Section 1. IDENTIFICATION

1.1. Product identifier

Product form: Mixture
Product name: Helium (0.0001%-35.0%) in Air (Oxygen 20.9% bal. Nitrogen)

1.2. Relevant identified uses of the substance or mixture and uses advised against

Product use: Calibration gas/Bumptest gas/Function test gas

1.3. Details of the supplier of the safety data sheet

Intermountain Specialty Gases
520 N. Kings Road
Nampa, ID 83687
Telephone 1-208-466-9425 or Toll free 1-800-552-5003
Fax 1-208-466-9144
www.isgases.com

1.4. Emergency telephone number

Emergency number: CHEMTREC: 1-800-424-9300

Section 2. HAZARDS IDENTIFICATION

2.1. Classification of the substance or mixture

Classification: GASES UNDER PRESSURE - Compressed gas

2.2. Label elements

Hazard pictograms:

Signal word: WARNING

Hazard statements:
- H280 - CONTAINS GAS UNDER PRESSURE; MAY EXPLODE IF HEATED
- CGA-HG24 - MAY SUPPORT COMBUSTION
- OSHA - PG01 - DO NOT REMOVE THIS PRODUCT LABEL

Precautionary statements:
[General]: Read and follow all Safety Data Sheets (SDS's) before use. Read label before use. Keep out
of reach of children. If medical advice is needed, have a product container or label at hand. Use equipment rated for cylinder pressure.

[Prevention] : P202 - Do not handle until all safety precautions have been read and understood
: P271+P403 - Use only outdoors or in a well-ventilated area

[Response] : P304+P340 - If inhaled: Remove person to fresh air and keep comfortable for breathing.

[Storage] : CGA-PG02 - Protect from sunlight when ambient temperature exceeds 52°C (125°F)

[Disposal] : Dispose of content and/or container in accordance with local, regional, national, and/or international regulations.

2.3. Other hazards
No additional information available

2.4. Unknown acute toxicity
No data available

Section 3. COMPOSITION/INFORMATION ON INGREDIENTS

3.1. Substance
Not applicable

3.2. Mixture

<table>
<thead>
<tr>
<th>Name</th>
<th>Product Identifier</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nitrogen</td>
<td>(CAS No) 7727-37-9</td>
<td>41.5 - 80.4999</td>
</tr>
<tr>
<td>Oxygen</td>
<td>(CAS No) 7782-44-7</td>
<td>19.5 - 23.5</td>
</tr>
<tr>
<td>Helium</td>
<td>(CAS No) 7440-59-7</td>
<td>0.0001 - 35.0</td>
</tr>
</tbody>
</table>

Section 4. FIRST AID MEASURES

4.1. Description of first aid measures

General : IF exposed or concerned: Get medical advice/attention.
Inhalation : Remove to fresh air and keep at rest in a position comfortable for breathing. If breathing has stopped, give artificial respiration or oxygen by trained personnel. If victim feels unwell, seek medical advice.
Skin contact : Immediately flush with copious amount of water for at least 15 minutes.
Eye contact : Immediately flush with copious amount of water for at least 15 minutes.
Ingestion : Ingestion is not considered a potential route of exposure, refer to the inhalation section.

4.2. Most important symptoms/effects, acute and delayed

Acute
Inhalation : Adverse effects not expected from this product.
Skin contact : Contact with rapidly expanding gas may cause burns or frostbite.
Eye contact : Contact with rapidly expanding gas may cause burns or frostbite.
Section 5. FIREFIGHTING MEASURES

5.1. Extinguishing media

Suitable extinguishing media: Use extinguishing media appropriate for surrounding fire.
Unsuitable extinguishing media: None known

5.2. Special hazards arising from the substance or mixture

Fire hazard: The product is not flammable
Explosion hazard: Heat may build pressure, rupturing closed containers, spreading fire and increasing risk of burns and injuries.
Reactivity: None known.

5.3. Advice for fire-fighters

Firefighting instructions: In case of fire: Evacuate all personnel from the danger area. Stop the leak and flow of gas before extinguishing fire, if safe to do so. If this is not possible, withdraw from area and allow fire to burn. Fight fire remotely due to the risk of explosion. Use water spray or fog for cooling exposed containers. Let the fire burn. Avoid inhalation of material or combustion by-products. Stay upwind and keep out of low areas. Exercise caution when fighting any chemical fire.

Protection during firefighting: Standard protective clothing and equipment (e.g., Self Contained Breathing Apparatus, SCBA) for fire fighters. Do not enter fire area without proper protective equipment, including respiratory protection.

