

**Helium**  
**Material Safety**  
**Data Sheet**

**BOGGS GASES**

620 Main Street  
Titusville, FL 32796  
Phone: (321) 267-4110  
FAX: (321) 267-7171

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<b>EMERGENCY PHONE #:</b> Chemtrec: 1-800-424-9300		<b>Created:</b> January 01, 2003   <b>Revised:</b> January 01, 2007	
<b>MANUFACTURER'S NAME:</b> BOGGS GASES 620 Main Street Titusville, FL 32796-3488 Ph: (321) 267-4110 FAX: (321) 267-7171		<b>TRADE NAME AND SYNONYMS:</b> Helium	<b>CHEMICAL NAME AND SYNONYMS:</b> Helium
		<b>FORMULA</b> He MW: 4.003	<b>CHEMICAL FAMILY:</b> Inert Gas CAS #7440-59-7

**HEALTH HAZARD DATA**

<b>EXPOSURE LIMITS:</b> Helium is a simple asphyxiant and has no threshold limit value (TLV). Helium is not listed as carcinogen by NTP, IARC, or OSHA.
<b>SYMPTOMS IF INGESTED, CONTACTED WITH SKIN, OR VAPOR INHALED:</b> Helium is odorless and nontoxic, but may produce suffocation by diluting the concentration of oxygen in air below levels necessary to support life. PERSONNEL, INCLUDING RESCUE WORKERS, SHOULD NOT ENTER AREAS WHERE THE OXYGEN CONCENTRATION IS BELOW 19.5% UNLESS PROVIDED WITH A SELF-CONTAINED BREATHING APPARATUS OR AIRLINE RESPIRATOR. Exposure to oxygen-deficient atmospheres may produce dizziness, nausea, vomiting, loss of consciousness, and death. Death may result from errors in judgement, confusion, or loss of consciousness which prevents self-rescue. At low oxygen concentrations unconsciousness and death may occur in seconds without warning. Extensive tissue damage or burns can result for exposure to liquid nitrogen or could nitrogen vapors.
<b>TOXICOLOGICAL PROPERTIES:</b> Helium is nontoxic but can act as a simple asphyxiant by displacing the amount of oxygen in the air necessary to support life.
<b>RECOMMENDED FIRST AID TREATMENT</b> Persons suffering from lack of oxygen should be moved to areas with normal atmospheres. SELF-CONTAINED BREATHING APPARATUS MAY BE REQUIRED TO PREVENT ASPHYXIATION OF RESCUE WORKERS. Assisted respiration and supplemental oxygen should be given if the victim is not breathing. If cryogenic liquid or cold boil-off gas contacts a worker's skin or eyes, frozen tissues should be flooded or soaked with tepid water (105-115F; 41-46C). DO NOT USE HOT WATER. Cryogenic burns which result in blistering or deeper tissue freezing should be seen promptly by a physician.

**FIRE AND EXPLOSION HAZARD DATA**

<b>FLASH POINT (Method Used)</b> N/A	<b>AUTO IGNITION TEMP</b> N/A	<b>FLAMMABLE LIMITS</b> Non-flammable	<b>LEL</b> N/A	<b>UEL</b> N/A
<b>EXTINGUISHING MEDIA</b> N/A			<b>ELECTRICAL CLASSIFICATION GROUP</b> N/A	
<b>SPECIAL FIRE FIGHTING PROCEDURES</b> N/A				
<b>UNUSUAL FIRE AND EXPLOSION HAZARDS</b> Cylinders exposed to high heat or flame may vent rapidly.				

**PHYSICAL DATA**

<b>BOILING POINT (F)</b> 1 atm -452.1F (-268.9C)		<b>FREEZING POINT (F)</b> @ 1 atm -458.0F (-272.0C)	
<b>VAPOR PRESSURE (psia)</b> N/A	<b>SOLUBILITY IN WATER</b> @ 68F (20C), 1 ATM 0.861% by volume		<b>VAPOR DENSITY (lb/cu ft)</b> @ 32F (0 C), 1 atm 0.01114
<b>SPECIFIC GRAVITY (AIR=1)</b> @ 32F (0 C), 1 atm 0.138	<b>LIQUID DENSITY (lb/cu ft)</b> @ boiling point, 1 atm 7.798		<b>SPECIFIC GRAVITY (H2O=1)</b> @ boiling point, 1 atm 0.125

<b>APPEARANCE AND ODOR</b> Both liquid and gaseous Helium are colorless and odorless.
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**REACTIVITY DATA**

<b>STABILITY</b> Inert	<b>UNSTABLE</b>		<b>CONDITIONS TO AVOID</b> None
	<b>STABLE</b>	X	
<b>INCOMPATIBILITY (Materials to avoid)</b> None			
<b>HAZARDOUS DECOMPOSITION PRODUCTS</b> None			
<b>HAZARDOUS POLYMERIZATION</b>	<b>MAY OCCUR</b>		<b>CONDITIONS TO AVOID</b> None
	<b>WILL NOT OCCUR</b>	X	

**SPILL OR LEAK PROCEDURES**

**STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED**

Avoid contact of skin with liquid Helium or its cold boil-off gas. Flush liquid Helium spill with water to disperse. Ventilate closed areas to prevent formation of oxygen deficient atmospheres caused by the evaporation of liquid Helium or the release of gaseous Helium. Helium is heavier than air and may tend to collect in low areas if ventilation is not adequate.

