

# SAFETY DATA SHEET

## 1. Identification

**Product identifier** Helium

**Other means of identification**

**SDS number** WC032

**Synonyms** HELIUM-4

**Recommended use** Balloons.

**Recommended restrictions** None known.

**Manufacturer/Importer/Supplier/Distributor information**

**Manufacturer/Supplier** Worthington Industries Incorporated

**Address** 200 Old Wilson Bridge Road  
Columbus, OH 43085  
United States

**Email:** cylinders@worthingtonindustries.com

**Telephone Number:** 866-928-2657

**CHEMTREC - 24 HOURS:**

**Within US and Canada** 800-424-9300

**Outside US and Canada** +1 703-741-5970 (collect calls accepted)

## 2. Hazard(s) identification

**Physical hazards** Gases under pressure Compressed gas  
Simple asphyxiants Category 1

**Health hazards** Not classified.

**Environmental hazards** Not classified.

**Label elements**



**Signal word** Warning

**Hazard statement** Contains gas under pressure; may explode if heated. May displace oxygen and cause rapid suffocation.

**Precautionary statement**

**Prevention** Keep container tightly closed. Use only outdoors or in a well-ventilated area. Wear respiratory protection.

**Response** Wash hands after handling.

**Storage** Protect from sunlight. Store in a well-ventilated place.

**Disposal** Dispose of waste and residues in accordance with local authority requirements.

**Other hazards** None known.

**Supplemental information** None.

## 3. Composition/information on ingredients

### Substances

Chemical name	Common name and synonyms	CAS number	%
Helium	HELIUM-4	7440-59-7	100

**Composition comments** Gas concentrations are in percent by volume.

## 4. First-aid measures

<b>Inhalation</b>	If breathing is difficult, remove to fresh air and keep at rest in a position comfortable for breathing. Get medical attention if breathing difficulty persists.
<b>Skin contact</b>	Not likely, due to the form of the product. If frostbite occurs, immerse affected area in warm water (not exceeding 105°F/41°C). Keep immersed for 20 to 40 minutes. Get medical attention immediately.
<b>Eye contact</b>	Not likely, due to the form of the product. If frostbite occurs, immediately flush eyes with plenty of warm water (not exceeding 105°F/41°C) for at least 15 minutes. If easy to do, remove contact lenses. Get medical attention promptly if symptoms persist or occur after washing.
<b>Ingestion</b>	This material is a gas under normal atmospheric conditions and ingestion is unlikely.
<b>Most important symptoms/effects, acute and delayed</b>	Exposure to rapidly expanding gas or vaporizing liquid may cause frostbite ("cold burn"). Very high exposure can cause suffocation from lack of oxygen. Symptoms may include loss of mobility/consciousness. Victim may not be aware of asphyxiation. Asphyxiation may bring about unconsciousness without warning and so rapidly that victim may be unable to protect himself.
<b>Indication of immediate medical attention and special treatment needed</b>	Provide general supportive measures and treat symptomatically.
<b>General information</b>	Ensure that medical personnel are aware of the material(s) involved, and take precautions to protect themselves.

## 5. Fire-fighting measures

<b>Suitable extinguishing media</b>	Use fire-extinguishing media appropriate for surrounding materials.
<b>Unsuitable extinguishing media</b>	Do not use water jet as an extinguisher, as this will spread the fire.
<b>Specific hazards arising from the chemical</b>	Contents under pressure. Pressurized container may explode when exposed to heat or flame.
<b>Special protective equipment and precautions for firefighters</b>	Self-contained breathing apparatus and full protective clothing must be worn in case of fire.
<b>Fire fighting equipment/instructions</b>	Move containers from fire area if you can do so without risk. Cool containers with flooding quantities of water until well after fire is out.
<b>Specific methods</b>	Use standard firefighting procedures and consider the hazards of other involved materials.
<b>General fire hazards</b>	Heat may cause the containers to explode. Ruptured cylinders may rocket.