Section 6. ACCIDENTAL RELEASE MEASURES

6.1. Personal precautions, protective equipment and emergency procedures

General measures: Ensure adequate ventilation.

6.1.1. For non-emergency personnel

Protective equipment: Wear protective equipment consistent with the site emergency plan.

6.1.12. For emergency responders

Protective equipment: Standard protective clothing and equipment (e.g., Self Contained Breathing Apparatus) for fire fighters. Equip cleanup crew with proper protection.

4.3. Indication of any immediate medical attention and special treatment needed

If victim feels unwell, seek medical advice. If breathing is difficult, give artificial respiration or oxygen by trained personnel.
Emergency procedures: Evacuate and limit access. Ventilate area. See information above "For non-emergency personnel".

6.2. Methods and material for containment and cleaning up

For containment: Immediately contact emergency personnel. Try to stop gas leak if safe to do so.
Methods for cleaning up: Dispose of content and/or container in accordance with local, regional, national, and/or international regulations.

Section 7. HANDLING AND STORAGE

7.1. Precautions for safe handling

Precautions for safety handling: Pressurized container: Do not pierce or burn, even after use. Use equipment rated for cylinder pressure. Do not handle until all safety precautions have been read and understood. Use only outdoors or in a well-ventilated area. Avoid contact with eyes, skin and clothing. Avoid breathing gas. Protect cylinders from physical damage; do not drag, roll, slide, or drop.

Hygiene measures: Do not eat, drink or smoke when using this product.

7.2. Conditions for safe storage, including any incompatibilities

Technical measures: None known.
Storage conditions: Do not expose to temperatures exceeding 52°C (125°F). Store locked up. Keep containers closed when not in use. Protect cylinder from physical damage. Store and use away from heat, sparks, open flame or any other ignition source. Store in well ventilated area.

Incompatible products: None known.
Incompatible materials: None known.

Section 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Nitrogen (7727-37-9)

<table>
<thead>
<tr>
<th>OSHA PEL</th>
<th>Cal/OSHA PEL</th>
<th>NIOSH REL</th>
<th>ACGIH 2015 TLV</th>
</tr>
</thead>
<tbody>
<tr>
<td>ppm</td>
<td>mg/m³</td>
<td>(as of 4/26/13)</td>
<td>(as of 4/26/13)</td>
</tr>
<tr>
<td></td>
<td>8-hour TWA</td>
<td>up to 10-hour TWA</td>
<td>8-hour TWA</td>
</tr>
<tr>
<td></td>
<td>(ST) STEL</td>
<td>(ST) STEL</td>
<td>(ST) STEL</td>
</tr>
<tr>
<td></td>
<td>(C ) Ceiling</td>
<td>(C ) Ceiling</td>
<td>(C ) Ceiling</td>
</tr>
<tr>
<td>Not established</td>
<td>Not established</td>
<td>Not established</td>
<td>Simple asphyxiant</td>
</tr>
</tbody>
</table>

Oxygen (7782-44-7)

<table>
<thead>
<tr>
<th>OSHA PEL</th>
<th>Cal/OSHA PEL</th>
<th>NIOSH REL</th>
<th>ACGIH 2015 TLV</th>
</tr>
</thead>
<tbody>
<tr>
<td>ppm</td>
<td>mg/m³</td>
<td>(as of 4/26/13)</td>
<td>(as of 4/26/13)</td>
</tr>
<tr>
<td></td>
<td>8-hour TWA</td>
<td>up to 10-hour TWA</td>
<td>8-hour TWA</td>
</tr>
<tr>
<td></td>
<td>(ST) STEL</td>
<td>(ST) STEL</td>
<td>(ST) STEL</td>
</tr>
<tr>
<td></td>
<td>(C ) Ceiling</td>
<td>(C ) Ceiling</td>
<td>(C ) Ceiling</td>
</tr>
<tr>
<td>Not established</td>
<td>Not established</td>
<td>Not established</td>
<td>Simple asphyxiant</td>
</tr>
</tbody>
</table>

There are no specific exposure limits for Nitrogen. Nitrogen is a simple asphyxiant (SA). Oxygen levels should be maintained above 19.5%.
Helium (7440-59-7)

<table>
<thead>
<tr>
<th>OSHA PEL</th>
<th>Cal/OSHA PEL</th>
<th>NIOSH REL</th>
<th>ACGIH 2015 TLV</th>
</tr>
</thead>
<tbody>
<tr>
<td>ppm</td>
<td>mg/m³</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

8.2. Appropriate engineering controls

Engineering measures/controls: Provide adequate general and local exhaust ventilation. Systems under pressure should be regularly check for leakages. Ensure exposure is below occupational exposure limits. Oxygen detectors should be used when asphyxiating gases may be released. Consider work permit system e.g. for maintenance activities.

