



MATERIAL SAFETY DATA SHEET

PRODUCT NAME: HELIUM, GAS

1. 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: 06/18/04**

2. Composition, Information on Ingredients

EXPOSURE LIMITS¹:

INGREDIENT	% VOLUME	PEL-OSHA²	TLV-ACGIH³	LD₅₀ or LC₅₀ Route/Species
Helium FORMULA: He CAS: 7440-59-7 RTECS #: MH6520000	99.995 to 99.9999	None Established	Simple Asphyxiant	Not Available

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

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

³ As stated in the ACGIH 2004 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.

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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: Contact with rapidly expanding gas near the point of release may cause frostbite.

SKIN EFFECTS: Contact with rapidly expanding gas near the point of release may cause frostbite with redness, skin color change to gray or white, and blistering.

INGESTION EFFECTS: No adverse effects anticipated.

INHALATION EFFECTS: Product is a 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.

POTENTIAL ENVIRONMENTAL EFFECTS: Not expected to be toxic to fish and wildlife.

4. First Aid Measures

EYES: None required for gas. If frostbite is suspected, flush eyes with cool water for 15 minutes and obtain immediate medical attention.

SKIN: None required for gas. For frostbite, immerse skin in lukewarm water. DO NOT USE HOT WATER. Obtain medical attention.

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.

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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 or vent rapidly 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 (See Section 8). Stop the flow of gas or remove cylinder to outdoor location if this can be done without risk. Ventilate enclosed areas. 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 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. Do not insert any object (i.e.: screwdriver) into valve cap openings as this can damage the valve causing leakage.

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

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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: Use local exhaust in combination with general ventilation as necessary to prevent accumulation of high concentrations and maintain air oxygen levels at or above 19.5%.

EYE/FACE PROTECTION: Safety goggles or glasses.

SKIN PROTECTION: Protective gloves of suitable material.

RESPIRATORY PROTECTION: For emergency release use a positive pressure NIOSH approved air-supplying respirator systems (SCBA or airline/escape bottle) using at a minimum Grade D air.

OTHER/GENERAL PROTECTION: Safety shoes, emergency eyewash station

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 ₂ O @ 32 °F; 0 °C)	: 0.0094	(vol./vol.)
Odor threshold	: Not Applicable	
Odor and appearance	: Colorless, odorless gas	

10. Stability and Reactivity

STABILITY: Stable.

INCOMPATIBLE MATERIALS/CONDITIONS: None.

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HAZARDOUS DECOMPOSITION PRODUCTS: None.

HAZARDOUS POLYMERIZATION: Does not occur.

11. Toxicological Information

SKIN AND EYE: Not expected to cause skin or eye irritation.

INHALATION: Product is a simple asphyxiant. Maintain atmospheric oxygen at or above 19.5%.

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

12. Ecological Information

Product does not contain Class I or Class II ozone depleting substances. Not toxic. Will not bioconcentrate.

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.

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 - SECTION 313 SUPPLIER NOTIFICATION:

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

SARA TITLE III - HAZARD CLASSES:

Sudden Release of Pressure Hazard

U.S. TSCA/Canadian DSL: All ingredients are listed on the U.S. Toxic Substances Control Act (TSCA) inventory or exempt from listing and on the Canadian Domestic Substance List (DSL).

California Proposition 65: This product does not contain ingredient(s) known to the State of California to cause cancer or reproductive toxicity.

MSDS: G-5

Revised: 06/18/04

Canadian Controlled Products Regulations (CPR): This product has been classified in accordance with the hazard criteria of the CPR and the MSDS contains all the information required by the CPR.

16. Other Information

NFPA HAZARD CODES	HMIS HAZARD CODES	RATINGS SYSTEM
Health: 0	Health: 0	0 = No Hazard
Flammability: 0	Flammability: 0	1 = Slight Hazard
Instability: 0	Physical Hazard: 3	2 = Moderate Hazard
		3 = Serious Hazard
		4 = Severe Hazard

Note: Ratings were assigned in accordance with Compressed Gas Association (CGA) guidelines as published in CGA Pamphlet P-19-2004, *CGA Recommended Hazard Ratings for Compressed Gases, 2nd Edition*.

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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