Section 1: Identification of the Substance/Mixture and of the Company/Undertaking

1.1 Product identifier

Product Name: Non-Flammable Gas Mixture containing Sulfur Dioxide 0.0001%, Hydrogen Sulfide 0.001-0.025%, Pentane 0.0-0.75%, Oxygen 0.0-23.5% in Nitrogen Balance

Document No.: 50120

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

Relevant identified use(s): Calibration of Monitoring and Research Equipment

1.3 Details of the supplier of the safety data sheet

Manufacturer: Air Liquide

2700 Post Oak Blvd.
Houston, TX 77056
United States
www.us.airliquide.com
sds@airliquide.com

Telephone (Technical): 713-896-2896
Telephone (Technical): 800-819-1704

1.4 Emergency telephone number

Manufacturer: 800-424-9300 - CHEMTREC

Manufacturer: +1 703-527-3887 - Outside United States

Section 2: Hazards Identification

EU/EEC

2.1 Classification of the substance or mixture

CLP
Compressed Gas - H280

DSD/DPD
Not classified

2.2 Label Elements

CLP

WARNING

Hazard statements: H280 - Contains gas under pressure; may explode if heated
Precautionary statements

Storage/Disposal  P403 - Store in a well-ventilated place.

DSD/DPD

Risk phrases  No label element(s) required

2.3 Other Hazards

CLP

● This material is a simple asphyxiant. May displace or reduce oxygen available for breathing especially in confined spaces. According to Regulation (EC) No. 1272/2008 (CLP) this material is considered hazardous.

DSD/DPD

● This material is a simple asphyxiant. May displace or reduce oxygen available for breathing especially in confined spaces. According to European Directive 1999/45/EC this preparation is not considered dangerous.

United States (US)

According to OSHA 29 CFR 1910.1200 HCS

2.1 Classification of the substance or mixture

OSHA HCS 2012  ● Compressed Gas -H280

Simple Asphyxiant

2.2 Label elements

OSHA HCS 2012

WARNING

Hazard statements  Contains gas under pressure; may explode if heated - H280

May displace oxygen and cause rapid suffocation.

Precautionary statements

Storage/Disposal  Store in a well-ventilated place. - P403

2.3 Other hazards


Canada

According to WHMIS

2.1 Classification of the substance or mixture

WHMIS  ● Compressed Gas - A

2.2 Label elements

WHMIS

● Compressed Gas - A

2.3 Other hazards

WHMIS  ● This material is a simple asphyxiant. May displace or reduce oxygen available for breathing especially in confined spaces.

In Canada, the product mentioned above is considered hazardous under the
Section 3 - Composition/Information on Ingredients

3.1 Substances

- Material does not meet the criteria of a substance in accordance with Regulation (EC) No 1272/2008.

3.2 Mixtures

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>Identifiers</th>
<th>%</th>
<th>LD50/LC50</th>
<th>Classifications According to Regulation/Directive</th>
</tr>
</thead>
</table>
| Oxygen        | CAS: 7782-44-7 | 0% TO 23.5% | NDA | EU DSD/DPD: Annex VI, Table 3.2: O R8  
EU CLP: Annex VI, Table 3.1: Ox. Gas 1, H270; Press. Gas - Comp., H280  
OSHA HCS 2012: Ox. Gas 1; Press. Gas - Comp. |
| Pentane       | CAS: 109-66-0 | 0% TO 0.75% | Inhalation-Rat LC50 • 364 g/m² 4 Hour(s)  
Ingestion/Oral-Rat LD50 • >2000 mg/kg | EU DSD/DPD: Annex VI, Table 3.2: F+ R12 N R51-53 Xn R65 R66 R67  
EU CLP: Annex VI, Table 3.1: Flam. Liq. 1, H224; Asp. Tox. 1, H304; STOT SE 3: Narc., H336; Aquatic Chronic 2, H411; EUH066  
OSHA HCS 2012: Flam. Liq. 1; Asp Tox. 1; Eye Irrit. 2A; Skin Irrit. 2; STOT SE 3: Narc. |
| Hydrogen sulfide | CAS: 7783-06-4 | 0.001% TO 0.025% | Inhalation-Rat LC50 • 700 mg/m² 4 Hour(s) | EU DSD/DPD: Annex VI, Table 3.2: F+ R12 T+ R26 N R50  
EU CLP: Annex VI, Table 3.1: Flam. Gas 1, H220; Press. Gas - Comp., H280; Acute Tox. 2 *H330: Aquatic Acute 1, H400  
| Sulfur dioxide | CAS: 7446-09-5 | 0.0001% | Inhalation-Rat LC50 • 2168 mg/m³ | EU DSD/DPD: Annex VI, Table 3.2: T R23 C R34  
EU CLP: Annex VI, Table 3.1: Press. Gas - Comp., H280; Acute Tox. 3 *, H331; Skin Corr. 1B, H314  
OSHA HCS 2012: Press. Gas - Comp.; Mut. 2; Acute Tox. 3 (inhl); Repr. 2; Skin Corr. 1B; Eye Dam. 1 |
| Nitrogen      | CAS: 7727-37-9 | Balance | NDA | EU DSD/DPD: Not Classified  

