

Quantum Helium Management Corp.

*Product: Helium, Compressed*

*Q1046HeC*

# Quantum Helium Management Corporation

## Material Safety Data Sheet

### Helium, compressed

#### 1. Chemical Product and Company Identification

**Product Name:** Helium, compressed (MSDS Q1046HeC)

**Chemical Name:** Helium

**Synonyms:** Helium-4, refrigerant gas R-704

**Chemical Family:** Inert gas

**Product Grades:** Industrial; Ultralift; 6.0 research/chromatographic; 5.5 ECD, trace analytical; 5.0 UHP; 4.7, 5.0, 5.5 LaserStar; 4.6 zero, oxygen-free; 5.0 methanizer FID gas; 4.5; 5.0, 5.5, 6.0 semiconductor process gas

**CAS Number:** 7440-59-7

**Concentration of helium gas:** 100%

**Company:** Quantum Helium Management Corp.

#### 2. Hazards

**CAUTION! Helium is High-pressure gas.**

**Can cause rapid suffocation and inhaled in excess amounts lead to death.**

**May cause unexpected dizziness and drowsiness.**

**Self-contained breathing apparatus may be required by rescue workers.**

**Under ambient conditions, this is a colorless, odorless, tasteless gas.**

**Emergency contacts: 1-613-996-6666\***

**Company Name: CANUTEC**

**\* Call emergency numbers 24 hours a day only for spills, leaks, fire, exposure, or accidents involving this product.**

For routine information, contact your supplier – Quantum Helium Management Corporation, 1-888-271-9466, 1-604-222-5539 or 1-306-315-5539.

Quantum Helium Management Corp.

Product: Helium, Compressed

Q1046HeC

**POTENTIAL HEALTH EFFECTS:**

***Effects of a Single (Acute) Overexposure***

**Inhalation.** Asphyxiant. Effects are due to lack of oxygen. Moderate concentrations may cause headache, drowsiness, dizziness, excitation, excess salivation, vomiting, and unconsciousness. Prolonged and excess lack of oxygen can kill.

**Skin Contact.** No harm expected.

**Swallowing.** This product is a gas at normal temperature and pressure.

**Eye Contact.** No harm expected.

***Effects of Repeated (Chronic) Overexposure.***

Helium gas is asphyxiant. Overexposure to skin, eyes and digestion system is unlikely. Overexposure with inhalation due to lack of the oxygen can kill.

**3. Composition/Information on Ingredients**

Component	CAS number	Concentration
Helium	7440-59-7	>98%

**4. First Aid Measures**

**Inhalation.**

**FIRST AID:** Immediately move to fresh air. If not breathing, give artificial respiration. Qualified personnel may give oxygen, if breathing is already difficult. Call a physician for assistance.

**Skin Contact.**

**FIRST AID:** This product is a gas at normal temperature and pressure – the harmful skin contact is unlikely.

**Swallowing.**

**FIRST AID:** This product is a gas at normal temperature and pressure – the swallowing is unlikely.

**Eye Contact.**

**FIRST AID:** This product is a gas at normal temperature and pressure.

**NOTES TO PHYSICIAN**

***There is no specific antidote. This product is inert. Treatment of overexposure should be directed at the control of symptoms and the clinical condition of the patient.***

## 5. Fire Fighting Measures

**Flammable properties:** Nonflammable. Non-combustible.

**Suitable extinguishing media:** Helium cannot catch fire. For surrounding fire the appropriate media must be used.

**Protection of firefighters: CAUTION! High-pressure gas.**

Evacuate all personnel from danger area if closed area. Immediately deluge cylinders with water from maximum distance until cool; then move them away from fire area if without risk. Self-contained breathing apparatus may be required by rescue workers in closed area. Firefighters should wear self-contained breathing apparatus and full fire-fighting turnout gear.

**Specific Physical and Chemical Hazards.**

Heat of fire can build pressure in cylinder and cause it to rupture. No part of cylinder should be subjected to a temperature higher than 125°F (52°C). Helium cylinders are equipped with a pressure relief device. (Exceptions may exist where authorized by DOT.)

## 6. Accidental Release Measures

**STEPS TO BE TAKEN IF MATERIAL IS RELEASED OR SPILLED:**

**CAUTION!**

**High-pressure gas.**

Personal Precautions.

