Section 1. Identification

1.1. Product identifier
Product form: Mixture
Product name: Sulfur Dioxide (0.0001%-0.02%) in 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
Simple asphyxiant - Yes

2.2. Label elements
Hazard pictograms

Signal word: WARNING

Hazard statements:
- H280 - CONTAINS GAS UNDER PRESSURE; MAY EXPLODE IF HEATED
- OSHA-H01 - MAY DISPLACE OXYGEN AND CAUSE RAPID SUFFOCATION.
- 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
: P308+P313 - If exposed or concerned: Get medical advice/attention.
: 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.
: P313 - Get medical advice/attention.

**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>99.98 - 99.999</td>
</tr>
<tr>
<td>Sulfur dioxide</td>
<td>(CAS No) 7446-09-5</td>
<td>0.0001 - 0.2</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**

: May displace oxygen and cause rapid suffocation.

**Skin contact**

: Contact with rapidly expanding gas may cause burns or frostbite.
**Eye contact**: Contact with rapidly expanding gas may cause burns or frostbite.

**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**: Not known

**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.
- **Emergency procedures**: Escape the danger area by the closest safe route. Close doors and windows of adjacent premises. Keep containers closed. Mark the danger area. Seal off low-lying areas. Keep upwind.

**6.1.12. For emergency responders**

- **Protective equipment**: 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.
Emergency procedures

Apparatus) for fire fighters. Equip cleanup crew with proper protection.
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

<table>
<thead>
<tr>
<th>Nitrogen (7727-37-9)</th>
<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>8-hour TWA (ST) STEL</td>
<td>up to 10-hour TWA (ST) STEL</td>
<td>8-hour TWA (ST) STEL</td>
</tr>
<tr>
<td>Not established</td>
<td>Not established</td>
<td>Not established</td>
<td>Not established</td>
<td>Simple asphyxiant</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Sulfur Dioxide (7446-09-5)</th>
<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>8-hour TWA (ST) STEL</td>
<td>up to 10-hour TWA (ST) STEL</td>
<td>8-hour TWA (ST) STEL</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(C) Ceiling</td>
<td>(C) Ceiling</td>
<td>(C) Ceiling</td>
</tr>
<tr>
<td></td>
<td></td>
<td>IDHL</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.

Section 9. PHYSICAL AND CHEMICAL PROPERTIES

9.1. Exposure controls

Appearance: Clear, colorless gas.
Physical state: Gas
Color: Colorless
Odor: Odorless to pungent
Odor threshold: 0.1 - 3 ppm (Sulfur Dioxide)
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
Partition coefficient: No data available
Auto-ignition temperature: No data available
Decomposition temperature: No data available
Viscosity: Not applicable

<table>
<thead>
<tr>
<th>Sulfur Dioxide (grams)</th>
<th>Nitrogen (grams)</th>
</tr>
</thead>
<tbody>
<tr>
<td>64.06</td>
<td>28.013</td>
</tr>
</tbody>
</table>
Sulfur Dioxide (0.0001%-0.02%) in Nitrogen

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Boiling point</td>
<td>-10 °C</td>
</tr>
<tr>
<td></td>
<td>-196 °C</td>
</tr>
<tr>
<td>Vapor pressure</td>
<td>3200 hPa@20 °C</td>
</tr>
<tr>
<td></td>
<td>Above critical temperature</td>
</tr>
<tr>
<td>Vapor density at 20°C</td>
<td>2.26</td>
</tr>
<tr>
<td></td>
<td>0.97</td>
</tr>
<tr>
<td>Relative gas density</td>
<td>2.697 @ 20 °C</td>
</tr>
<tr>
<td></td>
<td>1.153</td>
</tr>
<tr>
<td>Critical Temperature</td>
<td>157.4 °C</td>
</tr>
<tr>
<td></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.

#### 10.3. Possibility of hazardous reactions
Sulfur dioxide will react with water or moist air to form sulfurous acid.

#### 10.4. Conditions to avoid
Contact with incompatible materials.

#### 10.5. Incompatible materials
Sulfur dioxide is not compatible with strong bases, strong oxidizers, powdered metals, metal oxides, interhalogens, metal acetylides, sodium hydride, silver azide, cesium azide, fluorine, zinc, zinc compounds.

