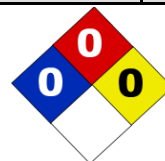


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Label 2.2: Non flammable, non toxic gas.



NFPA RATING

1 IDENTIFICATION OF THE SUBSTANCE / PREPARATION AND OF THE COMPANY / UNDERTAKING

Trade Name	: Helium
Chemical Formula	: He
Chemical Family	: Inert Rare Gas
MSDS No	: DG004G
Company Identification	: Aldakheel Industrial Gases Plant (<i>DIGAS</i>)
Emergency Phone Number	: 04-8455-101


2 COMPOSITION / INFORMATION ON INGREDIENTS

COMPONENT	CAS NUMBER	CONCENTRATION
Helium	7440-59-7	>99%*

*The symbol > means "greater than"

3 HAZARDS IDENTIFICATION

Emergency Overview	: Caution! High-pressure gas. Can cause rapid suffocation. May cause dizziness and drowsiness. Self-contained breathing apparatus and protective clothing may be required by rescue workers.
Effects of a Single (Acute) Overexposure -Inhalation	: Asphyxiant. Effects are due to lack of oxygen. Moderate concentrations may cause headaches, drowsiness, dizziness, excitation, excess salivation, vomiting, and unconsciousness. Lack of oxygen can kill.
Skin Contact	: No harm expected.
Skin Absorption	: No harm expected.
Swallowing	: This product is a gas at normal temperature and pressure.
Eye Contact	: No harm expected.
Effects of Repeated (Chronic) Overexposure	: None known.
Other Effects of Overexposure	: None known.
Medical Conditions Aggravated by Overexposure	: Repeated or prolonged exposure is not known to aggravate medical condition.
Significant Laboratory Data With Possible Relevance to Human Health Hazard Evaluation	: None currently known.

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4 FIRST AID MEASURES

Inhalation	: If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention immediately.
Skin Contact	: Wash with soap and water.
Swallowing	: An unlikely route of exposure. This product is a gas at normal temperature and pressure.
Eye Contact	: Flush with water.
Notes to Physician	: There is no specific antidote. Treatment of overexposure should be directed at the control of symptoms and the clinical condition.

5 FIRE-FIGHTING MEASURES


Flammable class	: Non flammable.
Extinguishing media	
Suitable extinguishing media	: All known extinguishants can be used.
Hazardous combustion products	: None.
Specific physical and chemical hazards	: Gas cannot catch fire. Container may rupture due to heat of fire. No part of a container should be subjected to a temperature higher than 52C. Most containers are provided with a pressure relief device designed to vent contents. when they are exposed to elevated temperature.
Protection of firefighters	: Caution! High-pressure gas. Asphyxiant. Effects are due to lack of oxygen. Evacuate all personnel from danger area. Immediately deluge cylinders with water from maximum distance until cool; then move them away from fire area if without risk. Self-contained breathing apparatus may be required by rescue workers.
Sensitivity to impact	: Avoid impact against container.
Sensitivity to static discharge	: Not applicable.
Protective equipment and precautions for firefighters	: Firefighters should wear self-contained breathing apparatus and full fire-fighting turnout gear.

6 ACCIDENTAL RELEASE MEASURES

Personal precautions	: Evacuate area. Wear self-contained breathing apparatus when entering area unless atmosphere is proved to be safe. Ensure adequate air ventilation.
Environmental precautions	: Try to stop release.
Clean up methods	: Ventilate area.

7 HANDLING AND STORAGE

Precautions to be taken in handling	: Protect cylinders from damage. Use a suitable hand truck to move cylinders; do not drag, roll, slide, or drop. Never attempt to lift a cylinder by its cap; the cap is intended solely to protect the valve. Never insert an object (e.g., wrench, screwdriver, pry bar) into cap openings; doing so may damage the valve and cause a leak. Use an adjustable strap wrench to remove over-tight or rusted caps. Open valve slowly. If valve is hard to open, discontinue use and contact DIGAS.
Precautions to be taken in storage & use	: High pressure gas. Use piping and equipment adequately designed to withstand pressures to be encountered. Gas can cause rapid suffocation due to oxygen deficiency. Store and use with adequate ventilation. Close valve after each use; keep closed even when empty. Prevent reverse flow. Reverse flow into cylinder may cause rupture. Use a check valve or other protective device in any line or piping from the cylinder. When returning cylinder to DIGAS, be sure valve is closed, then install valve outlet plug tightly. Never work on pressurized system. If there is a leak, close the cylinder valve.


