Safety Data Sheet

Material Name: HELIUM

Section 1 - PRODUCT AND COMPANY IDENTIFICATION

Material Name
HELIUM

Synonyms
MTG SDS 48; HELIUM GAS; HELIUM COMPRESSED; HELIUM-4; ATOMIC HELIUM; UN 1046; He

Chemical Family
inorganic, Gas

Product Use
Industrial and Specialty Gas Applications.

Restrictions on Use
None known.

Details of the supplier of the safety data sheet
MATHESON TRI-GAS, INC.
150 Allen Road, Suite 302
Basking Ridge, NJ 07920
General Information: 1-800-416-2505
Emergency #: 1-800-424-9300 (CHEMTREC)
Outside the US: 703-527-3887 (Call collect)

Section 2 - HAZARDS IDENTIFICATION

Classification in accordance with paragraph (d) of 29 CFR 1910.1200.
Gases Under Pressure - Compressed gas

GHS Label Elements

Symbol(s)

Signal Word
Warning

Hazard Statement(s)
Contains gas under pressure; may explode if heated.
May displace oxygen and cause rapid suffocation.
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Precautionary Statement(s)

Prevention
None needed according to classification criteria.

Response
None needed according to classification criteria.

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

Disposal
Dispose in accordance with all applicable regulations.

Other Hazards
Rapid release of compressed gas may cause frostbite.

Section 3 - COMPOSITION / INFORMATION ON INGREDIENTS

<table>
<thead>
<tr>
<th>CAS</th>
<th>Component Name</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>7440-59-7</td>
<td>Helium</td>
<td>100</td>
</tr>
</tbody>
</table>

Section 4 - FIRST AID MEASURES

Inhalation
If adverse effects occur, remove to uncontaminated area. Give artificial respiration if not breathing. If breathing is difficult, oxygen should be administered by qualified personnel. Get immediate medical attention.

Skin
If frostbite or freezing occur, immediately flush with plenty of lukewarm water (105-115 F; 41-46 C). DO NOT USE HOT WATER. If warm water is not available, gently wrap affected parts in blankets. Get immediate medical attention.

Eyes
Flush eyes with plenty of water for at least 15 minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Then get immediate medical attention.

Ingestion
If swallowed, get medical attention.

Most Important Symptoms/Effects

Acute
suffocation, frostbite
Section 5 - FIRE FIGHTING MEASURES

Extinguishing Media
Suitable Extinguishing Media
Use extinguishing agents appropriate for surrounding fire.

Unsuitable Extinguishing Media
None known.

Special Hazards Arising from the Chemical
Negligible fire hazard. Containers may rupture or explode if exposed to heat.

Hazardous Combustion Products
Not applicable

Fire Fighting Measures
Move container from fire area if it can be done without risk. Cool containers with water spray until well after the fire is out. Do not direct water at source of leak or safety devices; icing may occur. Stay away from the ends of tanks. Withdraw immediately in case of rising sound from venting safety device or any discoloration of tanks due to fire. For tank, rail car or tank truck, evacuation radius: 800 meters (1/2 mile). Avoid inhalation of material or combustion by-products. Stay upwind and keep out of low areas.

Special Protective Equipment and Precautions for Firefighters
Wear full protective fire fighting gear including self contained breathing apparatus (SCBA) for protection against possible exposure.

Section 6 - ACCIDENTAL RELEASE MEASURES

Personal Precautions, Protective Equipment and Emergency Procedures
Wear personal protective clothing and equipment, see Section 8.

Methods and Materials for Containment and Cleaning Up
Do not touch or walk through spilled material. Stop leak if possible without personal risk. Keep unnecessary people away, isolate hazard area and deny entry. Use water spray to reduce vapors or divert vapor cloud drift. Do not direct water at spill or source of leak. If possible, turn leaking containers so that gas escapes rather than liquid. Allow substance to evaporate. Ventilate closed spaces before entering.

Section 7 - HANDLING AND STORAGE
Precautions for Safe Handling
Avoid breathing dust/fume/gas/mist/vapors/spray. Use only with adequate ventilation. Wash hands thoroughly after handling.

Conditions for Safe Storage, Including any Incompatibilities

Incompatible Materials
No data available.

Section 8 - EXPOSURE CONTROLS / PERSONAL PROTECTION

Component Exposure Limits

<table>
<thead>
<tr>
<th>Component</th>
<th>Exposure Limit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Helium</td>
<td>7440-59-7</td>
</tr>
</tbody>
</table>

ACGIH: (See Appendix F: Minimal Oxygen Content)

EU - Occupational Exposure (98/24/EC) - Binding Biological Limit Values and Health Surveillance Measures
There are no biological limit values for any of this product’s components.

