



UN 1963
HAZCHEM 2RE
CLASS 2.2

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LIQUID HELIUM

TECHNICAL SPECIFICATION

SPECIFICATION

Helium > 99.99%

PHYSICAL DATA

Chemical Symbol : He

Boiling Point -269°C

Relative Density (Air = 1) 0.14

Molecular Weight 4g/mol

Critical Temperature -268°C

Flashpoint : Non-flammable

Density of Gas (@101.3 kPa & 15°C) 0.12 kg/m³

Density of Liquid (B.Pt.) 125 kg/m³

PROPERTIES

Helium is colorless and odorless.

Helium does not support life, it is non-toxic.

It is non-flammable and will not support combustion.

USES

• Medical: Used in treating ailments like asthma, emphysema and other conditions that affect breathing diseases that affect the lungs. Helium is used to achieve cryogenic temperatures of -232°C required for superconducting magnets in MRIs and NMRs, allowing the capture of high-resolution images of internal organs and tissues.

Electronics: Helium plays a significant role in the manufacturing of semiconductors, LCD panels, and fiber optic wire

• Diving: Divers use oxygen and helium during diving. This combination provides them the atmosphere necessary to survive in deep diving.

• Magnet Production: Used to cool down super conducting magnets.

Others: Used in helium-neon lasers are used for barcode reading, protective gas in welding, for protection during germanium crystal and silicon production.

Helium is used as a source of lift in weather and other surveillance balloons.

SUPPLY & STORAGE

As Cryogenic Liquid in Cryogenic Storage Tanks, Bulk Tankers, , Liquid containers, Dewars etc.

HANDLING & SAFETY

HAZARDS

Should helium replace oxygen in air there is a risk of asphyxia: air containing less than 16% oxygen is dangerous.

Extremely low temperature.(-269°C)

MATERIALS COMPATIBILITY

Helium is non-corrosive and so any common metal is acceptable, provided equipment is designed to withstand process pressure and temperature .

Equipment to handle helium must be constructed of suitable material for the low temperature encountered.

PRECAUTIONS IN USE

Use only in well-ventilated area to prevent accumulation of high concentration of helium.

Ensure that oxygen content of air is maintained above 18%. It is recommended that the user of liquid helium is familiar with relevant standards "The storage and handling of nonflammable cryogenic and refrigerated liquids".

PERSONAL PROTECTION

Full face mask, well-fitting cryogenic gloves and full overalls without cuffs should be worn when handling liquid helium supply systems.

FIRST AID

If victim is conscious:

- Move to uncontaminated area to breathe fresh air.
- Keep warm and quiet.
- Call doctor.

FIRST AID contd

If victim is unconscious:

• Move to uncontaminated area and give assisted respiration.

• When breathing is restored, treatment as above.

Continued treatment should be symptomatic and supportive.

Cold burns/Frostbite:

• Flush with luke warm water for at least 10 minutes then treat as thermal burns. Do not remove clothing.

• Seek hospital attention for all but the most superficial cases. Do not apply direct heat or give alcohol or cigarettes.

• Protect frozen parts from infection.

Hospital treatment of cold burns/frostbite may differ from heat burns.

ADDITIONAL INFORMATION

The information, recommendations and data contained in this publication are intended to give basic guidance to users for their safe handling and use.

For further information please refer Material Safety Data Sheets (MSDS)

It is essential for the safe use of gases that personnel are properly trained and are fully aware of the possible hazards.