

HELIUM

Helium

SPECIAL PRECAUTIONS

Special Labeling Information:

Shipping Name: Helium or Helium, Compressed
Hazard Class: Non Flammable Gas
Shipping Label: Nonflammable gas I.D. No.: UN 1046

Special Handling Recommendations:

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 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.

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

Special Storage Recommendations:

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 130°F (54°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 recommendations, consult Compressed Gas Association Pamphlets P-1, P-9, P-14, and Safety Bulletin SB-2.

Special Packaging Recommendations:

Helium is noncorrosive and may be used with any common structural material.

Other Recommendations or Precautions:

Compressed gas cylinders should not be refilled except by qualified producers of compressed gases. Shipments of a compressed gas cylinder, which has not been filled by the owner or with his (written) consent, is a violation of Federal Law (49CFR).



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MATERIAL SAFETY DATA SHEET

Welding Consumables
and Related Products
Conforms to OSHA 1910.1200

IDENTIFICATION

PRODUCT NAME: Helium
SYNONYMS: Helium 4
CAS NUMBER: 7440-59-7
CHEMICAL FORMULA: He
CHEMICAL FAMILY: Inert Gas
DOT HAZARD CLASS: Nonflammable gas
DOT IDENTIFICATION NUMBER: UN 1046
CHEMTREC: 800-424-9300

HEALTH HAZARD DATA

TIME WEIGHTED AVERAGE EXPOSURE LIMIT:

TWA: Helium is defined as a simple asphyxiant. Oxygen levels should be maintained at greater than 18 molar percent at normal atmospheric pressure which is equivalent to a partial pressure of 135 mm Hg. (ACGIH, 1984-85)

TWA: 5,000 Molar PPM. Its STEL is proposed to be changed from 15,000 Molar PPM to 30,000 Molar PPM (ACGIH, 1984-85)

SYMPTOMS OF EXPOSURE:

Effects of exposure to high concentrations so as to displace the oxygen in the air necessary for life are headache, dizziness, labored breathing and eventual unconsciousness. Breathing mixtures of helium with adequate oxygen to support life modifies the voice sound so that it is higher "pitched".

TOXICOLOGICAL PROPERTIES:

Helium is nontoxic but the liberation of a large amount in a confined area could displace the amount of oxygen in air necessary to support life.

RECOMMENDED FIRST AID TREATMENT:

PROMPT MEDICAL ATTENTION IS MANDATORY IN ALL CASES OF OVEREXPOSURE TO Helium
RESCUE PERSONNEL SHOULD BE EQUIPPED WITH SELF-CONTAINED BREATHING APPARATUS

Inhalation: Conscious persons 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, given mouth-to-mouth resuscitation and supplemental oxygen. Further treatment should be symptomatic and supportive.

Hazardous Mixtures of Other Liquids, Solids, or Gases:
None.

PHYSICAL DATA

Boiling Point: Sublimation Point = -452.1°F (-268.9°C)
Liquid Density @ Boiling Point: Solid Density = 7.8 lb/ft³ (125 kg/m³)
Vapor Pressure @ 70°F (21.1°C): above the critical temp. of -450.3°F (268°C)
Specific Gravity @ 70°F, 1 atm (Air=1): 0.14
Solubility in Water: Negligible
Freezing Point: -456.5°F (-271.3°C)
Appearance and Odor: Colorless, odorless gas

FIRE/EXPLOSION HAZARDS DATA

Flash Point (Method Used): N/A
Auto Ignition Temperature: N/A
LEL: N/A
UEL: N/A
Extinguishing Media: Nonflammable, inert gas
Electrical Classification: Nonhazardous
Special Fire Fighting Procedures: N/A.
Unusual Fire and Explosion Hazards: N/A

REACTIVITY DATA

Stability:
Stable
Incompatibility (Materials to Avoid):

None
Hazardous Decomposition Products:
Carbon monoxide

Hazardous Polymerization:

Will not occur
Conditions to Avoid:

SPILL OR LEAK PROCEDURES

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

Evacuate all personnel from affected area. Use appropriate protective equipment! If leak is in container or container valve, contact CHEMTREC for emergency assistance or your closest Airco location.

Waste Disposal Method:

Do not attempt to dispose of residual 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 Airco for proper disposal.

SPECIAL PROTECTION INFORMATION

Respiratory Protection: Positive pressure air line with mask or self-contained breathing apparatus should be available for emergency use.

Ventilation: See local exhaust.

Local Exhaust: To prevent accumulation of high concentrations so as to reduce the oxygen level in the air to less than 18 molar percent.

Special:

Mechanical (Gen.):

Other

Protective Gloves: Any material.

Eye Protection: Safety goggles or glasses

Other Protective Equipment: Safety shoes.