## 6. Accidental release measures

<b>Personal precautions, protective equipment and emergency procedures</b>	Keep unnecessary personnel away. Ensure adequate ventilation. Avoid breathing gas. In the event of a leak evacuate all personnel until ventilation can restore oxygen concentrations to safe levels. For personal protection, see Section 8 of the SDS.
<b>Methods and materials for containment and cleaning up</b>	Stop the flow of material, if this is without risk. Isolate area until gas has dispersed. For waste disposal, see Section 13 of the SDS.
<b>Environmental precautions</b>	Prevent further leakage or spillage if safe to do so.

## 7. Handling and storage

<b>Precautions for safe handling</b>	Do not apply heat or direct sunlight. Do not breathe gas. Provide adequate ventilation. Oxygen concentration should not fall below 19.5 % at sea level (pO <sub>2</sub> = 135 mmHg). Handle and open container with care. Observe good industrial hygiene practices.
<b>Conditions for safe storage, including any incompatibilities</b>	Contents under pressure. Keep at temperature not exceeding 52 °C. Store in a cool, dry place out of direct sunlight. Store in a well-ventilated place. Store in original tightly closed container. Protect containers from damage. Store away from incompatible materials (See Section 10).

## 8. Exposure controls/personal protection

<b>Occupational exposure limits</b>	No exposure limits noted for ingredient(s).
<b>Biological limit values</b>	No biological exposure limits noted for the ingredient(s).
<b>Exposure guidelines</b>	No exposure standards allocated.
<b>Appropriate engineering controls</b>	General ventilation normally adequate.
<b>Individual protection measures, such as personal protective equipment</b>	
<b>Eye/face protection</b>	If contact is likely, safety glasses with side shields are recommended.

<b>Skin protection</b>	
<b>Hand protection</b>	For prolonged or repeated skin contact use suitable protective gloves.
<b>Other</b>	Wear protective clothing appropriate for the risk of exposure.
<b>Respiratory protection</b>	In case of inadequate ventilation or risk of inhalation of gas, use suitable respiratory equipment.
<b>Thermal hazards</b>	Contact with liquefied gas might cause frostbites, in some cases with tissue damage. Wear appropriate thermal protective clothing, when necessary.
<b>General hygiene considerations</b>	When using do not smoke. Always observe good personal hygiene measures, such as washing after handling the material and before eating, drinking, and/or smoking. Routinely wash work clothing and protective equipment to remove contaminants.

## 9. Physical and chemical properties

### Appearance

<b>Physical state</b>	Gas.
<b>Form</b>	Compressed gas.
<b>Color</b>	Colorless.
<b>Odor</b>	Odorless.
<b>Odor threshold</b>	Not applicable.
<b>pH</b>	Not applicable.
<b>Melting point/freezing point</b>	-457.87 °F (-272.15 °C)
<b>Initial boiling point and boiling range</b>	-452.02 °F (-268.9 °C)
<b>Flash point</b>	Not applicable.
<b>Evaporation rate</b>	Not applicable.
<b>Flammability (solid, gas)</b>	Non-flammable gas
<b>Upper/lower flammability or explosive limits</b>	
<b>Flammability limit - lower (%)</b>	Not applicable.
<b>Flammability limit - upper (%)</b>	Not applicable.
<b>Explosive limit - lower (%)</b>	Not applicable.
<b>Explosive limit - upper (%)</b>	Not applicable.
<b>Vapor pressure</b>	Not applicable.
<b>Vapor density</b>	0.000165 g/ml @ 21 °C.
<b>Relative density</b>	0.14 g/cm <sup>3</sup> @ 21 °C (Air =1)
<b>Solubility(ies)</b>	
<b>Solubility (water)</b>	Negligible in water.
<b>Partition coefficient (n-octanol/water)</b>	Not available.
<b>Auto-ignition temperature</b>	Not applicable.
<b>Decomposition temperature</b>	Not available.
<b>Viscosity</b>	Not applicable.
<b>Other information</b>	
<b>Molecular formula</b>	He
<b>Molecular weight</b>	4 g/mol
<b>Percent volatile</b>	100 % v/v

