Material Safety Data Sheets

Ehsan International Gases

Helium-3

1.PRODUCT AND COMPANY IDENTIFICATION

Product Name	**HELIUM-3**
Product Code(s)	**1030**
UN-Number	UN1046
Recommended Use	Compressed gas.
Synonyms	Helium; Isotopic Helium; ^{3}He

Manufacturer / Distributor:

Ehsan International Gases
40/9, Aurangabad, Nazimabad
#3, Karachi 74600, Pakistan.
+92 21 36612091 – 36612907
info@ehsan.com.pk
www.ehsan.com.pk

2 . HAZARDS IDENTIFICATION

WARNING!

Emergency Overview

Simple asphyxiant
Contents under pressure
Intentional misuse of this product can cause serious lung damage or death. Keep at temperatures below 52°C / 125°F

Appearance Colorless. **Physical State** Compressed gas. **Odor** Odorless

OSHA Regulatory Status This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200).

Potential Health Effects

Helium-3

Principle Routes of Exposure	Inhalation.
Acute Toxicity	
Inhalation	Simple asphyxiant. May cause suffocation by displacing the oxygen in the air. Exposure to oxygendeficient atmosphere (<19.5%) may cause dizziness, drowsiness, nausea, vomiting, excess salivation, diminished mental alertness, loss of consciousness and death. Exposure to atmospheres containing 8- 10 % or less oxygen will bring about unconsciousness without warning and so quickly that the individuals cannot help or protect themselves. Lack of sufficient oxygen may cause serious injury or death.
Eyes	None known.
Skin	None known.
Skin Absorption Hazard	No known hazard in contact with skin.
Ingestion	None known.
Chronic Effects	None known.
Aggravated Medical Conditions	None known.
Environmental Hazard	See Section 12 for additional Ecological Information.

3.COMPOSITION/INFORMATION ON INGREDIENTS

Chemical Name	**CAS-No**	**Volume %**	Chemical Formula
(He3) Helium	14762-55-1	>99	He3

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	PROMPT MEDICAL ATTENTION IS MANDATORY IN ALL CASES OF INHALATION OVEREXPOSURE. RESCUE PERSONNEL SHOULD BE EQUIPPED WITH SELF-CONTAINED BREATHING APPARATUS. Conscious inhalation victims should be assisted to an uncontaminated area and inhale fresh air. If breathing is difficult, administer oxygen. Unconscious persons should be moved to an uncontaminated area and, as necessary, given

artificial resuscitation and supplemental oxygen. Treatment should be symptomatic and supportive.

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

Notes to Physician Treat symptomatically.

5 . FIRE-FIGHTING MEASURES

Flammable Properties Not flammable.

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

Explosion Data

Sensitivity to Mechanical Impact None

Sensitivity to Static Discharge None

Specific Hazards Arising from the Chemical 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 and Precautions for Firefighters As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear.

6 . ACCIDENTAL RELEASE MEASURES

Personal Precautions Ensure adequate ventilation. Evacuate personnel to safe areas. Use personal protective equipment. Monitor oxygen level.

Environmental Precautions Prevent spreading of vapors through sewers, ventilation systems and confined areas.

Methods for Containment Stop the flow of gas or remove cylinder to outdoor location if this can be done without risk. If leak is in container or container valve, contact the appropriate emergency telephone number in Section 1 or call your closest Linde location.

Methods for Cleaning Up	Return cylinder to Linde or an authorized distributor

7 . HANDLING AND STORAGE

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Handling

Use only in 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 short distance, use a cart designed to transport cylinders. Use equipment rated for cylinder pressure. Use backflow preventive device in piping. Never insert an object (e.g. wrench, screwdriver, pry bar,etc.) into valve cap openings. Doing so may damage valve, causing leak to occur.

Proper handling, storage of regulating equipment and cylinders is required to safely fill helium balloons. DO NOT ALLOW CHILDREN OR UNQUALIFIED PEOPLE TO OPERATE BALOON FILLING EQUIPMENT. INTENTIONAL INHALATION OF HELIUM CAN CAUSE SERIOUS LUNG DAMAGE OR DEATH. A balloon filling helium regulator must be attached to the valve before it is opened.

