HELIUM

CHEMICAL PRODUCT

PRODUCT NAME: Helium, compressed
CHEMICAL NAME: Helium
CHEMICAL FAMILY: Inert Gas
SYMBOL: He
SYNONYMS: Helium USP
[USES]: Various

INGREDIENT COMPOSITION INFORMATION

INGREDIENTS NAME	PERCENTAGE	OHSA PEL-TWA	ACGIH TLV
HELIUM	>99%	None	Simple Asphyxiant

HAZARDS IDENTIFICATION

EMERGENCY OVERVIEW

CAUTION! High pressure liquid and gas.
Can cause rapid suffocation.
Do not breathe gas.
Self-contained breathing apparatus may be required by rescue workers.

POTENTIAL HEALTH EFFECTS:

ROUTES OF EXPOSURE:

INHALATION: Simple asphyxiant. Helium is non-toxic, but may cause suffocation by displacing the oxygen in air. Exposure to oxygen-deficient atmosphere (<19.5%) may cause dizziness, drowziness, nausea, vomitting, excess salivation, diminished mental alertness, loss of conciousness and death. Exposure to atmospheres containing 8% to 10% or less oxygen will bring about unconciousness without warning and so quickly that the individuals cannot help or protect themselves. Lack of sufficient oxygen may cause serious injury or death

WARNING: The practice of intentionally inhaling helium for a voice altering effect is extremely dangerous and may result in serious injury or death.

EYE CONTACT. Not applicable

SKIN CONTACT. Not applicable

[SKIN ABSORPTION]: Not applicable

INGESTION: Not applicable

CHRONIC EFFECTS: Not established

MEDICAL CONDITIONS AGGRAVATED BY OVEREXPOSURE: None

OTHER EFFECTS OF OVEREXPOSURE: None

CARCINOGENICITY: Helium is not listed.

FIRST AID MEASURES

INHALATION: Persons suffering from overexposure should be removed to fresh air. If victim is not breathing, administer artificial respiration. If breathing is difficult administer oxygen. Obtain prompt medical attention.
EYE CONTACT: Not applicable
SKIN CONTACT. Not applicable
INGESTION: Not applicable
NOTES TO PHYSICIAN: None

FIRE FIGHTING MEASURES

FLASH POINT: Not applicable AUTOIGNITION: Not applicable
FLAMMABLE LIMITS IN AIR BY VOLUME:
LOWER: Not applicable UPPER: Not applicable
EXTINGUISHING MEDIA: Helium is nonflammable and does not support combustion. Use extinguishing media appropriate for surrounding fire.
SPECIAL FIRE FIGHTING INSTRUCTIONS: Helium is a simple asphyxiant. If possible, without risk, remove helium cylinders from the fire area or cool with water. Self-contained breathing apparatus may be required for rescue workers.
UNUSUAL FIRE AND EXPLOSION HAZARDS: Upon exposure to intense heat or flame, cylinder may vent rapidly and/or rupture violently. Most cylinders are designed to vent contents when exposed to elevated temperatures.
Pressure in a container can build up due to heat and it may rupture if pressure relief devices should fail to function.
HAZARDOUS COMBUSTION PRODUCTS: None known
[SENSITIVITY TO STATIC DISCHARGE]: None
[SENSITIVITY TO MECHANICAL IMPACT]: None

ACCIDENTAL RELEASE MEASURES

STEPS TO BE TAKEN IF MATERIAL IS RELEASED OR SPILLED: Evacuate all personnel from the affected area. Shut off source of helium, if without risk. Ventilate enclosed areas or remove cylinders to an outdoor location.
If leaking from cylinder or its valve, contact your supplier.