## 10. Stability and reactivity

<b>Reactivity</b>	The product is stable and non-reactive under normal conditions of use, storage and transport.
<b>Chemical stability</b>	Material is stable under normal conditions.
<b>Possibility of hazardous reactions</b>	No dangerous reaction known under conditions of normal use.
<b>Conditions to avoid</b>	Heat and direct sunlight.
<b>Incompatible materials</b>	None known.

**Hazardous decomposition products** No hazardous decomposition products are known.

## 11. Toxicological information

### Information on likely routes of exposure

**Inhalation** Suffocation (asphyxiant) hazard - if allowed to accumulate to concentrations that reduce oxygen below safe breathing levels.

**Skin contact** Exposure to rapidly expanding gas or vaporizing liquid may cause frostbite ("cold burn").

**Eye contact** Exposure to rapidly expanding gas or vaporizing liquid may cause frostbite ("cold burn").

**Ingestion** This material is a gas under normal atmospheric conditions and ingestion is unlikely.

**Symptoms related to the physical, chemical and toxicological characteristics** Exposure to rapidly expanding gas or vaporizing liquid may cause frostbite ("cold burn"). Very high exposure can cause suffocation from lack of oxygen. Victim may not be aware of asphyxiation. Asphyxiation may bring about unconsciousness without warning and so rapidly that victim may be unable to protect themselves.

### Information on toxicological effects

**Acute toxicity** Not expected to be acutely toxic.

**Skin corrosion/irritation** Not classified.

**Serious eye damage/eye irritation** Not classified.

### Respiratory or skin sensitization

#### Canada - British Columbia OELs: Simple asphyxiant

Helium (CAS 7440-59-7) Simple asphyxiant.

#### Canada - Manitoba OELs Hazard: Asphyxiant

Helium (CAS 7440-59-7) Simple asphyxiant.

#### Canada - Ontario OELs: Asphyxiant

Helium (CAS 7440-59-7) Simple asphyxiant.

#### Canada - Quebec OELs: Asphyxiant

Helium (CAS 7440-59-7) Simple asphyxiant.

**Respiratory sensitization** Not a respiratory sensitizer.

**Skin sensitization** This product is not expected to cause skin sensitization.

**Germ cell mutagenicity** No data available to indicate product or any components present at greater than 0.1% are mutagenic or genotoxic.

**Carcinogenicity** This product is not considered to be a carcinogen by IARC, ACGIH, NTP, or OSHA.

**Reproductive toxicity** This product is not expected to cause reproductive or developmental effects.

**Specific target organ toxicity - single exposure** Not classified.

**Specific target organ toxicity - repeated exposure** Not classified.

**Aspiration hazard** Not likely, due to the form of the product.

**Chronic effects** Chronic effects are not expected when this product is used as intended.

## 12. Ecological information

**Ecotoxicity** The product is not expected to be hazardous to the environment.

**Persistence and degradability** Not applicable.

**Bioaccumulative potential** Not applicable.

**Mobility in soil** Not relevant, due to the form of the product.

**Other adverse effects** No other adverse environmental effects (e.g. ozone depletion, photochemical ozone creation potential, endocrine disruption, global warming potential) are expected from this component.

## 13. Disposal considerations

**Disposal instructions** Dispose waste and residues in accordance with applicable federal, state, and local regulations.

**Local disposal regulations** Dispose of in accordance with local regulations.

**Hazardous waste code** The waste code should be assigned in discussion between the user, the producer and the waste disposal company.

**Waste from residues / unused products** Dispose in accordance with all applicable regulations.

**Contaminated packaging** Empty containers should be taken to an approved waste handling site for recycling or disposal.

