

1. PRODUCT AND COMPANY IDENTIFICATION

Product Name	Helium-3
Chemical Formula	^3He
CAS No.	14762-55-1
UN No.	1046
Synonyms	Helium; Isotopic Helium; ^3He ; He-3
Recommended Use	Compressed gas
Supplier Address*	ISOFLEX USA P.O. Box 29475 San Francisco, CA 94129 United States
Telephone	+1 415-440-4433
Fax	+1 415-563-4433
Emergency Phone Number (both supplier and manufacturer)	+1 415-440-4433 *May include subsidiaries or affiliate companies/divisions
Email	iusa@isoflex.com
Website	www.isoflex.com
Preparation Information	ISOFLEX USA Product Safety +1 415-440-4433

2. HAZARDS IDENTIFICATION

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).

NFPA Ratings: (0 = Minimal; 1 = Slight; 2 = Moderate; 3 = Serious; 4 = Severe)

Health Hazard = 0 Flammability = 0 Reactivity = 0 Special Notice = Simple Asphyxiant



HMIS Ratings: (0 = Minimal; 1 = Slight; 2 = Moderate; 3 = Serious; 4 = Severe)

Health Hazard = 0

Flammability = 0

Physical Hazard = 3

HEALTH HAZARD	0
FLAMMABILITY	0
PHYSICAL HAZARD	3

Potential Health Effects

Inhalation

Principal route of exposure is inhalation. Simple asphyxiant. May cause suffocation by displacing the oxygen in the air. Exposure to oxygen-deficient 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.

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*.

3. COMPOSITION/INFORMATION ON INGREDIENTS

Chemical Name:	He-3 Helium
CAS No.	14762-55-1
Volume %	>99
Chemical Formula	³ 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

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. Treat symptomatically.

5. FIREFIGHTING MEASURES

<i>Flammable Properties</i>	Not flammable
<i>Suitable Extinguishing Media</i>	Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.

Explosion Data

<i>Sensitivity to Mechanical Impact</i>	None
<i>Sensitivity to Static Discharge</i>	None
<i>Specific Hazards Arising from the Chemical</i>	Cylinders may rupture under extreme heat. Continue to cool fire-exposed cylinders until flames are extinguished. Damaged cylinders should be handled only by specialists.
<i>Protective Equipment and Precautions for Firefighters</i>	As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear.

6. ACCIDENTAL RELEASE MEASURES

<i>Personal Precautions</i>	Ensure adequate ventilation. Evacuate personnel to safe areas. Use personal protective equipment. Monitor oxygen level.
<i>Environmental Precautions</i>	Prevent spreading of vapors through sewers, ventilation systems and confined areas.
<i>Methods for Containment</i>	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.
<i>Methods for Cleaning Up</i>	Return cylinder to ISOFLEX USA.

7. HANDLING AND STORAGE

<i>Handling</i>	<p>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.</p> <p>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.</p> <p>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.</p> <p>Handle in accordance with good industrial hygiene and safety practice.</p>
<i>Storage</i>	<p>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 segregated. Always store and handle compressed gas cylinders in accordance with Compressed Gas Association, pamphlet CGA-P1, <i>Safe Handling of Compressed Gases in Containers</i>.</p>

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

<i>Exposure Guidelines</i>	This product does not contain any hazardous materials with occupational exposure limits established by the region-specific regulatory bodies.
<i>Engineering Measures</i>	Local exhaust ventilation to prevent accumulation of high concentrations and maintain air-oxygen levels at or above 19.5%
<i>Ventilation</i>	Ensure adequate ventilation, especially in confined areas.

Personal Protective Equipment

<i>Eye/Face Protection</i>	Wear protective eyewear (safety glasses).
<i>Skin and Body Protection</i>	Work gloves and safety shoes are recommended when handling cylinders.
<i>Respiratory Protection General Use</i>	No special protective equipment required.
<i>Emergency Use</i>	Use positive pressure airline respirator with escape cylinder or self-contained breathing apparatus for oxygen-deficient atmospheres (<19.5%).
<i>Hygiene Measures</i>	Wear suitable gloves and eye/face protection.

9. PHYSICAL AND CHEMICAL PROPERTIES

<i>Appearance</i>	Colorless
<i>Odor Threshold</i>	No information available
<i>Flash Point</i>	No information available
<i>Decomposition Temperature</i>	No information available
<i>Freezing Point</i>	No information available
<i>Water Solubility</i>	8.61 m ³ /1 kg water @ 20 °C and 1 atm
<i>Vapor Pressure</i>	No information available.
<i>Gas Density</i>	@ 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/ft ³ (0.135 kg/m ³) (0.135 g/ltr)
Flammability Limits in Air	
<i>Upper</i>	Not applicable
<i>Lower</i>	Not applicable

10. STABILITY AND REACTIVITY

<i>Stability</i>	Stable
<i>Incompatible Products</i>	None known
<i>Conditions to Avoid</i>	None known
<i>Hazardous Decomposition Products</i>	None known, based on information supplied
<i>Hazardous Polymerization</i>	Hazardous polymerization does not occur

11. TOXICOLOGICAL INFORMATION

Acute Toxicity

<i>LD50 Oral</i>	No information available
<i>LD50 Dermal</i>	No information available
<i>LC50 Inhalation</i>	No information available
<i>Repeated Dose Toxicity</i>	No information available

Chronic Toxicity

<i>Chronic Toxicity</i>	None known
<i>Carcinogenicity</i>	Contains no ingredient listed as a carcinogen
<i>Irritation</i>	No information available
<i>Sensitization</i>	No information available
<i>Reproductive Toxicity</i>	No information available
<i>Developmental Toxicity</i>	Oxygen deficiency during pregnancy has produced developmental abnormalities in humans and experimental animals.
<i>Synergistic Materials</i>	None known
<i>Target Organ Effects</i>	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 ISOFLEX USA for proper disposal.