ACGIH - Threshold Limit Values - Biological Exposure Indices (BEI)
There are no biological limit values for any of this product’s components.

Engineering Controls
Provide local exhaust ventilation system. Ensure compliance with applicable exposure limits.

Individual Protection Measures, such as Personal Protective Equipment

Eye/face protection
For the gas: Eye protection not required, but recommended. For the liquid: Wear splash resistant safety glasses.

Skin Protection
For the gas: Protective clothing is not required. For the liquid: Wear appropriate protective, cold insulating clothing.

Respiratory Protection
Under conditions of frequent use or heavy exposure, respiratory protection may be needed. Respiratory protection is ranked in order from minimum to maximum. Consider warning properties before use. Any supplied-air respirator with a full facepiece that is operated in a pressure-demand or other positive-pressure mode in combination with an auxiliary self-contained breathing apparatus operated in pressure-demand or other positive-pressure mode. Any self-contained breathing apparatus that has a full facepiece and is operated in a pressure-demand or other positive-pressure mode.

Glove Recommendations
For the gas: Protective gloves are not required. For the liquid: Wear insulated gloves.
# Section 9 - Physical and Chemical Properties

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Appearance</strong></td>
<td>Colorless gas</td>
</tr>
<tr>
<td><strong>Odor</strong></td>
<td>Odorless</td>
</tr>
<tr>
<td><strong>Odor Threshold</strong></td>
<td>Odorless</td>
</tr>
<tr>
<td><strong>Melting Point</strong></td>
<td>-272 °C at 26 Atm (-458 °F)</td>
</tr>
<tr>
<td><strong>Freezing point</strong></td>
<td>Not available</td>
</tr>
<tr>
<td><strong>Boiling Point</strong></td>
<td>-269 °C (-452 °F)</td>
</tr>
<tr>
<td><strong>Boiling Point Range</strong></td>
<td>Not available</td>
</tr>
<tr>
<td><strong>Autoignition</strong></td>
<td>Not available</td>
</tr>
<tr>
<td><strong>Upper Explosive Limit</strong></td>
<td>Not available</td>
</tr>
<tr>
<td><strong>Vapor Density (air=1)</strong></td>
<td>0.138</td>
</tr>
<tr>
<td><strong>Water Solubility</strong></td>
<td>0.94 % (@ 0 °C)</td>
</tr>
<tr>
<td><strong>Viscosity</strong></td>
<td>0.02012 cp</td>
</tr>
<tr>
<td><strong>Density</strong></td>
<td>0.1785 g/L at 0 °C</td>
</tr>
<tr>
<td><strong>Taste</strong></td>
<td>Tasteless</td>
</tr>
<tr>
<td><strong>Molecular Weight</strong></td>
<td>4.0026</td>
</tr>
</tbody>
</table>

**Solvent Solubility**
- Insoluble
- Alcohol

# Section 10 - Stability and Reactivity

**Reactivity**
No reactivity hazard is expected.
Safety Data Sheet

Material Name: HELIUM  
SDS ID: MAT10640

Chemical Stability
Stable at normal temperatures and pressure.

Possibility of Hazardous Reactions
Will not polymerize.

Conditions to Avoid
Protect from physical damage and heat. Containers may rupture or explode if exposed to heat.

Incompatible Materials
No data available.

Hazardous decomposition products
Not applicable

Section 11 - TOXICOLOGICAL INFORMATION

Information on Likely Routes of Exposure

Inhalation
nausea, vomiting, difficulty breathing, irregular heartbeat, headache, fatigue, dizziness, Disorientation, emotional disturbances, tingling sensation, loss of coordination, suffocation, convulsions, Unconsciousness, coma

Skin Contact
frostbite

Eye Contact
frostbite, blurred vision

Ingestion
ingestion of a gas is unlikely

Acute and Chronic Toxicity

Component Analysis - LD50/LC50
The components of this material have been reviewed in various sources and no selected endpoints have been identified

Immediate Effects
suffocation, frostbite

Delayed Effects
no information on significant adverse effects.

Irritation/Corrosivity Data
No animal testing data available for skin or eyes.

Respiratory Sensitization
No data available.

Dermal Sensitization
Safety Data Sheet

Material Name: HELIUM

Component Carcinogenicity
None of this product’s components are listed by ACGIH, IARC, NTP, DFG or OSHA

Germ Cell Mutagenicity
No data available.

Tumorigenic Data
No data available.

Reproductive Toxicity
No data available.

Specific Target Organ Toxicity - Single Exposure
No target organs identified.

Specific Target Organ Toxicity - Repeated Exposure
No target organs identified.