See Section 16 for full text of H-statements and R-phrases.

Section 4 - First Aid Measures

4.1 Description of first aid measures

Inhalation

- IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing. Administer oxygen if breathing is difficult. Give artificial respiration if victim is not breathing. If signs/symptoms continue, get medical attention.

Skin

- Although exposure is unlikely, in case of contact immediately flush skin with running water. If skin irritation develops get medical advice/attention.

Eye

- First aid is not expected to be necessary if material is used under ordinary conditions.
and as recommended. If irritation develops and persists, get medical attention. **Ingestion**. Ingestion is not considered a potential route of exposure.

### 4.2 Most important symptoms and effects, both acute and delayed

- Refer to Section 11 - Toxicological Information.

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

**Notes to Physician**

- All treatments should be based on observed signs and symptoms of distress in the patient. Consideration should be given to the possibility that overexposure to materials other than this product may have occurred. A potential health hazard associated with this gas is anoxia.

### 4.4 Other information

- Ensure that medical personnel are aware of the material(s) involved and take precautions to protect themselves. **RESCUERS SHOULD NOT ATTEMPT TO RETRIEVE VICTIMS OF EXPOSURE TO GASES WITHOUT ADEQUATE PERSONAL PROTECTIVE EQUIPMENT.** At a minimum, Self-Contained Breathing Apparatus must be worn. Victim(s) who experience any adverse effect after overexposure to this gas mixture must be taken for medical attention. Rescuers should be taken for medical attention if necessary. Take a copy of the label and the MSDS to physician or other health professional with victim(s).

### Section 5 - Firefighting Measures

#### 5.1 Extinguishing media

**Suitable Extinguishing Media**

- Use extinguishing agent suitable for type of surrounding fire.

**Unsuitable Extinguishing Media**

- No data available

#### 5.2 Special hazards arising from the substance or mixture

**Unusual Fire and Explosion Hazards**

- Containers may explode when heated.
  - Ruptured cylinders may rocket.

**Hazardous Combustion Products**

- No data available

#### 5.3 Advice for firefighters

- Structural firefighters' protective clothing provides limited protection in fire situations ONLY; it is not effective in spill situations where direct contact with the substance is possible.
- Wear positive pressure self-contained breathing apparatus (SCBA).
- Move containers from fire area if you can do it without risk.
- **FIRE:** If tank, rail car or tank truck is involved in a fire, ISOLATE for 800 meters (1/2 mile) in all directions; also, consider initial evacuation for 800 meters (1/2 mile) in all directions.
- FIRE INVOLVING TANKS: Fight fire from maximum distance or use unmanned hose holders or monitor nozzles.
- FIRE INVOLVING TANKS: Cool containers with flooding quantities of water until well after fire is out.
- FIRE INVOLVING TANKS: Do not direct water at source of leak or safety devices; icing may occur.
- FIRE INVOLVING TANKS: Withdraw immediately in case of rising sound from venting safety devices or discoloration of tank.
- FIRE INVOLVING TANKS: **ALWAYS** stay away from tanks engulfed in fire.

### Section 6 - Accidental Release Measures

#### 6.1 Personal precautions, protective equipment and emergency procedures

**Personal Precautions**

- Ventilate the area before entry. Do not walk through spilled material. Do not touch damaged containers or spilled material unless wearing appropriate protective clothing.
Emergency Procedures

- Keep unauthorized personnel away. Keep out of low areas. Stay upwind. Do not direct water at spill or source of leak. LARGE SPILL: Consider initial downwind evacuation for at least 500 meters (1/3 mile).

