LM INTELLIGAS
SDN BHD

MATERIAL SAFETY DATA SHEET

Product: Liquid helium
Version: 1.0
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1 - PRODUCT & COMPANY IDENTIFICATION

Product Name	Liquid helium
Chemical Formula	He
Product Use Description	General Industrial
Supplier/Distributor Identification	LM INTELLIGAS SDN BHD Kuala Lumpur 59100 Malaysia
Emergency Contact (Tel No.)	(+60) 127733609

2 - COMPOSITION/ INFO ON INGREDIENTS

Chemical Name	Helium
Concentration (Volume)	99.99%
Chemical Family	Inert Rare Gas
CAS No.	7440-59-7
UN No.	1963
ERG No.	120
Hazchem Warning	2C Non-Flammable Gas

Concentration is nominal. For the exact product composition, refer to the technical specifications.

3 - HAZARDS IDENTIFICATION

Classification	Gases under pressure Refrigerated liquefied gas
Hazard Code	H280
Hazard Pictogram	
Signal Word	Warning
Hazard Statements	Contains refrigerated gas May cause frostbite May displace oxygen and cause rapid suffocation Can solidify in air and block vent lines

4 - FIRST AID MEASURES

General Advice

Eye Contact	Immediately flush with large quantities of tepid water, or with sterile saline solution. Seek medical attention.
Inhalation	Remove victim to uncontaminated area wearing self-contained breathing apparatus. Seek medical attention.
Skin Contact	Flush contaminated skin with plenty of water. Remove contaminated clothing and shoes. In case of contact with liquid, warm frozen tissues slowly with lukewarm water and get medical attention. Do not rub affected area. Wash clothing before reuse. Clean shoes thoroughly before reuse.
Ingestion	Remove victim to fresh air and keep at rest in a position comfortable for breathing. Never give anything by mouth to an unconscious person. If unconscious, place in recovery position and get medical attention immediately.

5 - FIRE FIGHTING MEASURES

Extinguishing media	As helium is an inert gas, it does not contribute to the fire.
Specific Hazards	Helium does not support life. It can act as a simple asphyxiant by diluting the concentration of oxygen in the air below the levels to support life.
Emergency Actions	If possible, shut off the source of escaping Helium. Evacuate area. Keep the storage tank cool by spraying with water if exposed to a fire.
Protective Clothing	Self contained breathing apparatus. Safety gloves and shoes, or boots, should be worn when handling containers.
Environment Precautions	Helium would have no effect on the environment as it disperses so rapidly.

6 - ACCIDENTAL RELEASE MEASURES

Personal Precautions

Do not enter any enclosed area where helium has been spilled unless tests have shown that it is safe to do so.

Environmental Precautions

Helium itself does not pose a hazard to the environment. However, due to the extreme cold of the vapour, damage to the ecology can occur in the immediate environs of the spill.

Small Spills

Shut off the source of escaping helium. Ventilate the area.

Large Spills

Evacuate the area. Shut off the source of the spill if feasible without risk. Restrict access to the area until completion of the clean-up procedure.

7 - HANDLING AND STORAGE

The potential hazards in handling liquid helium stem mainly from four important properties.

(1) The liquid is extremely cold (helium is the coldest of all cryogenic liquids).

(2) The ultra-low temperature of the liquid. Helium will condense and solidify air.

(3) Very small amounts of liquid are converted into large volumes of gas.

(4) Helium is non-life supporting. Liquid Helium is commonly stored at the consumer site in cryogenic liquid containers and specially designed insulated tanks. To minimize helium transfer losses, the shipping container for liquid helium is normally used for storage. Keep out of reach of children.

8 - EXPOSURE CONTROLS / PERSONAL PROTECTION

Occupational Exposure Hazards	As helium is a simple asphyxiant, avoid any areas where spillage has taken place. Only enter once testing has proved the atmosphere to be safe.
Engineering Control Measures	Engineering control measures are preferred to reduce the exposure to oxygen depleted atmospheres.
Personal Protection	Self-contained breathing apparatus should always be worn when entering the area where oxygen depletion may have occurred. Safety goggles, gloves and shoes, or boots, should be worn when handling containers.
Skin	Wear loose-fitting overalls, preferably without pockets.

9 - PHYSICAL AND CHEMICAL PROPERTIES

Physical State	Colourless, odourless liquid - cryogenic coolant
Molecular Weight	4.00 g/mol
Boiling point @1atm	-268.94°C -452.09°F
Critical Temperature	-267.95°C -450.31°F
Critical Pressure	33.22 psia
Density, gas @1atm and 20°C	0.1664 kg/m3
Relative Density (Air = 1)	0.137
Latent heat of vapourisation @boiling point	20.8 kJ/kg
Solubility mg/l water	2.5 mg/l

10 - STABILITY AND REACTIVITY

Chemical Stability
The product is stable under normal conditions.

Conditions to Avoid
The dilution of the oxygen concentration in the atmosphere to levels which cannot support life.

Incompatible Materials
Liquid helium must not be allowed to come into contact with air, and containers must be equipped with pressure relief devices that prevent back-leakage of air into liquid helium equipment. Plugging by solidified air constitutes a serious safety hazard. At the temperature of liquid helium, ordinary carbon steels and most alloy steels lose their ductility, and are deemed unsafe for liquid helium service. Satisfactory materials for use with liquid helium include Type 18-8 stainless steel and other austenitic nickel-chromium alloys, copper, monel, brass and aluminium.

Hazardous Decomposition Products
None under normal conditions of storage and use.

11 - TOXICOLOGICAL INFORMATION

Acute Toxicity	No known effect.
Skin & Eye Contact	No known effect.
Chronic Toxicity	No known effect.

For further information, refer to Section 3

Likely Routes of Exposure

Effects on Eye
Contact with liquid may cause cold burns/frostbite

Effects on Skin
Contact with liquid may cause cold burns/frostbite. May cause severe frostbite.

Inhalation Effects
In high concentrations may cause asphyxiation. Symptoms may include loss of mobility/consciousness. Victim may not be aware of asphyxiation. Asphyxiation may bring about unconsciousness without warning and so rapidly that victim may be unable to protect themselves.

Ingestion Effects
Ingestion is not considered a potential route of exposure.

Symptoms
Exposure to oxygen deficient atmosphere may cause the following symptoms: Dizziness. Salivation. Nausea. Vomiting. Loss of mobility/ consciousness.

12 - ECOLOGICAL INFORMATION
Helium does not pose a hazard to the ecology.

13 - DISPOSAL CONSIDERATIONS

Disposal Methods
Small amounts may be emitted into the atmosphere under controlled conditions. Large amounts should only be handled by the helium supplier.

Disposal of Packaging
The disposal of containers must only be handled by the helium supplier.

14 - TRANSPORT INFORMATION

ROAD TRANSPORTATION

UN No.	1963
ERG No.	120
Hazchem Warning	2C Non-flammable gas

SEA TRANSPORTATION

IMDG	1963
Label	Non- flammable gas

AIR TRANSPORTATION

ICAO/IATA Code	1963
Class	2.2
Packaging Group	
Packaging Instructions	
- Cargo	202
- Passenger	202
Maximum quantity allowed	
- Cargo	500 kg
- Passenger	50 kg

15 - REGULATORY INFORMATION

EEC Hazard Class	Non-flammable

Ensure all international / local regulations are observed.

16 - EXCLUSION OF LIABILITY

Information contained in this publication is accurate at the date of publication.
The supplier/distrubutor does not accept liability arising from the use of this information, or the use, application, adaptation or process of any products described herein.

17 - DISCLAIMER

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