sub>50</sub> Route/Species</b>
Helium FORMULA: He CAS: 7440-59-7 RTECS #: MH6520000	99.995 to 99.9999	None Established	Simple Asphyxiant	Not Available

<sup>1</sup> Refer to individual state of 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 1998-1999 Threshold Limit Values for Chemical Substances and Physical Agents.

OSHA Regulatory Status: This material is classified as hazardous under OSHA regulations.

**3. Hazards Identification**

**EMERGENCY OVERVIEW**  
Odorless, colorless, non-flammable gas. Simple Asphyxiant - This product does not contain oxygen and may cause asphyxia if released in a confined area. Intentional misuse of this product can cause serious lung damage or death. Maintain oxygen levels above 19.5%. Contents under pressure. Use and store below 125 °F.

PRODUCT NAME: HELIUM, GAS

**ROUTE OF ENTRY:**

Skin Contact No	Skin Absorption No	Eye Contact No	Inhalation Yes	Ingestion No
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**HEALTH EFFECTS:**

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

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

**EYE EFFECTS:**

No adverse effects anticipated.

**SKIN EFFECTS:**

No adverse effects anticipated.

**INGESTION EFFECTS:**

No adverse effects anticipated.

**INHALATION EFFECTS:**

Product is a non-toxic simple asphyxiant. 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.

Intentional inhalation of helium balloon gas can cause asphyxiation, lung damage, and death.

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

**MEDICAL CONDITIONS AGGRAVATED BY EXPOSURE:** None known.

**NFPA HAZARD CODES**

Health: 0  
Flammability: 0  
Instability: 0

**HMIS HAZARD CODES**

Health: 0  
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 required.

**SKIN:**

None required.

**MSDS:** G-5

**Revised:** 6/1/99

PRODUCT NAME: HELIUM, GAS

**INGESTION:**

Ingestion is not anticipated.

**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, and if breathing has stopped, administer artificial resuscitation and supplemental oxygen. 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:**

Nonflammable. Cylinder may rupture violently from pressure when involved in a fire situation.

**EXTINGUISHING MEDIA:**

None required. Use as appropriate for surrounding materials.

**FIRE FIGHTING INSTRUCTIONS:** Firefighters should wear respiratory protection (SCBA) and full turnout or Bunker gear. Continue to cool fire-exposed containers until well after flames are extinguished.

**6. Accidental Release Measures**

Evacuate all personnel from affected area. Use appropriate protective equipment. 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:**

Non-hazardous.

This gas mixture is noncorrosive and may be used with all common structural materials.

Use only in well-ventilated areas. Valve protection caps must remain in place unless container is secured with valve protection outlet piped to use point. 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 (<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 cylinder.

**MSDS:** G-5

**Revised:** 6/1/99

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Protect cylinders from physical damage. Store in cool, dry, well-ventilated area of non-combustible construction 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. Use a "first in-first out" inventory system to prevent full cylinders being stored for excessive periods of time.

Proper handling, storage and operation of regulating equipment and cylinders is required to safely fill helium balloons. **DO NOT ALLOW CHILDREN** or unqualified people to operate balloon filling equipment. **INTENTIONAL INHALATION OF HELIUM CAN CAUSE SERIOUS LUNG DAMAGE OR DEATH.** A balloon filling helium regulator must be attached to the valve before it is opened. Close cylinder valve after each use and when empty. Do not use in poorly ventilated area or attempt to remove stuck or jammed protective caps. Check for leaks and do not use leaky equipment. Do not use helium unless cylinder is properly labeled. Do not attempt to transfer helium from cylinder into any other container. Do not substitute hydrogen (a highly flammable gas) for helium.

For additional recommendations, consult Compressed Gas Association Pamphlets P-1, P-9, P-9.1, P-18, SB-14, and Safety Bulletin SB-2.

Never carry a compressed gas cylinder or a container of a gas in cryogenic liquid form in an enclosed space such as a car trunk, van or station wagon. A leak can result in a fire, explosion, asphyxiation or a toxic exposure.

## **8. Exposure Controls, Personal Protection**

### **ENGINEERING CONTROLS:**

Local exhaust to prevent accumulation of high concentrations and maintain air oxygen levels at or above 19.5%.

### **EYE/FACE PROTECTION:**

Safety goggles or glasses as appropriate for the job.

### **SKIN PROTECTION:**

Protective gloves of material appropriate for the job.

### **RESPIRATORY PROTECTION:**

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

### **OTHER/GENERAL PROTECTION:**

Safety shoes or other footwear as appropriate for the job.

## 9. Physical and Chemical Properties

PARAMETER	VALUE	UNITS
Physical state (gas, liquid, solid)	: Gas	
Vapor pressure	: Not Available	
Vapor density (Air = 1)	: 0.14 (Gas)	
Evaporation point	: Not Available	
Boiling point	: -452.1	°F
	: -268.9	°C
Freezing point	: Not Available	
	: Not Available	
PH	: Not Applicable	
Specific gravity	: Not Available	
Oil/water partition coefficient	: Not Available	
Solubility (H <sub>2</sub> O)	: Negligible	
Odor threshold	: Not Applicable	
Odor and appearance	: Colorless, odorless gas	

## 10. Stability and Reactivity

### STABILITY:

Stable

### INCOMPATIBLE MATERIALS:

None

### HAZARDOUS POLYMERIZATION:

Does not occur.

## 11. Toxicological Information

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

No data given in the Registry of Toxic Effects of Chemical Substances (RTECS) or Sax, Dangerous Properties of Industrial Materials, 7th ed.

## 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.

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## 14. Transport Information

PARAMETER	United States DOT	Canada TDG
PROPER SHIPPING NAME:	Helium, compressed	Helium, compressed
HAZARD CLASS:	2.2	2.2
IDENTIFICATION NUMBER:	UN 1046	UN 1046
SHIPPING LABEL:	NONFLAMMABLE GAS	NONFLAMMABLE GAS

## 15. Regulatory Information

### SARA TITLE III NOTIFICATIONS AND INFORMATION

#### SARA TITLE III - HAZARD CLASSES:

Sudden Release of Pressure Hazard

## 16. Other Information

ACGIH	American Conference of Governmental Industrial Hygienists
DOT	Department of Transportation
IARC	International Agency for Research on Cancer
NTP	National Toxicology Program
OSHA	Occupational Safety and Health Administration
PEL	Permissible Exposure Limit
SARA	Superfund Amendments and Reauthorization Act
STEL	Short Term Exposure Limit
TDG	Transportation of Dangerous Goods
TLV	Threshold Limit Value
WHMIS	Workplace Hazardous Materials Information System

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.

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