6.2 Environmental precautions

- Prevent spreading of vapors through sewers, ventilation systems and confined areas.

6.3 Methods and material for containment and cleaning up

**Containment/Clean-up Measures**

- Stop leak if you can do it without risk.
- Ventilate the area.
- Isolate area until gas has dispersed.
- Use water spray to reduce vapors; do not put water directly on leak, spill area or inside container.
- If possible, turn leaking containers so that gas escapes rather than liquid.

6.4 Reference to other sections

- Refer to Section 8 - Exposure Controls/Personal Protection and Section 13 - Disposal Considerations.

Section 7 - Handling and Storage

7.1 Precautions for safe handling

**Handling**

- Use only with adequate ventilation. Ventilate closed spaces before entering. Be aware of any signs of dizziness or fatigue, especially if work is done in a poorly ventilated area; exposures to fatal concentrations of this gas mixture could occur without any significant warning symptoms, due to olfactory fatigue or oxygen deficiency. Cylinders should be firmly secured to prevent falling or being knocked-over. Do not attempt to repair, adjust, or in any other way modify cylinders. If there is a malfunction or another type of operational problem, contact nearest distributor immediately. Empty containers retain product residue and can be hazardous. Do not cut, weld, puncture or incinerate container.

7.2 Conditions for safe storage, including any incompatibilities

**Storage**

- Store in a cool, dry, well-ventilated place. Protect cylinders against physical damage. Cylinders should be firmly secured to prevent falling or being knocked-over. Do not allow area where cylinders are stored to exceed 52°C (125°F).

7.3 Specific end use(s)

- Refer to Section 1.2 - Relevant identified uses.

Section 8 - Exposure Controls/Personal Protection

8.1 Control parameters

<table>
<thead>
<tr>
<th>Exposure Limits/Guidelines</th>
<th>Result</th>
<th>ACGIH</th>
<th>Canada Ontario</th>
<th>Canada Quebec</th>
<th>China</th>
<th>China Highly Toxic Goods</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pentane (109-66-0)</td>
<td>STELs</td>
<td>Not established</td>
<td>Not established</td>
<td>Not established</td>
<td>1000 mg/m³ STEL (listed under Pentane (all isomers))</td>
<td>Not established</td>
</tr>
<tr>
<td></td>
<td>TWAs</td>
<td>600 ppm TWA (listed under Pentane, all isomers)</td>
<td>600 ppm TWA</td>
<td>120 ppm TWAEV; 350 mg/m³ TWAEV</td>
<td>500 mg/m³ TWA (listed under Pentane (all isomers))</td>
<td>Not established</td>
</tr>
<tr>
<td>Sulfur dioxide (7446-09-5)</td>
<td>STELs</td>
<td>0.25 ppm STEL</td>
<td>5 ppm STEL; 10.4 mg/m³ STEL</td>
<td>5 ppm STEV; 13 mg/m³ STEV</td>
<td>10 mg/m³ STEL</td>
<td>Not established</td>
</tr>
<tr>
<td></td>
<td>TWAs</td>
<td>Not established</td>
<td>2 ppm TWA; 5.2 mg/m³ TWA</td>
<td>2 ppm TWAEV; 5.2 mg/m³ TWAEV</td>
<td>5 mg/m³ TWA</td>
<td>Not established</td>
</tr>
</tbody>
</table>
### Non-Flammable Gas Mixture containing Sulfur Dioxide 0.0001%, Hydrogen Sulfide 0.001-0.025%, Pentane 0.0-0.75%, Oxygen 0.0-23.5% in Nitrogen Balance

<table>
<thead>
<tr>
<th></th>
<th>Hydrogen sulfide (7783-06-4)</th>
<th>Pentane (109-66-0)</th>
<th>Sulfur dioxide (7446-09-5)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Ceilings</strong></td>
<td>Not established</td>
<td>Not established</td>
<td>Not established</td>
</tr>
<tr>
<td><strong>STELs</strong></td>
<td>5 ppm STEL</td>
<td>15 ppm STEL</td>
<td>2 ppm TWA [VME]; 5 mg/m³ TWA [VME]</td>
</tr>
<tr>
<td><strong>TWAs</strong></td>
<td>1 ppm TWA</td>
<td>10 ppm TWA</td>
<td>1 ppm Peak (a ceiling value 1 mL/m³ or 2.7 mg/m³ must not be exceeded)</td>
</tr>
</tbody>
</table>