Aspiration hazard
Not applicable.

Medical Conditions Aggravated by Exposure
None known.

Section 12 - ECOLOGICAL INFORMATION

Component Analysis - Aquatic Toxicity
No LOI ecotoxicity data are available for this product’s components

Persistence and Degradability
No data available.

Bioaccumulative Potential
No data available.

Mobility
No data available.

Section 13 - DISPOSAL CONSIDERATIONS

Disposal Methods
Dispose in accordance with all applicable regulations.

Component Waste Numbers
The U.S. EPA has not published waste numbers for this product’s components
Section 14 - TRANSPORT INFORMATION

US DOT Information:
Shipping Name: Helium, compressed
Hazard Class: 2.2
UN/NA #: UN1046
Required Label(s): 2.2

IMDG Information:
Shipping Name: Helium, compressed
Hazard Class: 2.2
UN#: UN1046
Required Label(s): 2.2

Section 15 - REGULATORY INFORMATION

U.S. Federal Regulations
None of this product's components are listed under SARA Sections 302/304 (40 CFR 355 Appendix A), SARA Section 313 (40 CFR 372.65), CERCLA (40 CFR 302.4), TSCA 12(b), or require an OSHA process safety plan.

SARA Section 311/312 (40 CFR 370 Subparts B and C)
Acute Health: Yes Chronic Health: No Fire: No Pressure: Yes Reactivity: No

U.S. State Regulations
The following components appear on one or more of the following state hazardous substances lists:

<table>
<thead>
<tr>
<th>Component</th>
<th>CAS</th>
<th>CA</th>
<th>MA</th>
<th>MN</th>
<th>NJ</th>
<th>PA</th>
</tr>
</thead>
<tbody>
<tr>
<td>Helium</td>
<td>7440-59-7</td>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
</tbody>
</table>

Not listed under California Proposition 65

Canadian WHMIS Ingredient Disclosure List (IDL)
The components of this product are either not listed on the IDL or are present below the threshold limit listed on the IDL.

WHMIS Classification
A.

Component Analysis - Inventory
Helium (7440-59-7)

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<tr>
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<tbody>
<tr>
<td></td>
<td>Yes</td>
<td>DSL</td>
<td>EIN</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
<td>No</td>
<td>Yes</td>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
</tbody>
</table>
Section 16 - OTHER INFORMATION

NFPA Ratings
Health: 3 Fire: 0 Reactivity: 0
Hazard Scale: 0 = Minimal 1 = Slight 2 = Moderate 3 = Serious 4 = Severe

Summary of Changes
Updated: 05/01/2015

Key / Legend
ACGIH - American Conference of Governmental Industrial Hygienists; ADR - European Road Transport; AU - Australia; BOD - Biochemical Oxygen Demand; C - Celsius; CA - Canada; CAS - Chemical Abstracts Service; CERCLA - Comprehensive Environmental Response, Compensation, and Liability Act; CLP - Classification, Labelling, and Packaging; CN - China; CPR - Controlled Products Regulations; DFG - Deutsche Forschungsgemeinschaft; DOT - Department of Transportation; DSD - Dangerous Substance Directive; DSL - Domestic Substances List; EEC - European Economic Community; EINECS - European Inventory of Existing Commercial Chemical Substances; EPA - Environmental Protection Agency; EU - European Union; F - Fahrenheit; IARC - International Agency for Research on Cancer; IATA - International Air Transport Association; ICAO - International Civil Aviation Organization; IDL - Ingredient Disclosure List; IDLH - Immediately Dangerous to Life and Health; IMDG - International Maritime Dangerous Goods; JP - Japan; Kow - Octanol/water partition coefficient; KR - Korea; LEL - Lower Explosive Limit; LLV - Level Limit Value; LOLI - List Of L1sts™ - ChemADVISOR’s Regulatory Database; MAK - Maximum Concentration Value in the Workplace; MEL - Maximum Exposure Limits; NFPA - National Fire Protection Agency; NIOSH - National Institute for Occupational Safety and Health; NJTSR - New Jersey Trade Secret Registry; NTP - National Toxicology Program; NZ - New Zealand; OSHA - Occupational Safety and Health Administration; PH - Philippines; RCRA - Resource Conservation and Recovery Act; REACH - Registration, Evaluation, Authorisation and restriction of Chemicals; RID - European Rail Transport; SARA - Superfund Amendments and Reauthorization Act; STEL - Short-term Exposure Limit; TDG - Transportation of Dangerous Goods; TSCA - Toxic Substances Control Act; TWA - Time Weighted Average; UEL - Upper Explosive Limit; US - United States.

Other Information

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