



ADDITIONAL DATA

TIME WEIGHTED AVERAGE EXPOSURE LIMIT: (Continued)
pressure which is equivalent to a partial pressure of 135 mm Hg (ACGIH, 1984-85).

LOCAL EXHAUST: (Continued)
To prevent accumulation of high concentrations so as to reduce the oxygen level in the air to less than 18 molar percent.

Material Safety Data Sheet

PRODUCT NAME Helium	
TELEPHONE (415) 977-6500 EMERGENCY RESPONSE INFORMATION ON PAGE 2	
LIQUID AIR CORPORATION One California Plaza, Suite 350 2121 N. California Blvd. Walnut Creek, California 94596	TRADE NAME AND SYNONYMS Helium, Helium 4
ISSUE DATE OCTOBER 1, 1985 AND REVISIONS CORPORATE SAFETY DEPT.	CAS Number: 7440-59-7
FORMULA He, or ⁴ He	CHEMICAL FAMILY Inert gas
MOLECULAR WEIGHT 4.003	

HEALTH HAZARD DATA

TIME WEIGHTED AVERAGE EXPOSURE LIMIT Helium is defined as a simple asphyxiant. Oxygen levels should be maintained at greater than 18 molar percent at normal atmospheric (Continued on last page.)

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.

Listed as Carcinogen or Potential Carcinogen National Toxicology Program Yes No I.A.R.C. Monographs Yes No OSHA Yes No

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. Medical assistance should be sought immediately.

Reference is to the liability of information herein for purchaser's purposes and necessary purchase responsibility. Therefore, although reasonable care has been taken in the preparation of such information, Liquid Air Corporation makes no representation, and assumes no responsibility as to the accuracy or suitability of such information for application in any particular situation. Liquid Air Corporation has no control over the use of this product. It assumes no liability for damage or loss of product resulting from improper use or application of the product. Data Sheet may be changed from time to time. Be sure to consult the latest edition.

HAZARDOUS MIXTURES OF OTHER LIQUIDS, SOLIDS, OR GASES	
None	

PHYSICAL DATA	
BOILING POINT -452.067°F (-262.926°C)	LIQUID DENSITY AT BOILING POINT 7.801 lb/ft ³ (124.96 kg/m ³)
VAPOR PRESSURE @ 70°F (21.1°C) above the critical temp. of -450.31°F (-267.95°C)	GAS DENSITY AT 70°F & 1 atm @ 59°F (15°C) = .0104 lb/ft ³ (.167 kg/m ³)
SOLUBILITY IN WATER @ 68°F (20°C) Bunsen coefficient = .0086	FREEZING POINT -271.387°C @ 437.7 psia (3013 kPa)
APPEARANCE AND ODOR	Colorless, odorless gas. Specific gravity @70°F (Air = 1.0) is .14.

FIRE AND EXPLOSION HAZARD DATA	
FLASH POINT (METHOD USED) N/A	AUTO IGNITION TEMPERATURE N/A
EXTINGUISHING MEDIA Not flammable, inert gas	FLAMMABLE LIMITS % BY VOLUME N/A
SPECIAL FIRE FIGHTING PROCEDURES	ELECTRICAL CLASSIFICATION Nonhazardous
N/A	
UNUSUAL FIRE AND EXPLOSION HAZARDS	
N/A	

REACTIVITY DATA	
STABILITY Unstable	CONDITIONS TO AVOID
Stable	X
INCOMPATIBILITY (Materials to avoid)	
None	
HAZARDOUS DECOMPOSITION PRODUCTS	
None	
HAZARDOUS POLYMERIZATION	
May Occur	CONDITIONS TO AVOID
Will Not Occur	X

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 the closest Liquid Air Corporation location.	
WASTE DISPOSAL METHOD Do not attempt to dispose of 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 Liquid Air Corporation for proper disposal. For emergency disposal, contact the closest Liquid Air Corporation location.	

EMERGENCY RESPONSE INFORMATION
IN CASE OF EMERGENCY INVOLVING THIS MATERIAL, CALL DAY OR NIGHT (800) 231-1300
OR CALL CHEMTREC AT (800) 424-9300

SPECIAL PROTECTION INFORMATION		
RESPIRATORY PROTECTION (specify type) Breathing apparatus should be available for emergency use.	Positive pressure air. Time with mask or self-contained breathing apparatus should be available for emergency use.	
VENTILATION See Local Exhaust on last page.	Local Exhaust See last page.	SPECIAL OTHER
PROTECTIVE GLOVES Any material		
Eye Protection: Safety goggles or glasses OTHER PROTECTIVE EQUIPMENT Safety shoes		

SPECIAL PRECAUTIONS*	
SPECIAL LABELING INFORMATION DOT Shipping Name: Helium or Helium, Compressed DOT Shipping Label: Nonflammable gas I.D. No.: UN 1046	DOT Hazard Class: Nonflammable gas
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 (3,000 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.	

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 handling recommendations consult L'Air Liquide's Encyclopedie de Gaz or Compressed Gas Association Pamphlet P-1.	
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. Shipment 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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*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 may not be contained herein. The customer or user of this product should be familiar with these regulations.