### Exposure Limits/Guidelines (Con't.)

<table>
<thead>
<tr>
<th>Result</th>
<th>Europe</th>
<th>France</th>
<th>Germany DFG</th>
<th>Germany TRGS</th>
<th>Ireland</th>
</tr>
</thead>
<tbody>
<tr>
<td>TWAs</td>
<td>1000 ppm TWA; 3000 mg/m³ TWA</td>
<td>2000 ppm Peak (listed under Pentane); 6000 mg/m³ Peak (listed under Pentane)</td>
<td>Not established</td>
<td>1000 ppm TWA AGW (The risk of damage to the embryo or fetus can be excluded when AGW and BGW values are observed, exposure factor 2); 3000 mg/m³ TWA AGW (The risk of damage to the embryo or fetus can be excluded when AGW and BGW values are observed, exposure factor 2)</td>
<td>1000 ppm TWA; 3000 mg/m³ TWA</td>
</tr>
<tr>
<td>STELs</td>
<td>Not established</td>
<td>Not established</td>
<td>Not established</td>
<td>Not established</td>
<td>750 ppm STEL; 2250 mg/m³ STEL</td>
</tr>
<tr>
<td>Ceilings</td>
<td>Not established</td>
<td>Not established</td>
<td>Not established</td>
<td>Not established</td>
<td>Not established</td>
</tr>
<tr>
<td>MAKs</td>
<td>Not established</td>
<td>Not established</td>
<td>Not established</td>
<td>Not established</td>
<td>Not established</td>
</tr>
</tbody>
</table>

- **STELs**: 5 ppm STEL [VLCT]; 10 mg/m³ STEL [VLCT]
- **TWAs**: 1 ppm TWA AGW (The risk of damage to the embryo or fetus can be excluded when AGW and BGW values are observed, exposure factor 1); 2.5 mg/m³ TWA AGW (The risk of damage to the embryo or fetus can be excluded when AGW and BGW values are observed, exposure factor 2)
- **Sulfur dioxide**: 1 ppm Peak (a ceiling value 1 mL/m³ or 2.7 mg/m³ must not be exceeded)

**Preparation Date:** 17/October/2014

**Revision Date:** 17/October/2014

**Format:** EU CLP/REACH Language: English (US)

**WHMIS, EU CLP, EU DSD/DPD, OSHA HCS 2012**
Non-Flammable Gas Mixture containing Sulfur Dioxide 0.0001%, Hydrogen Sulfide 0.001-0.025%, Pentane 0.0-0.75%, Oxygen 0.0-23.5% in Nitrogen Balance

<table>
<thead>
<tr>
<th>Result</th>
<th>Israel</th>
<th>Italy</th>
<th>NIOSH</th>
<th>OSHA</th>
<th>OSHA Vacated</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Pentane</strong> (109-86-0)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>TWAs</strong></td>
<td>600 ppm TWA (listed under Pentane, all isomers)</td>
<td>667 ppm TWA; 2000 mg/m³ TWA</td>
<td>120 ppm TWA; 350 mg/m³ TWA</td>
<td>1000 ppm TWA; 2950 mg/m³ TWA</td>
<td>600 ppm TWA; 1800 mg/m³ TWA</td>
</tr>
<tr>
<td><strong>Ceilings</strong></td>
<td>Not established</td>
<td>Not established</td>
<td>610 ppm Ceiling (15 min); 1800 mg/m³ Ceiling (15 min)</td>
<td>Not established</td>
<td>Not established</td>
</tr>
<tr>
<td><strong>STELs</strong></td>
<td>Not established</td>
<td>Not established</td>
<td>Not established</td>
<td>Not established</td>
<td>750 ppm STEL; 2250 mg/m³ STEL</td>
</tr>
</tbody>
</table>