Use an adjustable strap wrench to remove over-tight or rusted caps. Close valve after each use and when empty. If user experiences any difficulty operating cylinder valve discontinue use and contact 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 a part of an electrical circuit. Keep out of the reach of children.

Handle in accordance with good industrial hygiene and safety practice.

Storage

Protect from physical damage. Cylinders should be stored upright with valve protection cap in place and firmly secured to prevent falling. Store in cool, dry, well-ventilated area of non-combustible construction away from heavily trafficked areas and emergency exits. Keep at temperatures below 52°C / 125°F. Full and empty cylinders should be segregrated. Always store and handle compressed gas cylinders in accordance with Compressed Gas Association, pamphlet CGA-P1, Safe Handling of Compressed Gases in Containers.

8.EXPOSURE CONTROLS / PERSONAL PROTECTION

Exposure Guidelines	This product does not contain any hazardous materials with occupational exposure limits established by the region specific regulatory bodies.
Engineering Measures	Local exhaust ventilation to prevent accumulation of high concentrations and maintain air-oxygen levels at or above 19.5%.
Ventilation	Ensure adequate ventilation, especially in confined areas.
Personal Protective Equipment	
Eye/Face Protection	Wear protective eyewear (safety glasses).
Skin and Body Protection	Work gloves and safety shoes are recommended when handling cylinders.
Respiratory Protection	
General Use	No special protective equipment required.
Emergency Use	Use positive pressure airline respirator with escape cylinder or self contained breathing apparatus for oxygen-deficient atmospheres (<19.5%).
Hygiene Measures	Wear suitable gloves and eye/face protection.

9.PHYSICAL AND CHEMICAL PROPERTIES

Appearance Colorless.
Odor Threshold No information available
Flash Point No information available.
Decomposition Temperature No information available.
Freezing Point No information available
Water Solubility 8.61 m^3/1 kg water @ 20°C and 1 atm
Vapor Pressure No data available
Gas Density @ 21.1°C (70°F) ("NTP"): 0.0078 lb/ft^3 (0.125 kg/m^3) (0.125 g/ltr) @ 0°C ("STP"): 0.0084 lb/ft3 (0.135 kg/m^3) (0.135 g/ltr)

Specific Vol. @ 21.1°C & 1 atm 97.09 ft^3/lb (6.061 m^3/kg)
Flammability Limits in Air

Upper Not applicable

Lower Not applicable

10.STABILITY AND REACTIVITY

Stability Stable.

Incompatible Products None known. **Conditions to**

Avoid None known.

Hazardous Decomposition Products None known based on information supplied.

Hazardous Polymerization Hazardous polymerization does not occur.

Odor	Odorless.
Physical State	Compressed gas
Autoignition Temperature	No information available.
Boiling Point/Boiling Range	-268.9 °C / -452.1°F
Molecular Weight	2.99
Evaporation Rate	No information available
Vapor Density	0.138 (air = 1)
VOC Content (%)	Not applicable.
Critical Pressure	-2.7 psia (0.186 bar)

11.TOXICOLOGICAL INFORMATION

Acute Toxicity

LD50 Oral: No information available.

LD50 Dermal: No information available.

LC50 Inhalation:	No information available.
Repeated Dose Toxicity	No information available.

Chronic Toxicity

Chronic Toxicity	None known.
Carcinogenicity	Contains no ingredient listed as a carcinogen.

Irritation	No information available.
Sensitization	No information available.
Reproductive Toxicity	No information available.
Developmental Toxicity	Oxygen deficiency during pregnancy has produced developmental abnormalities in humans and experimental animals.
Synergistic Materials	None known.
Target Organ Effects	None known.

12.ECOLOGICAL INFORMATION

Ecotoxicity

The environmental impact of this product has not been fully investigated.

Ozone depletion potential; ODP; (R-11 = 1): Does not contain ozone depleting chemical (40 CFR Part 82).

13.DISPOSAL CONSIDERATIONS

Waste Disposal Methods	Do not attempt to dispose of residual waste or unused quantities. Return in the shipping container PROPERLY LABELED WITH ANY VALVE OUTLET PLUGS OR CAPS SECURED AND VALVE PROTECTION CAP IN PLACE to Linde for proper disposal.