HANDLING AND STORAGE

PRECAUTIONS TO BE TAKEN IN STORAGE: Store and use with adequate ventilation. Cylinders should be stored upright with valve protection cap in place and firmly secured to prevent falling or being knocked over. Protect cylinders from physical damage; do not drag, roll, slide or drop. Do not allow storage area temperature to exceed 125°F (52 °C). Full and empty cylinders should be segragated. Use a first-in, first-out inventory system to prevent full containers from being stored for long periods of time.
PRECAUTIONS TO BE TAKEN IN HANDLING: Use a suitable hand truck for cylinder movement. Never attempt to lift a cylinder by its valve protection cap. If user experiences any difficulty operating cylinder valve discontinue use and contact supplier. Never insert an object (e.g., wrench, screwdriver, pry, bar, etc.) into valve cap openings. Doing so may damage valve, causing a leak to occur. Use an adjustable strap wrench to remove over-tight or rusted caps. Never strike an arc on a compressed gas cylinder or make a cylinder a part of an electrical circuit. For additional precautions in using helium see Other Information.

EXPOSURE CONTROLS/PERSONAL PROTECTION

ENGINEERING CONTROLS:
VENTILATION: Natural or mechanical to prevent oxygen-deficient atmospheres under 19.5% oxygen
RESPIRATORY PROTECTION (SPECIFY TYPE):
General Use: None required
Emergency Use: Self-contained breathing apparatus (SCBA) or positive pressure airline and escape bottle with mask are to be used in oxygen-deficient atmospheres and areas with high carbon dioxide concentrations.Air purifying respirators will not provide protection.
PROTECTIVE GLOVES: Work gloves are recommended when handling cylinders.
EYE PROTECTION: Safety glasses are recommended when handling cylinders.
OTHER PROTECTIVE EQUIPMENT: Safety shoes recommended when handling cylinders.

PHYSICAL AND CHEMICAL PROPERTIES

ATOMIC WEIGHT. 4.0026
BOILING POINT (1 ATM): @ 101.325 kpa = - 269.94°C
RELATIVE DENSITY gas @ 101.325 kpa @ 0°C (Air=1) 0.138
MELTING POINT. @ 2.555 kpa = - 272°C
VAPOR PRESSURE (at 20°C (21.1°C): Not applicable
ABSOLUTE DENSITY gas @ 101.325 kpa @ 0°C = 0.1785 kg/dm 3
EVAPORATION RATE (Butyl Acetate=l): Gas, not applicable
SOLUBILITY IN WATER: @ 101.325 kpa (Partial pressure of Helium @ 20°C 8.61cm3/1 kg water
EXPANSION RATIO: Not applicable
[pH]: Not applicable
APPEARANCE, ODOR AND STATE: Colorless, odorless and tasteless gas at normal temperature and pressure.
[COEFFICIENT OF WATER/OIL DISTRIBUTION]: Not available
[ODOR THRESHOLD]: Odorless

STABILITY AND REACTIVITY

STABILITY: Stable
CONDITIONS TO AVOID: None
INCOMPATIBILITY (Materials to avoid): None
REACTIVITY:

A) HAZARDOUS DECOMPOSITION PRODUCTS:
B) HAZARDOUS POLYMERIZATION: Will not occur

TOXICOLOGICAL INFORMATION

Helium is a simple asphyxiant
(IRRITANCY OF MATERIAL): Not applicable (SENSITIZATION TO MATERIAL): Not applicable
(REPRODUCTIVE EFFECTS): Not applicable
(TERATOGENICITY): Not applicable (MUTAGENICITY): Not applicable
(SYNERGISTIC MATERIALS): Not applicable

ECOLOGICAL INFORMATION

No adverse ecological effects are expected. Helium does not contain any Class I or Class II ozone-depleting chemicals.
Helium is not listed as a marine pollutant.

DISPOSAL CONSIDERATIONS

WASTE DISPOSAL METHOD: Do not attempt to dispose of residual or unused quantities. Return cylinder to supplier.
For emergency disposal, secure the cylinder and slowly discharge gas to the atmosphere in a well-ventilated area or outdoors.

TRANSPORT INFORMATION

DOT/IMO SHIPPING NAME: Helium, compressed
HAZARD CLASS: 2.2 (Nonflammable Gas)
PRODUCT RQ: None
SHIPPING LABEL(s) : Nonflammable gas
PLACARD (When required): Nonflammable gas
SPECIAL SHIPPING INFORMATION : Cylinders should be transported in a secure upright position, in a well ventilated truck.
The transportation of compressed gas cylinders in automobiles or in closed-body vehicles can present serious safety hazards and should be discouraged.