



Helium-3

Safety Data Sheet

1. PRODUCT AND COMPANY IDENTIFICATION

<i>Product Name</i>	HELIUM-3
<i>Product Code(s)</i>	02-01-03
<i>UN-Number</i>	UN1046
<i>Recommended Use</i>	Compressed gas
<i>Synonyms</i>	Helium; Isotopic Helium; ³ He
<i>Supplier Address*</i>	ISOFLEX USA P.O. Box 29475 San Francisco, CA 94129 United States 415-440-4433 www.isoflex.com

* May include subsidiaries or affiliate companies/divisions.

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

Principle Routes of Exposure Inhalation.

Acute Toxicity

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.

<i>Skin Absorption Hazard</i>	No known hazard in contact with skin.
<i>Ingestion</i>	None known.
<i>Chronic Effects</i>	None known.
<i>Aggravated Medical Conditions</i>	None known.
<i>Environmental Hazard</i>	See Section 12 for additional Ecological Information.

3. COMPOSITION/INFORMATION ON INGREDIENTS

Chemical Name:	He-3 Helium
CAS No.	14762-55-1
Volume %	>99
Chemical Formula	He3

4. FIRST AID MEASURES

<i>Eye Contact</i>	None under normal use. Get medical attention if symptoms occur.
<i>Skin Contact</i>	None under normal use. Get medical attention if symptoms occur.
<i>Inhalation</i>	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.
<i>Ingestion</i>	None under normal use. Get medical attention if symptoms occur.
<i>Notes to Physician</i>	Treat symptomatically.

5. FIRE-FIGHTING 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 or call ISOFLEX USA: 1-415-440-4433.
<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>	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> .

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</i>	
<i>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.

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 ISOFLEX USA 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	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-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	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 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

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 MSDS contains all the information required by the CPR.

WHMIS Hazard Class: A compressed gas

16. OTHER INFORMATION

Prepared by ISOFLEX USA
P.O. Box 29475
San Francisco, CA 94129

Issuing Date 28-Aug-2011

Revision Date N/A

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*.

General Disclaimer

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

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