Helium is an asphyxiant. Lack of oxygen can kill. Always use personal oxygen monitor when dealing with gas. Evacuate all personnel from danger area if closed space. Use self-contained breathing apparatus where needed. Shut off leak if without risk. Ventilate area of leak or move cylinder to a well-ventilated area. Test for sufficient oxygen, especially in confined spaces, before allowing reentry.

Quantum Helium Management Corp.

Product: Helium, Compressed

Q1046HeC

Environmental Precautions.

Discard any product, residue, disposable container, or liner in an environmentally acceptable manner, in full compliance with federal, state, and local regulations.

## 7. Handling and Storage

### **PRECAUTIONS TO BE TAKEN IN HANDLING: Protect cylinders (portable size) from damage.**

Use a suitable hand truck to move cylinders; do not drag, roll, slide, or drop.

**Never attempt to lift a cylinder by its cap;** Always move the cylinder with the cap on; the cap is intended solely to protect the valve. **Never insert an object (e.g., wrench, screwdriver, pry bar) into cap openings; doing so may damage the valve and cause a leak.** Use an adjustable strap wrench to remove over-tight or rusted caps.

Open valve slowly.

If valve is hard to open, discontinue use and contact your supplier. Close valve after each use; keep closed even when empty.

### **Never apply flame or localized heat directly to any part of the cylinder.**

High temperatures may damage the cylinder and could cause the pressure relief device to fail prematurely, venting the cylinder contents. For other precautions in using helium, see section 16.

### **PRECAUTIONS TO BE TAKEN IN STORAGE:**

Store and use with adequate ventilation. Store only where temperature will not exceed 125°F (52°C). Firmly secure portable cylinders upright to keep them from falling or being knocked over. Screw valve protection cap firmly in place by hand. Store full and empty cylinders separately. Use a first-in, first-out inventory system to prevent storing full cylinders for long periods that can cause depressurizing and cause the lack of oxygen in the area.

## 8. Exposure Controls/ Personal Protection

### **ENGINEERING CONTROLS:**

*Local Exhaust.*

Use a local exhaust system, if necessary, to prevent oxygen deficiency, and in welding, to keep hazardous fumes and gases in the worker's breathing zone below all applicable exposure limits.

Quantum Helium Management Corp.

Product: Helium, Compressed

Q1046HeC

*mechanical (General).*

General exhaust ventilation may be acceptable if it can maintain an adequate supply of air and keep hazardous fumes and gases in the worker's breathing zone below all applicable exposure limits.

**PERSONAL PROTECTIVE EQUIPMENT:**

*Skin Protection.*

Wear work gloves when handling cylinders; welding gloves for welding; metatarsal shoes for cylinder handling. Regardless of protective equipment, never touch live electrical parts.

*Eye/Face Protection.*

Always use personal oxygen monitor when dealing with gas. Open valves of containers/bottles slowly to avoid high pressure gas release. Use self-contained breathing apparatus where needed.

*Respiratory Protection.*

Use air-purifying or air-supplied respirators where local or general exhaust ventilation is inadequate to keep worker exposure below all applicable exposure limits for fumes, gases, and other by-products of welding with helium. See section 16 for details. Air-supplied respirators **MUST** be used in confined spaces.

**9. Physical and Chemical Properties**

APPEARANCE:	Colorless gas
ODOR:	None
ODOR THRESHOLD:	Not applicable
PHYSICAL STATE:	Gas at normal temperature and pressure
pH:	Not applicable.
MELTING POINT:	-456.5°F (-271.39°C)
BOILING POINT at 1 atm:	-452.07°F (-268.93°C)
FLASH POINT:	Not applicable
EVAPORATION RATE:	Not applicable
FLAMMABILITY:	Nonflammable
FLAMMABLE LIMITS IN AIR , % by volume	LOWER: Not applicable. UPPER: Not applicable.
VAPOR PRESSURE at 68°F (20°C)	Not applicable.

Quantum Helium Management Corp.