**WASTE DISPOSAL METHOD**

Allow liquid Helium to evaporate in a well ventilated outdoor location remote from work areas. Vent Helium gas slowly to a well ventilated outdoor location remote from work areas. Do not attempt to dispose of residual Helium in compressed gas cylinders. Return cylinders to Boggs Gases with residual pressure, the cylinder valve tightly closed and valve caps in place.

**SPECIAL PROTECTION INFORMATION**

**RESPIRATORY PROTECTION (Specify type)**

Use self-contained breathing apparatus in oxygen deficient atmospheres. Caution! Respirators will not function. Use may result in asphyxiation.

<b>VENTILATION</b>	<b>LOCAL EXHAUST</b>	As Necessary	<b>SPECIAL</b>	Only As Necessary
Natural or mechanical where gas is present	<b>MECHANICAL (General)</b>	As Necessary	<b>OTHER</b>	Vents should be situated to avoid higher than normal concentration of Helium in work areas.

**PROTECTIVE GLOVES**

(LAR) Loose-fitting gloves of impermeable materials such as leather. Leather work gloves are recommended when handling compressed gas cylinders.

**EYE PROTECTION**

(LAR) Chemical goggles or safety glasses. Safety glasses are recommended when handling high-pressure cylinders.

**OTHER PROTECTIVE EQUIPMENT**

None

**SPECIAL PRECAUTIONS\***

**SPECIAL LABELING INFORMATION**

DOT Shipping Name: Helium or Helium, Compressed; Helium, refrigerated liquid.  
 DOT Hazard Class: Nonflammable Gas  
 DOT Shipping Label: Nonflammable Gas  
 I.D. Number: UN 1046 (Helium or Helium Compressed)

**SPECIAL HANDLING RECOMMENDATIONS**

Prevent contact of liquid Helium or cold boil-off gas with exposed skin. Prevent entrapment of liquid in closed systems. Use only in well ventilated areas. Compressed gas cylinders contain Helium at extremely high pressure and should be handled with care. Use a pressure-reducing regulator and pressure relief devices when connecting to lower pressure piping systems. Secure cylinders when in use. Never use a direct flame to heat a compressed gas cylinder. Use a check valve to prevent back flow into a storage container. Avoid dragging, rolling or sliding cylinders, even for a short distance. Use a suitable hand truck. For additional handling recommendations on compressed gas cylinders, consult Compressed Gas Association Pamphlet P-1.

**SPECIAL STORAGE RECOMMENDATIONS**

It is recommended that liquid cylinders be stored outside and the gas or liquid piped to the use point. However, if liquid cylinders are to be stored or transported in an enclosed area, it is essential that the area be well ventilated. In case of poor ventilation, forced ventilation should be installed. Keep cylinders away from sources of heat. Storage should not be in heavy traffic areas to prevent accidental knocking over or damage from passing or falling objects. Valve caps should remain on cylinders not connected for use. Segregate full and empty cylinders. Storage areas should be free of combustible material. Replace the cylinder cap when the cylinder is not in use. Avoid exposure to areas where salt or other corrosive chemicals are present. See Compressed Gas Association Pamphlet P-1 for additional storage recommendations.

**SPECIAL PACKAGING RECOMMENDATIONS**

Gaseous Helium containers meet DOT specifications or American Society of Mechanical Engineers (ASME) codes. Liquid Helium is stored in vacuum-insulated containers meeting DOT specifications or ASME codes.

**OTHER RECOMMENDATIONS OR PRECAUTIONS**

Liquid Helium is a cryogenic liquid. Materials of construction must be selected for compatibility with extremely low temperatures. Avoid use of carbon steel and other materials which become brittle at low temperatures. Compressed gas cylinders should not be refilled except by qualified producers of compressed gases. Shipment of a compressed gas cylinder filled without the written permission of the owner is a violation of Federal Law. If oxygen-deficient atmospheres are suspected or can occur, use oxygen monitoring equipment to test for oxygen deficient atmospheres.

\* Various Government agencies (i.e., Department of Transportation, Occupational Safety and Health Administration, Food and Drug Administration and others) may have specific regulations concerning the transportation handling, storage or use of this product which will not be reflected in this data sheet. The customer should review these regulations to ensure that s/he is in full compliance.