| **Sulfur dioxide** (7446-09-5) | | | | | |
| **STELs** | 0.25 ppm STEL | Not established | 5 ppm STEL; 13 mg/m³ STEL | Not established | 5 ppm STEL; 15 mg/m³ STEL |
| **TWAs** | Not established | Not established | 2 ppm TWA; 5 mg/m³ TWA | 5 ppm TWA; 13 mg/m³ TWA | 2 ppm TWA; 5 mg/m³ TWA |

| **Hydrogen sulfide** (7783-06-4) | | | | | |
| **STELs** | 5 ppm STEL | Not established | Not established | Not established | 15 ppm STEL; 21 mg/m³ STEL |
| **TWAs** | 1 ppm TWA | Not established | Not established | Not established | 10 ppm TWA; 14 mg/m³ TWA |
| **Ceilings** | Not established | Not established | 10 ppm Ceiling (10 min); 15 mg/m³ Ceiling (10 min) | 20 ppm Ceiling | Not established |

<table>
<thead>
<tr>
<th>Exposure Limits/Guidelines (Con't.)</th>
<th>Portugal</th>
<th>Spain</th>
<th>Sweden</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Result</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>1000 ppm TWA [VLA-</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>TWAs</td>
<td>STELs</td>
<td>600 ppm TWA [VLE-MP]</td>
</tr>
<tr>
<td>-----------------</td>
<td>----------------</td>
<td>------------------------</td>
<td>----------------------</td>
</tr>
<tr>
<td>Pentane (109-66-0)</td>
<td>600 ppm TWA [VLE-MP]</td>
<td>5 ppm STEL [VLE-CD]</td>
<td>2 ppm STEL [VLA-EC]; 5.28 mg/m3 STEL [VLA-EC]</td>
</tr>
<tr>
<td>Sulfur dioxide (7446-09-5)</td>
<td>2 ppm TWA [VLE-MP]</td>
<td>Not established</td>
<td>Not established</td>
</tr>
<tr>
<td>Hydrogen sulfide (7783-06-4)</td>
<td>10 ppm TWA [VLE-EC]; 14 mg/m3 STEL [VLA-EC]</td>
<td>15 ppm STEL [VLE-CD]</td>
<td>10 ppm STEL [VLA-EC]; 14 mg/m3 STEL [VLA-EC]</td>
</tr>
<tr>
<td>TWAs</td>
<td>10 ppm TWA [VLE-MP]</td>
<td>Not established</td>
<td>5 ppm TWA [VLA-ED]; 7 mg/m3 TWA [VLA-ED]</td>
</tr>
<tr>
<td>Ceilings</td>
<td>Not established</td>
<td>Not established</td>
<td>Not established</td>
</tr>
</tbody>
</table>

**Exposure Control Notations**

**Portugal**
- Sulfur dioxide (7446-09-5): **Carcinogens:** (A4 - Not Classifiable as a Human Carcinogen)
- Nitrogen (7727-37-9): **Simple Asphyxiants:** (Simple Asphyxiant)

**Ireland**
- Nitrogen (7727-37-9): **Simple Asphyxiants:** (Asphyxiant)

**Spain**
- Nitrogen (7727-37-9): **Simple Asphyxiants:** (simple asphyxiant)

**Germany DFG**
- Sulfur dioxide (7446-09-5): **Pregnancy:** (no risk to embryo/fetus if exposure limits adhered to)
- Hydrogen sulfide (7783-06-4): **Pregnancy:** (no risk to embryo/fetus if exposure limits adhered to)
- Pentane (109-66-0): **Pregnancy:** (no risk to embryo/fetus if exposure limits adhered to)

**Exposure Limits Supplemental**

**Spain**
- Sulfur dioxide (7446-09-5): **Under Review:** (0.5 ppm VLA-ED; 1 ppm VLA-EC; it is prohibited the partial or complete commercialization or use of this substance as a phytosanitary or biocide compound)

**8.2 Exposure controls**

**Engineering Measures/Controls**
- Good general ventilation should be used. Ventilation rates should be matched to conditions. If applicable, use process enclosures, local exhaust ventilation, or other
Personal Protective Equipment

Respiratory
- Follow the OSHA respirator regulations found in 29 CFR 1910.134 or European Standard EN 149. Use a NIOSH/MSHA or European Standard EN 149 approved respirator if exposure limits are exceeded or symptoms are experienced.

Eye/Face
- Wear safety glasses.

