



INTERNATIONAL INDUSTRIAL GASES LTD

Safety Data Sheet

HELIUM

Material Safety Data Sheet

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1. PRODUCT AND COMPANY IDENTIFICATION

Product Name: HELIUM

Manufacturer's Registered Office: 146 Andul Road, Howrah - 711103, India

Manufacturer's Website: www.iigas.com · www.thegases.com

Telephone Number: (+91 033) 2668 4725

2. HAZARDS IDENTIFICATION

WARNING!

EMERGENCY OVERVIEW

Non-toxic. Simple asphyxiant — can displace breathing air in confined spaces without warning.

High pressure compressed gas.

Lighter than air — accumulates at the highest points of enclosed spaces.

Keep at temperatures below 52°C / 125°F.

Appearance / State / Odor: Colorless | Physical State: Compressed Gas | Odor: Odorless

POTENTIAL HEALTH EFFECTS:

Principal Routes of Exposure: Inhalation

Inhalation: Helium is a simple asphyxiant. In high concentrations it displaces oxygen and may cause rapid breathing, diminished mental alertness, impaired coordination, faulty judgement, fatigue, nausea, unconsciousness and death depending on the degree of oxygen deficiency. Voice pitch rises in helium-rich atmospheres — a warning sign of exposure.

Eyes: None known. Contact with rapidly expanding gas near the point of release may cause frostbite.

Skin: None known. Contact with rapidly expanding gas near the point of release may cause frostbite.

Ingestion: None known.

Chronic Effects: None known.

Environmental Hazard: See Section 12 for additional Ecological Information.

3. COMPOSITION / INFORMATION ON INGREDIENTS

Chemical Name	CAS-No	Volume %	Chemical Formula
Helium	7440-59-7	>99	He

4. FIRST AID MEASURES

Eye Contact: None under normal use. Get medical attention if symptoms occur.

Skin Contact: None under normal use. Get medical attention if symptoms occur.

Inhalation: Move victim to fresh air. If breathing has stopped, give artificial respiration. Seek immediate medical attention/advice.

Ingestion: None under normal use. Get medical attention if symptoms occur.

Notes to Physician: Treat symptomatically.

5. FIRE-FIGHTING MEASURES

Flammable Properties: Non-flammable. Does not support combustion.

Suitable Extinguishing Media: Use extinguishing measures appropriate to local circumstances and the surrounding environment.

Specific Hazards: Cylinders may rupture under extreme heat. Continue to cool fire-exposed cylinders until flames are extinguished. Damaged cylinders should be handled only by specialists.

Protective Equipment for Firefighters: As in any fire, wear self-contained breathing apparatus (SCBA), pressure-demand, NIOSH approved or equivalent, and full protective gear.

6. ACCIDENTAL RELEASE MEASURES

Evacuate personnel and ensure adequate ventilation, particularly at high points of enclosed areas. Monitor oxygen level — do not enter unless the atmosphere contains at least 19.5% oxygen. Stop the flow of gas or remove the cylinder outdoors if this can be done without risk. Return cylinder to IIGAS.

7. HANDLING AND STORAGE

Handling

Helium is inert and non-corrosive; standard materials of construction are acceptable. Helium leaks readily through small openings — use equipment and connections rated for helium service and leak-test joints.

Use only in well-ventilated areas. Never attempt to lift a cylinder by its valve protection cap. Protect cylinders from physical damage; do not drag, roll, slide or drop. When moving cylinders, even for a short distance, use a cart designed to transport cylinders. Use equipment rated for cylinder pressure. Use a backflow preventive device in the piping. Never insert an object (e.g., wrench, screwdriver, pry bar) into valve cap openings — doing so may damage the valve and cause a leak.

Close the valve after each use and when empty. If a user experiences any difficulty operating the cylinder valve, discontinue use and contact the supplier. Never put cylinders into trunks of cars or unventilated areas of passenger vehicles. Never attempt to refill a compressed gas cylinder without the owner’s written consent. Never strike an arc on a compressed gas cylinder or make a cylinder part of an electrical circuit.

For additional recommendations consult rules 18 & 20 of the Gas Cylinder Rules, 2016.

Storage

Protect from physical damage. Cylinders should be stored upright with the valve protection cap in place and firmly secured to prevent falling. Store in a cool, dry, well-ventilated area of non-combustible construction away from high-traffic areas and emergency exits. Keep at temperatures below 52°C / 125°F.

Full and empty cylinders should be segregated. Use a “First-In-First-Out (FIFO)” inventory system to prevent full cylinders from being stored for excessive periods. Always store and handle compressed gas cylinders in accordance with rule 21 of the Gas Cylinder Rules, 2016.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Exposure Guidelines: Simple asphyxiant (ACGIH). No occupational exposure limits established.

Ventilation: Use local exhaust with general ventilation as necessary to maintain oxygen concentration above 19.5%; ventilate roof spaces of enclosed areas.

Eye/Face Protection: Safety glasses recommended when handling cylinders.

Skin and Body Protection: Work gloves and safety shoes are recommended when handling cylinders.

Respiratory Protection: SCBA or positive-pressure airline with mask for oxygen-deficient atmospheres.

Hygiene Measures: Handle in accordance with good industrial hygiene and safety practices.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance	Colorless
Odor	Odorless
Physical State	Compressed gas
Molecular Weight	4.003
Boiling Point	−268.9 °C / −452.1 °F

Vapor Density	0.165 kg/m ³ (0.0103 lb/ft ³) @ 21.1 °C — much lighter than air
Specific Volume @ 21.1 °C & 1 atm	96.7 ft ³ /lb
Critical Temperature	−267.9 °C / −450.3 °F
Critical Pressure	33.2 psia
Water Solubility	Very slightly soluble
Flammability Limits in Air	Not applicable (non-flammable)

10. STABILITY AND REACTIVITY

Stability: Stable.

Incompatible Products: None known.

Conditions to Avoid: None known.

Hazardous Decomposition Products: None known.

Hazardous Polymerization: Does not occur.

11. TOXICOLOGICAL INFORMATION

Helium is a simple asphyxiant; no toxic effects are known. Symptoms of oxygen deficiency include rapid breathing, headache, dizziness, unconsciousness and death. Contains no ingredient listed as a carcinogen.

12. ECOLOGICAL INFORMATION

Ecotoxicity: Will not bioconcentrate. Helium is a natural component of the atmosphere.

13. DISPOSAL CONSIDERATIONS

Waste Disposal Methods: Do not attempt to dispose of residual waste or unused quantities. Return in the shipping container properly labelled, with any valve outlet plugs or caps secured and valve protection cap in place, to IIGAS for proper disposal.

14. TRANSPORT INFORMATION

DOT / ADR

Proper Shipping Name: Helium, compressed

Hazard Class: 2.2

UN-Number: UN1046

Description: UN1046, Helium, compressed, 2.2

Labels: 2.2 Non-flammable, non-toxic gas

15. REGULATORY INFORMATION

SARA 311/312 Hazard Categories

Acute Health Hazard: No **Chronic Health Hazard:** No **Fire Hazard:** No

Sudden Release of Pressure Hazard: Yes **Reactive Hazard:** No

Store, transport and handle in accordance with the Gas Cylinder Rules, 2016 and other applicable national / local regulations.

16. OTHER INFORMATION

General: Ensure all national / local regulations are observed.

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