8.3. Individual protection measures


Skin and body protection: Wear suitable protective clothing, e.g.-Lab coats, coveralls or flame resistant clothing.

Respiratory protection: Use a properly fitted, air-purifying or air-fed respirator complying with an approved standard if a risk assessment indicates this is necessary.

Thermal hazard protection: None necessary during normal and routine operations.

Environmental exposure controls: Refer to local regulations for restriction of emissions to the atmosphere. See section 13 for specific methods for waste gas treatment.

Other information: Wear safety shoes while handling containers. 29 CFR 1910.136: Foot Protection

Section 9. PHYSICAL AND CHEMICAL PROPERTIES

9.1. Exposure controls

Appearance: Clear, colorless gas.

Physical state: Gas

Color: Colorless

Odor: No data available

Odor threshold: No data available

pH: No data available

Freezing point: No data available

Flash point: No data available

Evaporation rate: No data available

Flammability (solid, gas): Not Flammable - not combustible

Upper flammability: Not Flammable - not combustible

Lower flammability: Not Flammable - not combustible

Relative density: No data available

Solubility: No data available
Helium (0.0001%-35.0%) in Air (Oxygen 20.9% bal. Nitrogen)

<table>
<thead>
<tr>
<th>Property</th>
<th>Helium</th>
<th>Oxygen</th>
<th>Nitrogen</th>
</tr>
</thead>
<tbody>
<tr>
<td>Molecular weight (grams)</td>
<td>4</td>
<td>32.0</td>
<td>28.013</td>
</tr>
<tr>
<td>Boiling point</td>
<td>-268.9 °C</td>
<td>-182.9 °C</td>
<td>-196 °C</td>
</tr>
<tr>
<td>Vapor pressure</td>
<td>Above critical temperature</td>
<td>Above critical temperature</td>
<td>Above critical temperature</td>
</tr>
<tr>
<td>Vapor density at 20°C</td>
<td>0.138</td>
<td>1.11</td>
<td>0.97</td>
</tr>
<tr>
<td>Relative gas density</td>
<td>0.165 kg/m³ @ 20 °C</td>
<td>1.331</td>
<td>1.153</td>
</tr>
<tr>
<td>Critical Temperature</td>
<td>-267.9 °C</td>
<td>-118.6 °C</td>
<td>-146.9 °C</td>
</tr>
</tbody>
</table>

**Section 10. STABILITY AND REACTIVITY**

**10.1. Reactivity**
No reactivity hazard other than the effects described below.

**10.2. Chemical stability**
Stable under normal conditions. May undergo explosive decomposition at elevated pressures when heated or ignited.

**10.3. Possibility of hazardous reactions**
Under normal conditions of storage and use, hazardous decomposition products should not be produced.

**10.4. Conditions to avoid**
Under normal conditions of storage and use.

**10.5. Incompatible materials**
Under normal conditions of storage and use.

**10.6. Hazardous decomposition products**
Under normal conditions of storage and use.

**Section 11. TOXICOLOGICAL INFORMATION**

**Acute toxicity**

**Nitrogen (7727-37-9)**
LC50 inhalation rat (ppm) 410,000 ppm/4h

**Oxygen (7782-44-7)**
LC50 inhalation rat (ppm) 400,000 ppm/4h

**11.1. Information on routes of exposure**
Inhalation: Adverse effects not expected from this product
11.2. Symptoms related to physical, chemical and toxicological characteristics

Symptoms: May cause central nervous system depression with nausea, headache, dizziness, vomiting and in coordination.

11.3. Delayed and immediate effects

<table>
<thead>
<tr>
<th>Symptom</th>
<th>Classification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Skin contact</td>
<td>Adverse effects not expected from this product</td>
</tr>
<tr>
<td>Eye contact</td>
<td>Adverse effects not expected from this product</td>
</tr>
<tr>
<td>Ingestion</td>
<td>Ingestion is not considered a potential route of exposure</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Symptom</th>
<th>Classification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Skin corrosion/irritation</td>
<td>Contact with rapidly expanding gas may cause burns or frostbite.</td>
</tr>
<tr>
<td>Serious eye damage/irritation</td>
<td>Contact with rapidly expanding gas may cause burns or frostbite.</td>
</tr>
<tr>
<td>Respiratory or skin sensitization</td>
<td>Not classified</td>
</tr>
<tr>
<td>Germ cell mutagenicity</td>
<td>Not classified</td>
</tr>
<tr>
<td>Carcinogenicity</td>
<td>Not classified</td>
</tr>
<tr>
<td>Reproductive toxicity</td>
<td>Not classified</td>
</tr>
<tr>
<td>Developmental Toxicity</td>
<td>Not classified</td>
</tr>
<tr>
<td>Specific target organ toxicity (single exposure)</td>
<td>Not classified</td>
</tr>
<tr>
<td>Specific target organ toxicity (repeated exposure)</td>
<td>Not classified</td>
</tr>
<tr>
<td>Aspiration hazard</td>
<td>Not classified</td>
</tr>
<tr>
<td></td>
<td>Not applicable for gases and gas-mixtures</td>
</tr>
</tbody>
</table>