Skin/Body
- Wear leather gloves when handling cylinders.

Environmental Exposure Controls
- Follow best practice for site management and disposal of waste. Controls should be engineered to prevent release to the environment, including procedures to prevent spills, atmospheric release and release to waterways.

Key to abbreviations
ACGIH = American Conference of Governmental Industrial Hygiene
LLV = Limit Level Value is the exposure limit for 8-hour work day
Mak = Maximale Arbeitsplatz Konzentration is the maximum permissible concentration
NIOSH = National Institute of Occupational Safety and Health
OSHA = Occupational Safety and Health Administration

Section 9 - Physical and Chemical Properties

9.1 Information on Physical and Chemical Properties

<table>
<thead>
<tr>
<th>Physical Form</th>
<th>Appearance/Description</th>
<th>Color</th>
<th>Odor Threshold</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gas</td>
<td>Colorless gas with rotten egg odor.</td>
<td>Colorless</td>
<td>0.13 ppm (Hydrogen Sulfide)</td>
</tr>
</tbody>
</table>

General Properties

<table>
<thead>
<tr>
<th>Physical Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Boiling Point</td>
<td>-195.8°C (-320.4°F) (Nitrogen)</td>
</tr>
<tr>
<td>Melting Point</td>
<td>-210°C (-346°F) (Nitrogen)</td>
</tr>
<tr>
<td>pH</td>
<td>Not relevant</td>
</tr>
<tr>
<td>Density</td>
<td>0.072 lb/ft³ @ 0°C (32°F) (Nitrogen)</td>
</tr>
<tr>
<td>Viscosity</td>
<td>Data lacking</td>
</tr>
<tr>
<td>Oxidizing Properties:</td>
<td>Data lacking</td>
</tr>
</tbody>
</table>

Flammability

<table>
<thead>
<tr>
<th>Flammability Parameter</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Flash Point</td>
<td>Not relevant</td>
</tr>
<tr>
<td>LEL</td>
<td>Not relevant</td>
</tr>
<tr>
<td>Flammability (solid, gas)</td>
<td>Nonflammable Gas.</td>
</tr>
</tbody>
</table>

9.2 Other Information
- No additional physical and chemical parameters noted.
Section 10: Stability and Reactivity

10.1 Reactivity
- No dangerous reaction known under conditions of normal use.

10.2 Chemical stability
- Stable under normal temperatures and pressures.

10.3 Possibility of hazardous reactions
- Hazardous polymerization will not occur.

10.4 Conditions to avoid
- Excess heat.

10.5 Incompatible materials
- Titanium will burn in Nitrogen (the main component of this gas mixture). Lithium reacts slowly with Nitrogen at ambient temperatures. Due to the presence of Pentane and Hydrogen Sulfide, this gas mixture may be incompatible with strong oxidizers. Hydrogen Sulfide is corrosive to most metals due to reaction with metals to form metal sulfides. Pentane is incompatible with halogens. The trace Sulfur Dioxide component is incompatible with the following materials: chlorates, fluorine, interhalogens, sodium hydride, sodium, bases, silver azide, barium peroxide, diethyl zinc, nitryl chloride, powdered metals, potassium, acrolein, lithium nitrate and propene, monolithium acetylide-ammonia (lithium acetylene carbide diammino), cesium azide, metal oxides, metal acetylides, and carbide. Although the Sulfur Dioxide component is in low concentration and significant reaction is not expected, caution should be used if contact with this gas mixture and these materials can occur.