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8 EXPOSURE CONTROLS / PERSONAL PROTECTION

Engineering controls	
Local exhaust	: Use a local exhaust system, if necessary, to keep the concentration of carbon dioxide below all applicable exposure limits in the worker's breathing zone.
Mechanical (General)	: Under certain conditions, general exhaust ventilation may be acceptable to control concentration of asphyxiant gases in the worker's breathing zone.
Special	: None.
Other	: None.
Personal protective equipment	
Respiratory Protection	: Use air supplied respirator when working in confined space or where local exhaust or ventilation does not keep exposure below the TLVs of welding fumes if welding with helium.
Skin Protection	: Wear work gloves when handling cylinders.
Eye Protection	: Wear safety glasses when handling cylinders.
Other Protective Equipment	: Metatarsal shoes for cylinder handling. Protective clothing where needed. Cuffless trousers should be worn outside the shoes.

9 PHYSICAL AND CHEMICAL PROPERTIES

Appearance	: Colorless.
Odor	: Odourless.
Odor Threshold	: Not available.
Physical State	: Gas. (Compressed Gas).
pH	: Not applicable.
Freezing Point	: -272C
Boiling Point	: -268.9°C
Flash Point	: Not applicable.
Evaporation Rate (Butyl Acetate = 1)	: Not applicable.
Flammable Limits In Air, % by volume	: Lower Not applicable Upper Not applicable
Vapor Pressure	: Not applicable.
Specific Gravity Liquid (Water = 1)	: Not applicable.
Specific Gravity Vapor (Air = 1)	: 0.14 g/ml @21.1°C
Vapour Density	: 0.000165 g/ml @21.1 C
Solubility In Water	: Negligible.
Coefficient of water/oil distribution	: Not applicable.
Autoignition Temperature	: Not applicable.
Decomposition Temperature	: Not available.
Percent Volatiles By Volume	: 100% (v/v).
Molecular Weight	: 4 g/mole
Molecular Formula	: He

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10 STABILITY AND REACTIVITY

Stability	: The product is stable.
Conditions of Chemical Instability	: None.
Incompatibility (materials to avoid)	: None currently known. Product is inert.
Hazardous Decomposition Products	: None.
Hazardous polymerization	: Will not occur
Conditions to Avoid	: None known
Conditions of Reactivity	: None known

11 TOXICOLOGICAL INFORMATION

Acute Dose Effect	: Helium is a simple asphyxiant. The welding process may generate hazardous fumes and gases.
Study Results	: None known.

12 ECOLOGICAL INFORMATION

Ecological Information	: No adverse ecological effects expected. This product does not contain any Class I or Class II ozone-depleting chemicals.
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13 DISPOSAL CONSIDERATION


Waste Disposal Method	: Do not attempt to dispose of residual or unused quantities. Return cylinder to DIGAS.
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14 TRANSPORT INFORMATION

Transport Information	: Avoid transport on vehicles where the load space is not separated from the driver's compartment.
	: Ensure vehicle driver is aware of the potential hazards of the load and knows what to do in the event of an accident or an emergency.
	: Before transporting product containers:
	- Ensure that containers are firmly secured.
	- Ensure cylinder valve is closed and not leaking.
	- Ensure valve outlet cap nut or plug (where provided) is correctly fitted.
	- Ensure valve protection device (where provided) is correctly fitted.
	- Ensure there is adequate ventilation.
	- Compliance with applicable regulations.

15 OTHER INFORMATION

- Asphyxiant in high concentrations.**
- Keep container in a well-ventilated place.**
- Do not breathe the gas.**
- Ensure all national/local regulations are observed.**
- The hazard of asphyxiation is often overlooked and must be stressed during operator training.**

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15 OTHER INFORMATION (Continue)

Mixtures: When two or more gases, or liquefied gases are mixed, their hazardous properties may combine to create additional, unexpected hazards. Obtain and evaluate the safety information for each component before you produce the mixture. Consult an Industrial Hygienist, or other trained person when you make your safety evaluation of the end product. Remember, gases and liquids have properties which can cause serious injury or death.

HAZARD RATING SYSTEMS:

NFPA Ratings:

Health =0
Flammability =0
Instability =0

HMIS Ratings:

Health =0
Flammability =0
Physical Hazard =2

STANDARD VALVE CONNECTIONS:

THREADED : CGA-580

PIN-INDEX YOKE : CGA-930

Use the proper CGA connections. **DO NOT USE ADAPTERS.**

This Material Safety Data Sheet has been established for the best knowledge of DIGAS.

Details given in this document are believed to be correct at the best of DIGAS knowledge. Whilst proper care has been taken in the preparation of this document, no liability for injury or damage resulting from its use can be accepted.

End of Documents.