14.TRANSPORT INFORMATION

DOT

Proper shipping name	Helium, compressed
Hazard Class	2.2
Subsidiary Class	None
UN-Number	UN1046
Description	UN1046,Helium, compressed,2.2
Emergency Response Guide Number	121

TDG

Proper Shipping Name	Helium, compressed
Hazard Class	2.2
UN-Number	UN1046
Description	UN1046,HELIUM, COMPRESSED,2.2

MEX

Proper Shipping Name	Helium, compressed
Hazard Class	2.2
UN-Number	UN1046
Description	UN1046 Helium, compressed,2.2

IATA

UN-Number	UN1046
Proper Shipping Name	Helium, compressed
Hazard Class	2.2
ERG Code	2 L
Description	UN1046,Helium, compressed,2.2
Maximum Quantity for Passenger	No information available.
Maximum Quantity for Cargo Only	No information available.
Limited Quantity	No information available.

IMDG/IMO

Proper Shipping Name	Helium, compressed
Hazard Class	2.2
UN-Number	UN1046
EmS No.	F-C, S-V

Description	UN1046, Helium, compressed,2.2

ADR

Proper Shipping Name	Helium, compressed
Hazard Class	2.2
UN-Number	UN1046
Classification Code	1 A
Description	UN1046 Helium, compressed,2.2

15.REGULATORY INFORMATION

International Inventories

TSCA Complies
DSL Complies
EINECS/ELINCS Complies

Legend

TSCA - United States Toxic Substances Control Act Section 8(b) Inventory
DSL/NDSL - Canadian Domestic Substances List/Non-Domestic Substances List
EINECS/ELINCS - European Inventory of Existing Commercial Chemical Substances/EU List of Notified Chemical Substances

U.S. Federal Regulations

SARA 313

Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 (SARA). This product does not contain any chemicals which are subject to the reporting requirements of the Act and Title 40 of the Code of Federal Regulations, Part 372. **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

Clean Water Act

This product does not contain any substances regulated as pollutants pursuant to the Clean Water Act (40 CFR 122.21 and 40 CFR 122.42).

Risk and Process Safety Management Programs

This material, as supplied, does not contain any regulated substances with specified thresholds under 40 CFR Part 68.

This product does not contain any substances regulated as Highly Hazardous Chemicals pursuant to the 29 CFR Part 1910.110.

Clean Air Act, Section 112 Hazardous Air Pollutants (HAPs) (see 40 CFR 61)

This product does not contain any substances regulated as hazardous air pollutants (HAPS) under Section 112 of the Clean Air Act Amendments of 1990.

CERCLA/SARA

This material, as supplied, does not contain any substances regulated as hazardous substances under the Comprehensive Environmental Response Compensation and Liability Act (CERCLA) (40 CFR 302) or the Superfund Amendments and Reauthorization Act (SARA) (40 CFR 355). There may be specific reporting requirements at the local, regional, or state level pertaining to releases of this material.

U.S. State Regulations

California Proposition 65

This product does not contain any Proposition 65 chemicals.

U.S. State Right-to-Know Regulations

Chemical Name	Massachusetts	New Jersey	Pennsylvania	Illinois	Rhode Island
Helium	X	X	X	-	X

International Regulations

Canada

This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations (CPR) and the MSDS contains all the information required by the CPR.

WHMIS Hazard Class

A Compressed gases

16 . OTHER INFORMATION

Prepared By	Product Stewardship 23 British American Blvd. Latham, NY 12110 1-800-572-6501
Issuing Date	28- Jul -2011
Revision Date	

Helium-3

Revision Number	0
Revision Note	Initial Release.

NFPA	**Health Hazard** 0	**Flammability** 0	**Stability** 0	**Physical and Chemical Hazards** Simple asphyxiant
HMIS	**Health Hazard** 0	**Flammability** 0	**Physical Hazard** 3	**Personal Protection** -

Note: Ratings were assigned in accordance with Compressed Gas Association (CGA) guidelines as published in CGA Pamphlet P-19-2009, CGA Recommended Hazard Ratings for Compressed Gases, 3rd Edition.