10.6 Hazardous decomposition products

Section 11 - Toxicological Information

11.1 Information on toxicological effects

<table>
<thead>
<tr>
<th>Components</th>
<th>Acute Toxicity</th>
<th>Irritation</th>
<th>Mutagen</th>
<th>Reproductive</th>
<th>Reproductive Effects</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sulfur dioxide (0.0001%)</td>
<td>Inhalation-Rat LC50 • 2520 ppm 1 Hour(s);</td>
<td>Eye-Rabbit • 6 ppm 32 Day(s) • Mild irritation;</td>
<td>Cytogenetic analysis • Inhalation-Mouse • 14 µg/L 4 Hour(s) 7 Day(s); Micronucleus test • Inhalation-Mouse • 28 µg/L 5 Day(s)-Intermittent; DNA adduct • Inhalation-Rat • 72 mg/kg 300 Day(s)-Intermittent;</td>
<td>Inhalation-Mouse TCLo • 25 ppm 7 Hour(s)(6-15D preg);</td>
<td>Specific Developmental Abnormalities:Musculoskeletal system; Inhalation-Rabbit TCLo • 70 ppm 7 Hour(s)(6-18D preg); Specific Developmental Abnormalities:Musculoskeletal system</td>
</tr>
<tr>
<td>Hydrogen sulfide (0.001% TO 0.025%)</td>
<td>Inhalation-Rat LC50 • 700 mg/m³ 4 Hour(s);</td>
<td>Eye-Human • 0.000125 ppm 5 Hour(s);</td>
<td>Inhalation-Rat TCLo • 10 mg/m³ (48D pre/1-22D preg);</td>
<td>Inhalation-Rat TCLo • 10 ppm 9 Hour(s)(22D preg);</td>
<td>Effects on Fertility:Pre-implantation mortality; Effects on Fertility:Post-implantation mortality; Specific Developmental Abnormalities:Urogenital system</td>
</tr>
<tr>
<td>Pentane (0% TO 0.75%)</td>
<td>Ingestion/Oral-Rat LD50 • &gt;2000 mg/kg; Inhalation-Rat LC50 • 364 g/m³ 4 Hour(s)</td>
<td></td>
<td></td>
<td></td>
<td>Specific Developmental Abnormalities:Respiratory system; Effects on Newborn:Physical</td>
</tr>
<tr>
<td>Oxygen (0% TO 23.5%)</td>
<td>Inhalation-Rat TCLo • 10 pph 9 Hour(s)(22D preg);</td>
<td></td>
<td></td>
<td></td>
<td>Specific Developmental Abnormalities:Respiratory system; Effects on Newborn:Physical</td>
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GHS Properties

<table>
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Non-Flammable Gas Mixture containing Sulfur Dioxide 0.0001%, Hydrogen Sulfide 0.001-0.025%, Pentane 0.0-0.75%, Oxygen 0.0-23.5% in Nitrogen Balance

<table>
<thead>
<tr>
<th>Potential Health Effects</th>
<th>Inhalation</th>
<th>Skin</th>
<th>Eye</th>
<th>Ingestion</th>
</tr>
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<tbody>
<tr>
<td><strong>Acute toxicity</strong></td>
<td>EU/CLP: Data lacking</td>
<td>OSHA HCS 2012: Data lacking</td>
<td>OSHA HCS 2012: Data lacking</td>
<td>OSHA HCS 2012: Data lacking</td>
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<tr>
<td><strong>Aspiration Hazard</strong></td>
<td>EU/CLP: Data lacking</td>
<td>OSHA HCS 2012: Data lacking</td>
<td>OSHA HCS 2012: Data lacking</td>
<td>OSHA HCS 2012: Data lacking</td>
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<td><strong>Carcinogenicity</strong></td>
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<td><strong>Germ Cell Mutagenicity</strong></td>
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<tr>
<td><strong>Skin corrosion/Irritation</strong></td>
<td>EU/CLP: Data lacking</td>
<td>OSHA HCS 2012: Data lacking</td>
<td>OSHA HCS 2012: Data lacking</td>
<td>OSHA HCS 2012: Data lacking</td>
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<tr>
<td><strong>Skin sensitization</strong></td>
<td>EU/CLP: Data lacking</td>
<td>OSHA HCS 2012: Data lacking</td>
<td>OSHA HCS 2012: Data lacking</td>
<td>OSHA HCS 2012: Data lacking</td>
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<td><strong>STOT-RE</strong></td>
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<td>OSHA HCS 2012: Data lacking</td>
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<td>OSHA HCS 2012: Data lacking</td>
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<tr>
<td><strong>Toxicity for Reproduction</strong></td>
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<td>OSHA HCS 2012: Data lacking</td>
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<tr>
<td><strong>Respiratory sensitization</strong></td>
<td>EU/CLP: Data lacking</td>
<td>OSHA HCS 2012: Data lacking</td>
<td>OSHA HCS 2012: Data lacking</td>
<td>OSHA HCS 2012: Data lacking</td>
</tr>
<tr>
<td><strong>Serious eye damage/Irritation</strong></td>
<td>EU/CLP: Data lacking</td>
<td>OSHA HCS 2012: Data lacking</td>
<td>OSHA HCS 2012: Data lacking</td>
<td>OSHA HCS 2012: Data lacking</td>
</tr>
</tbody>
</table>