#### 10.6. Hazardous decomposition products
Sulfur dioxide will react with water or moist air to form sulfurous acid.

### Section 11. TOXICOLOGICAL INFORMATION

#### Acute toxicity

**Nitrogen (7727-37-9)**

- **LC50 inhalation rat (ppm):** 410,000 ppm/4h

**Sulfur Dioxide (7446-09-5)**

- **LCₜ₀ inhalation rat (ppm):** 993 ppm / 20 minutes
- **LCₜ₀ inhalation rat (ppm):** 611 ppm / 5 hours

#### 11.1. Information on routes of exposure

- **Inhalation:** May displace oxygen and cause rapid suffocation.
- **Skin contact:** Adverse effects not expected from this product
- **Eye contact:** May cause irritation.
- **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

<table>
<thead>
<tr>
<th>Effect</th>
<th>Description</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. Sulfur dioxide can cause irritation at relatively low levels (1-5ppm); however workers may become acclimated even to initially unbearable concentrations (25 ppm). Pure sulfur dioxide may damage the skin, eyes, and mucous membranes.</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>Respiratory system, eyes, skin</td>
</tr>
<tr>
<td>Specific target organ toxicity (repeated exposure)</td>
<td>Respiratory system, eyes, skin</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

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
### Section 15. REGULATORY INFORMATION

#### 15.1 US Federal regulations

**SARA 311/312 hazard categories**

<table>
<thead>
<tr>
<th>Category</th>
<th>Hazard</th>
<th>Note</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acute Health</td>
<td>No</td>
<td></td>
</tr>
<tr>
<td>Chronic Health</td>
<td>No</td>
<td></td>
</tr>
<tr>
<td>Fire</td>
<td>No</td>
<td></td>
</tr>
<tr>
<td>Pressure</td>
<td>Yes</td>
<td></td>
</tr>
<tr>
<td>Reactive</td>
<td>No</td>
<td></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)**

- 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

**Sulfur dioxide (7446-9-5)**

- 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

### 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

**SDS ID# 5045**

EN (English US)
### Sulfur Dioxide (0.0001%-0.02%) in Nitrogen

##### Health: 1
##### Fire: 0
##### Physical hazards: 3

<table>
<thead>
<tr>
<th>Key/Legend</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>SARA</td>
<td>Superfund Amendments and Reauthorization Act</td>
</tr>
<tr>
<td>OSHA</td>
<td>Occupational Safety and Health Administration</td>
</tr>
<tr>
<td>DOT</td>
<td>Department of Transportation</td>
</tr>
<tr>
<td>TSCA</td>
<td>Toxic Substance Control Act</td>
</tr>
<tr>
<td>NTP</td>
<td>National Toxicology Program</td>
</tr>
<tr>
<td>ACGIH</td>
<td>American Conference of Governmental Industrial Hygienists</td>
</tr>
<tr>
<td>PEL</td>
<td>Permissible Exposure Limit</td>
</tr>
<tr>
<td>STEL</td>
<td>Short Term Exposure Limit</td>
</tr>
<tr>
<td>TLV</td>
<td>Threshold Limit Value</td>
</tr>
<tr>
<td>TDG</td>
<td>Transportation of Dangerous Goods</td>
</tr>
<tr>
<td>CAS</td>
<td>Chemical Abstracts Service</td>
</tr>
<tr>
<td>CERCLA</td>
<td>Comprehensive Environmental Response, Compensation, and Liability Act</td>
</tr>
<tr>
<td>IATA</td>
<td>International Air Transport Association</td>
</tr>
<tr>
<td>IMDG</td>
<td>International Maritime Dangerous Goods</td>
</tr>
<tr>
<td>TWA</td>
<td>Time Weighted Average</td>
</tr>
<tr>
<td>Prop</td>
<td>Proposition</td>
</tr>
<tr>
<td>ATE</td>
<td>Acute Toxicity Estimate</td>
</tr>
<tr>
<td>Repr. 2</td>
<td>Reproductive toxicity Category 2</td>
</tr>
</tbody>
</table>

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