## 14. Transport information

### TDG

**UN number** UN1046  
**UN proper shipping name** HELIUM, COMPRESSED  
**Transport hazard class(es)**  
**Class** 2.2  
**Subsidiary risk** -  
**Packing group** Not applicable.  
**Environmental hazards** No  
**Special precautions for user** Read safety instructions, SDS and emergency procedures before handling.

### IATA

**UN number** UN1046  
**UN proper shipping name** Helium, compressed  
**Transport hazard class(es)**  
**Class** 2.2  
**Subsidiary risk** -  
**Packing group** Not applicable.  
**Environmental hazards** No  
**ERG Code** 2L  
**Special precautions for user** Read safety instructions, SDS and emergency procedures before handling.

### IMDG

**UN number** UN1046  
**UN proper shipping name** HELIUM, COMPRESSED  
**Transport hazard class(es)**  
**Class** 2.2  
**Subsidiary risk** -  
**Packing group** Not applicable.  
**Environmental hazards**  
**Marine pollutant** No  
**EmS** F-C, S-V  
**Special precautions for user** Read safety instructions, SDS and emergency procedures before handling.

**Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code** Not applicable.

## 15. Regulatory information

**Canadian regulations** This product has been classified in accordance with the hazard criteria of the HPR and the SDS contains all the information required by the HPR.

### **Controlled Drugs and Substances Act**

Not regulated.

### **Export Control List (CEPA 1999, Schedule 3)**

Not listed.

### **Greenhouse Gases**

Not listed.

### **Precursor Control Regulations**

Not regulated.

### **International regulations**

#### **Stockholm Convention**

Not applicable.

#### **Rotterdam Convention**

Not applicable.

#### **Kyoto protocol**

Not applicable.

#### **Montreal Protocol**

Not applicable.

**Basel Convention**

Not applicable.

**International Inventories**

<b>Country(s) or region</b>	<b>Inventory name</b>	<b>On inventory (yes/no)*</b>
Australia	Australian Inventory of Chemical Substances (AICS)	Yes
Canada	Domestic Substances List (DSL)	Yes
Canada	Non-Domestic Substances List (NDSL)	No
China	Inventory of Existing Chemical Substances in China (IECSC)	Yes
Europe	European Inventory of Existing Commercial Chemical Substances (EINECS)	Yes
Europe	European List of Notified Chemical Substances (ELINCS)	No
Japan	Inventory of Existing and New Chemical Substances (ENCS)	No
Korea	Existing Chemicals List (ECL)	Yes
New Zealand	New Zealand Inventory	Yes
Philippines	Philippine Inventory of Chemicals and Chemical Substances (PICCS)	Yes
United States & Puerto Rico	Toxic Substances Control Act (TSCA) Inventory	Yes

\*A "Yes" indicates this product complies with the inventory requirements administered by the governing country(s).

A "No" indicates that one or more components of the product are not listed or exempt from listing on the inventory administered by the governing country(s).

**16. Other information**

<b>Issue date</b>	17-July-2016
<b>Revision date</b>	-
<b>Version #</b>	01
<b>Further information</b>	The classification for health and environmental hazards is derived by a combination of calculation methods and test data, if available.
<b>References</b>	ACGIH EPA: AQUIRE database NLM: Hazardous Substances Data Base US. IARC Monographs on Occupational Exposures to Chemical Agents HSDB® - Hazardous Substances Data Bank IARC Monographs. Overall Evaluation of Carcinogenicity National Toxicology Program (NTP) Report on Carcinogens ACGIH Documentation of the Threshold Limit Values and Biological Exposure Indices
<b>Disclaimer</b>	All information in this Safety Data Sheet is believed to be accurate and reliable. However, no guarantee or warranty of any kind is made with regard to the accuracy of information or the suitability of the recommendations contained herein. It is the user's responsibility to assess the safety and toxicity of this product under their own conditions of use and to comply with all applicable laws and regulations.