Product: Helium, Compressed

Q1046HeC

VAPOR DENSITY at 70°F (21.1 °C) and 1 atm:	0.0104 lb/ft <sup>3</sup> (0.166 kg/m <sup>3</sup> )
LIQUID DENSITY at boiling point and 1 Atm:	7.802 lb/ft <sup>3</sup> (124.98 kg/m <sup>3</sup> )
SPECIFIC GRAVITY (Air = 1) at 70°F (21.1 °C) and 1 atm:	0.138
SOLUBILITY IN WATER 32°F (0°C) and 1 atm:	0.0094
PARTITION COEFFICIENT: n-octanol/water:	Not available.
AUTOIGNITION TEMPERATURE:	Not combustible
DECOMPOSITION TEMPERATURE:	None
PERCENT VOLATILES BY VOLUME:	100
MOLECULAR WEIGHT:	4.003
MOLECULAR FORMULA:	He

## 10. Stability and Reactivity

CHEMICAL STABILITY:	Stable
INCOMPATIBLE MATERIALS:	None known. Helium is chemically inert.
HAZARDOUS DECOMPOSITION PRODUCTS:	None known.
POSSIBILITY OF HAZARDOUS REACTIONS:	Will Not Occur
CONDITIONS TO AVOID:	None known.

## 11. Toxicological Information

**Acute Dose Effects:** Helium is an asphyxiant.

## 12. Ecological Information

**ECOTOXICITY:** Helium is not toxic and does not have any harmful effects on environment.

**OTHER EFFECTS:** Helium does not contain any Class I or Class II ozone-depleting chemicals.

## 13. Disposal suggestions

### WASTE DISPOSAL METHOD:

Do not dispose of residual or unused quantities. Return cylinder/trailer to supplier.

Quantum Helium Management Corp.  
*Product: Helium, Compressed*  
*Q1046HeC*

## 14. Transport Information

<b>SHIPPING NAME:</b>	Helium, compressed
<b>HAZARD CLASS:</b>	2.2
<b>IDENTIFICATION NUMBER:</b>	UN1046
<b>SHIPPING LABEL(s):</b>	NONFLAMMABLE GAS
<b>PLACARD:</b>	NONFLAMMABLE GAS

## 15. Regulatory information

Below mentioned regulatory requirement may apply to this product. The list of requirements is not complete as not all the applicable requirements are identified. Users are responsible for compliance with the applicable regulations regarding the use of this product.

<b>WHMIS (Canada):</b>	CLASS A: Compressed gas	
	This product is on the DSL list.	
<b>International Regulations:</b>	<b>EINECS:</b>	Not available.
	<b>DSCL (EEC):</b>	This product is not classified according to the EU regulations.

## 16. Other Information

### **OTHER HAZARDOUS CONDITIONS OF HANDLING, STORAGE, AND USE:**

High-pressure gas. Use piping and equipment adequately designed to withstand pressures to be encountered. Use a backflow prevention device in any piping. Never work on a pressurized system.

If there is a leak, close the cylinder valve. Blow the system down in an environmentally safe manner in compliance with all federal, state, and local laws; then repair the leak.

Never place a compressed gas cylinder where it may become part of an electrical circuit.

Arcs and sparks can ignite combustible materials.

Do not strike an arc on the cylinder.

The defect produced by an arc burn could lead to cylinder rupture.

**Quantum Helium Management Corp.**

*Product: Helium, Compressed*

*Q1046HeC*

*Use in Underwater Breathing.*

Suitability of this product for use in underwater breathing must be determined by or under supervision of someone experienced in the use of underwater breathing gas mixtures. This person must be familiar with how the product is used; the frequency, duration, and effects of use; the hazards and side effects of use, and the precautions to take to avoid or control them.

*Mixtures.*

When you mix two or more gases or liquefied gases, you can create additional, unexpected hazards. Obtain and evaluate the safety information for each component before you produce the mixture. Consult a trained person before using the end product. Remember, gases and liquids have properties that can cause serious injury or immediate death.

**STANDARD VALVE CONNECTIONS FOR U.S. AND CANADA:**

THREADED:	0-3000 psig	CGA-580
	3001-5500 psig	CGA-680
	5001-7500 psig	CGA-677
PIN-INDEXED YOKE:		CGA-930 (medical use)
ULTRA-HIGH-INTEGRITY CONNECTION:		CGA-718

Use the proper CGA connections. DO NOT USE ADAPTERS.  
Additional limited-standard connections may apply.

To get the Quantum Helium Management Corp. MSDS Q1046HeC please contact Quantum Helium Management Corp. at phone: 1-888-271-9466, 1-604-222-5539; Address: 3200 University Blvd., Squamish, BC, V8B 0N8, Canada