Section 1. IDENTIFICATION

1.1. Product identifier

Product form: Mixture
Product name: Isobutylene (0.0001%-0.90%) 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
Isobutylene (0.0001%-0.90%) in Air (Oxygen 20.9% bal. Nitrogen)

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>76.5 - 80.4999</td>
</tr>
<tr>
<td>Oxygen</td>
<td>(CAS No) 7782-44-7</td>
<td>19.5 - 23.5</td>
</tr>
<tr>
<td>Isobutylene</td>
<td>(CAS No) 115-11-7</td>
<td>0.0001 - 0.9</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.
Isobutylene (0.0001%-0.90%) in Air (Oxygen 20.9% bal. Nitrogen)

Ingestion: Ingestion is not considered a potential route of exposure, refer to the inhalation section.
Frostbite: Thaw frosted parts with lukewarm water. Do not rub affected areas. Get immediate medical advice/attention.
Symptoms/injuries upon intravenous administration: Symptoms of overexposure are dizziness, headache, tiredness, nausea, unconsciousness, cessation of breathing.
Chronic symptoms: Adverse effects not expected from this product.
Delayed: Adverse effects not expected from this product.

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.

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.
Isobutylene (0.0001%-0.90%) in Air (Oxygen 20.9% bal. Nitrogen)

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>(as of 4/26/13)</td>
<td>(as of 4/26/13)</td>
<td>8-hour TWA</td>
</tr>
<tr>
<td></td>
<td>mg/m³</td>
<td>8-hour TWA (ST) STEL</td>
<td>up to 10-hour TWA (ST) STEL</td>
</tr>
<tr>
<td></td>
<td></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>(as of 4/26/13)</td>
<td>(as of 4/26/13)</td>
<td>8-hour TWA</td>
</tr>
<tr>
<td></td>
<td>mg/m³</td>
<td>8-hour TWA (ST) STEL</td>
<td>up to 10-hour TWA (ST) STEL</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(C) Ceiling</td>
<td>(C) Ceiling</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%.
Isobutylene (0.0001%-0.90%) in Air (Oxygen 20.9% bal. Nitrogen)

Isobutylene (115-11-7)

<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>8-hour TWA (ST) STEL (C) Ceiling</td>
<td>up to 10-hour TWA (ST) STEL (C) Ceiling</td>
<td>8-hour TWA (ST) STEL (C) Ceiling</td>
<td>250 ppm</td>
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</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.

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: -76 °C / -105°F
Evaporation rate: No data available
Flammability (solid, gas): Not Flammable - not combustible
Upper flammability: 9.6%
Lower flammability: 1.8%
Relative density: No data available
Solubility: No data available
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.

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, hazardous decomposition products should not be produced.

10.5. Incompatible materials
None known

10.6. Hazardous decomposition products
None known

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

Isobutylene (115-11-7)
LC50 inhalation rat mg/L 620 mg/L /4h
11.1. Information on routes of exposure

Inhalation: Adverse effects not expected from this product
Skin contact: Adverse effects not expected from this product
Eye contact: Adverse effects not expected from this product
Ingestion: Ingestion is not considered a potential route of exposure

11.2. Symptoms related to physical, chemical and toxicological characteristics

Symptoms: No information available

11.3. Delayed and immediate effects

Skin corrosion/irritation: Contact with rapidly expanding gas may cause burns or frostbite.
Serious eye damage/irritation: Contact with rapidly expanding gas may cause burns or frostbite.
Respiratory or skin sensitization: Not classified
Germ cell mutagenicity: Not classified
Carcinogenicity: Not classified
Reproductive toxicity: Not classified
Developmental Toxicity: Not classified
Specific target organ toxicity (single exposure): Not classified
Specific target organ toxicity (repeated exposure): Not classified
Aspiration hazard: Not classified

Not applicable for gases and gas-mixtures

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 ecological damage caused by this 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. TRANSPORATION INFORMATION

<table>
<thead>
<tr>
<th></th>
<th>US DOT</th>
<th>TDG</th>
<th>IMDG</th>
<th>IATA</th>
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<tr>
<td>UN #</td>
<td>UN 1956</td>
<td>UN 1956</td>
<td>UN 1956</td>
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<tr>
<td>Proper shipping name</td>
<td>Compressed gas, n.o.s. (Nitrogen, Oxygen)</td>
<td>Compressed gas, n.o.s. (Nitrogen, Oxygen)</td>
<td>Compressed gas, n.o.s. (Nitrogen, Oxygen)</td>
<td>Compressed gas, n.o.s. (Nitrogen, Oxygen)</td>
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<td>Packing group</td>
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</table>

Section 15. REGULATORY INFORMATION

15.1. US Federal regulations

SARA 311/312 hazard categories

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Acute Health</td>
<td>No</td>
</tr>
<tr>
<td>Chronic Health</td>
<td>No</td>
</tr>
<tr>
<td>Fire</td>
<td>No</td>
</tr>
<tr>
<td>Pressure</td>
<td>Yes</td>
</tr>
<tr>
<td>Reactive</td>
<td>No</td>
</tr>
</tbody>
</table>

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)

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<table>
<thead>
<tr>
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<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>U.S. - Massachusetts - Right To Know List</td>
<td></td>
</tr>
<tr>
<td>U.S. - Minnesota - Right To Know Hazardous Substance List</td>
<td></td>
</tr>
<tr>
<td>U.S. - New Jersey - Right To Know Hazardous Substance List</td>
<td></td>
</tr>
<tr>
<td>U.S. - Pennsylvania - RTK (Right To Know) List</td>
<td></td>
</tr>
</tbody>
</table>

Oxygen (007782-44-7)

<p>| | |</p>
<table>
<thead>
<tr>
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</thead>
<tbody>
<tr>
<td>U.S. - Massachusetts - Right To Know List</td>
<td></td>
</tr>
<tr>
<td>U.S. - New Jersey - Right To Know Hazardous Substance List</td>
<td></td>
</tr>
<tr>
<td>U.S. - Pennsylvania - RTK (Right To Know) List</td>
<td></td>
</tr>
</tbody>
</table>

Isobutylene (115-11-7)
### Isobutylene (0.0001%-0.90%) in Air (Oxygen 20.9% bal. Nitrogen)

<table>
<thead>
<tr>
<th>U.S. - Massachusetts - Right To Know List</th>
</tr>
</thead>
<tbody>
<tr>
<td>U.S. - New Jersey - Right To Know Hazardous Substance List</td>
</tr>
<tr>
<td>U.S. - Pennsylvania - RTK (Right To Know) List</td>
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</table>

#### Section 16. OTHER INFORMATION

<table>
<thead>
<tr>
<th>Date of issue/Date of revision</th>
<th>: New SDS 3/1/2015</th>
</tr>
</thead>
<tbody>
<tr>
<td>Revision Note</td>
<td>: Initial release</td>
</tr>
</tbody>
</table>

#### Hazardous Material Information System (USA)

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

<table>
<thead>
<tr>
<th>Health</th>
<th>0</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fire</td>
<td>0</td>
</tr>
<tr>
<td>Physical hazards</td>
<td>3</td>
</tr>
</tbody>
</table>

#### 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

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