11.4. Carcinogenic effects

The components of this material are not found on the following lists: FEDERAL OSHA Z LIST, NTP AND IARC; therefore, they are not considered to be, nor suspected to be, cancer-causing agents by these agencies.

Section 12. ECOLOGICAL INFORMATION

12.1. Aquatic Toxicity

Ecology - general: No information available for the product

12.2. Persistence and degradability

No information available for the product

12.3. Bioaccumulative potential

No information available for the product

12.4. Mobility in soil

No information available for the product

12.5. Other

No information available for the product

Section 13. DISPOSAL CONSIDERATIONS

13.1. Disposal methods

Dispose of content and/or container in accordance with local, regional, national, and/or international regulations.
Section 14. TRANSPORTATION INFORMATION

<table>
<thead>
<tr>
<th>Proper shipping name</th>
<th>US DOT</th>
<th>TDG</th>
<th>IMDG</th>
<th>IATA</th>
</tr>
</thead>
<tbody>
<tr>
<td>Compressed gas, n.o.s. (Nitrogen, Oxygen)</td>
<td>UN 1956</td>
<td>UN 1956</td>
<td>UN 1956</td>
<td>UN 1956</td>
</tr>
<tr>
<td>Transport hazard class(es)</td>
<td>2.2</td>
<td>2.2</td>
<td>2.2</td>
<td>2.2</td>
</tr>
<tr>
<td>Packing group</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

Section 15. REGULATORY INFORMATION

15.1. US Federal regulations

SARA 311/312 hazard categories
- Acute Health: No
- Chronic Health: No
- Fire: No
- Pressure: Yes
- Reactive: No

SARA Title III Notifications and Information: None known

This product does not contain toxic chemicals subject to reporting requirements of section 313 of the Emergency planning and Community Right-To-Know Act (EPCRA) of 1986 and of 40 CFR 372.

SARA 311/312 Sudden Release of Pressure Hazard

15.2. US State regulations

Nitrogen (007727-37-9)
- U.S. - Massachusetts - Right To Know List
- U.S. - Minnesota - Right To Know Hazardous Substance List
- U.S. - New Jersey - Right To Know Hazardous Substance List
- U.S. - Pennsylvania - RTK (Right To Know) List

Oxygen (007782-44-7)
- U.S. - Massachusetts - Right To Know List
- U.S. - New Jersey - Right To Know Hazardous Substance List
- U.S. - Pennsylvania - RTK (Right To Know) List

Helium (7440-59-7)
- U.S. - Massachusetts - Right To Know List
Section 16. OTHER INFORMATION

Date of issue/Date of revision: New SDS 3/1/2015
Revision Note: Initial release

Hazardous Material Information System (USA)

Hazard Scale: 0 = Minimal/ 1 = Slight/ 2 = Moderate/ 3 = Serious/ 4 = Severe

Health: 0
Fire: 0
Physical hazards: 3

Key/Legend

SARA: Superfund Amendments and Reauthorization Act
OSHA: Occupational Safety and Health Administration
DOT: Department of Transportation
TSCA: Toxic Substance Control Act
NTP: National Toxicology Program
ACGIH: American Conference of Governmental Industrial Hygienists
PEL: Permissible Exposure Limit
STEL: Short Term Exposure Limit
TLV: Threshold Limit Value
TDG: Transportation of Dangerous Goods
CAS: Chemical Abstracts Service
CERCLA: Comprehensive Environmental Response, Compensation, and Liability Act
IATA: International Air Transport Association
IMDG: International Maritime Dangerous Goods
TWA: Time Weighted Average
Prop: Proposition
ATE: Acute Toxicity Estimate

DISCLAIMER OF EXPRESSED AND IMPLIED WARRANTIES

Although reasonable care has been taken in the preparation of this document, we extend no warranties and make no representations as to the accuracy or completeness of the information contained herein, and assume no responsibility regarding the suitability of this information for the user’s intended purposes or for the consequences of its use. Each individual should make a determination as to the suitability of the information for their particular purpose(s).