14. TRANSPORT INFORMATION

DOT

Proper shipping name	Helium, compressed
Hazard Class	2.2
Subsidiary Class	None
UN No.	UN1046
Description	UN1046, Helium, compressed, 2.2
Emergency Response	121
Guide Number	

TDG

Proper Shipping Name	Helium, compressed
Hazard Class	2.2
UN No.	UN1046
Description	UN1046, Helium, compressed, 2.2

MEX

Proper Shipping Name	Helium, compressed
Hazard Class	2.2
UN No.	UN1046
Description	UN1046, Helium, compressed, 2.2

IATA

Proper Shipping Name	Helium, compressed
UN No.	UN1046
Hazard Class	2.2
ERG Code	2L
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 No.	UN1046
EmS No.	F-C, S-V
Description	UN1046, Helium, compressed, 2.2

ADR

Proper Shipping Name	Helium, compressed
Hazard Class	2.2
UN No.	UN1046
Classification Code	1A
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

This material, as supplied, does not contain any regulated substances Management Programs 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

Massachusetts	X
New Jersey	X
Pennsylvania	X
Illinois	-
Rhode Island	X

International Regulations**Canada**

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

WHMIS Hazard Class:

A compressed gas

16. OTHER INFORMATION

Prepared by

ISOFLEX USA
P.O. Box 29475
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United States

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Revision Number

1.3

Prepared By

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Revision Note

Required format update

ISOFLEX USA's Commonly Used Abbreviations and Acronyms*

ACGIH	American Conference of Governmental Industrial Hygienists
ADR	European Agreement Concerning the International Carriage of Dangerous Goods by Road
ALARA	As Low As Is Reasonably Achievable
AMU	Atomic Mass Unit
ANSI	American National Standards Institute
BLS	Basic Life Support
CAM	Continuous Air Monitor
CAS	Chemical Abstracts Service (division of the American Chemical Society)
CEN	European Committee for Standardization
CERCLA	Comprehensive Environmental Response Compensation and Liability Act
CLP	Classification, Labelling and Packaging (European Union)
CPR	Controlled Products Regulations (Canada)
CWA	Clean Water Act (USA)
DAC	Derived Air Concentration (USA)
DOE	United States Department of Energy (USA)
DOT	United States Department of Transportation (USA)
DSL	Domestic Substances List (Canada)
EC50	Half Maximal Effective Concentration
EINECS	European Inventory of Existing Commercial Chemical Substances
EHS	Environmentally Hazardous Substance
ELINCS	European List of Notified Chemical Substances
EMS	Emergency Response Procedures for Ships Carrying Dangerous Goods
EPA	Environmental Protection Agency (USA)
EPCRA	Emergency Planning and Community Right-To-Know Act (EPCRA) of 1986
GHS	Globally Harmonized System
HMIS	Hazardous Materials Identification System (USA)
IARC	International Agency for Research on Cancer
IATA	International Air Transport Association
IBC	Intermediate Bulk Containers
ICAO	International Civil Aviation Organization
IDLH	Immediately Dangerous to Life or Health
IMDG	International Maritime Code for Dangerous Goods
LC50	Lethal concentration, 50 percent
LD50	Lethal dose, 50 percent
LDLO	Lethal Dose Low
LOEC	Lowest-Observed-Effective Concentration
MARPOL	International Convention for the Prevention of Pollution from Ships
MSHA	Mine Safety and Health Administration (USA)
NCRP	National Council on Radiation Protection & Measurements (USA)
NDSL	Non-Domestic Substances List (Canada)
NFPA	National Fire Protection Association (USA)
NIOSH	National Institute for Occupational Safety and Health (USA)
NOEC	No Observed Effect Concentration
N.O.S.	Not Otherwise Specified
NRC	Nuclear Regulatory Commission (USA)
NTP	National Toxicology Program (USA)
OSHA	Occupational Safety and Health Administration (USA)
PBT	Persistent Bioaccumulative and Toxic Chemical
PEL	Permissible Exposure Limit
PIH	Poisonous by Inhalation Hazard
RCRA	Resource Conservation and Recovery Act (USA)
RCT	Radiation Control Technician
REACH	Registration, Evaluation, Authorisation and Restriction of Chemicals (Europe)
RID	Regulations Concerning the International Transport of Dangerous Goods by Rail
RTECS	Registry of Toxic Effects of Chemical Substances
SARA	Superfund Amendments and Reauthorization Act (USA)
TDG	Transportation of Dangerous Goods (Canada)
TIH	Toxic by Inhalation Hazard

TLV	Threshold Limit Value
TPQ	Threshold Planning Quantity
TSCA	Toxic Substances Control Act
TWA	Time Weighted Average
UN	United Nations (Number)
VOC	Volatile Organic Compound
vPvB	Very Persistent Very Bioaccumulative Chemical
WGK	Wassergefährdungsklassen (Germany: Water Hazard Classes)
WHMIS	Workplace Hazardous Materials Information System

*One or more of the above-listed items may not appear in this document.

General Disclaimer

For terms and conditions, including limitation of liability, please refer to the purchase agreement in effect between ISOFLEX USA (or any of its affiliates and subsidiaries) and the purchaser.

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The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. ISOFLEX shall not be held liable for any damage resulting from handling or from contact with the above product.



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