HELIUM, GAS
Material Safety Data Sheet

1. PRODUCT AND COMPANY IDENTIFICATION

Product Name	HELIUM, GAS
Product Code(s)	G-5, 1013
UN-Number	UN1046
Recommended Use	Compressed gas.
Synonyms	LASER Helium; LASER Helium Ultra; Helium; Helium, compressed; Helium-4
Supplier Address*	Linde Gas North America LLC - Linde Merchant Production Inc. - Linde LLC 575 Mountain Ave. Murray Hill, NJ 07974 Phone: 908-464-8100 www.lindeus.com Linde Gas Puerto Rico, Inc. Las Palmas Village Road No. 869, Street No. 7 Catano, Puerto Rico 00962 Phone: 787-641-7445 www.pr.lindegas.com Linde Canada Limited 5860 Chedworth Way Mississauga, Ontario L5R 0A2 Phone: 905-501-1700 www.lindecanada.com * May include subsidiaries or affiliate companies / divisions. For additional product information contact your local customer service.
Chemical Emergency Phone Number	Chemtrec: 1-800-424-9300 for US / 703-527-3887 outside US

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. Intentional inhalation of helium balloon gas can cause asphyxiation, lung damage, and 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
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	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	Non-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

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.

For additional recommendations, consult Compressed Gas Association's pamphlets P-1, P-9, P-9.1, P-18, SB-14 and Safety Bulletin SB-2.

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. Use a "first in-first out" inventory system to prevent full cylinders from being stored for excessive periods of time. 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	Odorless.
Odor Threshold	No information available	Physical State	Compressed gas
Flash Point	No information available.	Autoignition Temperature	No information available.
Decomposition Temperature	No information available.	Boiling Point / Boiling Range	-268.9 °C / -452.1 °F
Freezing Point	No information available	Molecular Weight	4.00
Water Solubility	0.0094 vol / vol @ 0°C	Evaporation Rate	No information available
Vapor Pressure	No data available.	Vapor Density	0.14 (air = 1)
Gas Density	(at 21.1°C / 70°F) 0.0103 lb / ft³ (0.165 kg / m³)	VOC Content (%)	Not applicable.
Specific Vol. @ 21.1°C & 1 atm	97.09 ft³ / lb (6.061 m³ / kg)	Critical Pressure	33.0 psia (227 kPa abs)
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.

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	2L
Description	UN1046,Helium, compressed,2.2
Maximum Quantity for Passenger	75 kg
Maximum Quantity for Cargo Only	150 kg
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

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

Prepared By	Product Stewardship 23 British American Blvd. Latham, NY 12110 1-800-572-6501
Issuing Date	28-Feb-2011
Revision Date	27-Sep-2013
Revision Number	2
Revision Note	Not applicable.

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 Linde LLC, Linde Merchant Production, Inc. or Linde Gas North America LLC (or any of their affiliates and subsidiaries) and the purchaser.

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End of Safety Data Sheet