**Potential Health Effects**

**Inhalation**

**Acute (Immediate)**

- This material is a simple asphyxiant. May displace or reduce oxygen available for breathing especially in confined spaces. If this material is released in a small, poorly ventilated area (i.e. an enclosed or confined space), an oxygen-deficient environment may occur. Individuals breathing such an atmosphere may experience symptoms which include headaches, ringing in ears, dizziness, drowsiness, unconsciousness, nausea, vomiting, and depression of all the senses. Under some circumstances of over-exposure, death may occur. The following effects associated with decreased levels of oxygen: increase in breathing and pulse rate, emotional upset, abnormal fatigue, nausea, vomiting, collapse, loss of consciousness, convulsive movements, respiratory collapse and death.

**Chronic (Delayed)**

- No data available

**Skin**

**Acute (Immediate)**

- Under normal conditions of use, no health effects are expected.

**Chronic (Delayed)**

- Under normal conditions of use, no health effects are expected.

**Eye**

**Acute (Immediate)**

- Under normal conditions of use, no health effects are expected.

**Chronic (Delayed)**

- Under normal conditions of use, no health effects are expected.

**Ingestion**

**Acute (Immediate)**

- Ingestion is not anticipated to be a likely route of exposure to this product.

**Chronic (Delayed)**

- Ingestion is not anticipated to be a likely route of exposure to this product.

---

Key to abbreviations

**LC** = Lethal Concentration

**LD** = Lethal Dose

**TC** = Toxic Concentration
Section 12 - Ecological Information

12.1 Toxicity
- Material data lacking.

12.2 Persistence and degradability
- Material data lacking.

12.3 Bioaccumulative potential
- Material data lacking.

12.4 Mobility in Soil
- Material data lacking.

12.5 Results of PBT and vPvB assessment
- PBT and vPvB assessment has not been conducted for this material.

12.6 Other adverse effects
- No studies have been found.

Section 13 - Disposal Considerations

13.1 Waste treatment methods
Product waste
- Dispose of content and/or container in accordance with local, regional, national, and/or international regulations.

Packaging waste
- Dispose of content and/or container in accordance with local, regional, national, and/or international regulations.

Section 14 - Transport Information

<table>
<thead>
<tr>
<th>DOT</th>
<th>UN1956</th>
<th>Compressed gases, n.o.s. (Nitrogen, Oxygen)</th>
<th>2.2</th>
<th>NDA</th>
<th>NDA</th>
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<tbody>
<tr>
<td>TDG</td>
<td>UN1956</td>
<td>COMPRESSED GASES, N.O.S. (Nitrogen, Oxygen)</td>
<td>2.2</td>
<td>NDA</td>
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<tr>
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<td>UN1956</td>
<td>Compressed gases, n.o.s. (Nitrogen, Oxygen)</td>
<td>2.2</td>
<td>NDA</td>
<td>NDA</td>
</tr>
</tbody>
</table>

14.6 Special precautions for user
- Cylinders should be transported in a secure position, in a well-ventilated vehicle. The transportation of compressed gas cylinders in automobiles or in closed-body vehicles can present serious safety hazards. If transporting these cylinders in vehicles, ensure these cylinders are not exposed to extremely high temperatures (as may occur in an enclosed vehicle on a hot day). Additionally, the vehicle should be well-ventilated during transportation.

14.7 Transport in bulk according to Annex II of MARPOL 73/78 and the IBC
- Data lacking.
Non-Flammable Gas Mixture containing Sulfur Dioxide 0.0001%, Hydrogen Sulfide 0.001-0.025%, Pentane 0.0-0.75%, Oxygen 0.0-23.5% in Nitrogen Balance

Section 15 - Regulatory Information

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture

SARA Hazard Classifications . Pressure(Sudden Release of), Acute

<table>
<thead>
<tr>
<th>Component</th>
<th>CAS</th>
<th>MA</th>
<th>NJ</th>
<th>PA</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hydrogen sulfide</td>
<td>7783-06-4</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Nitrogen</td>
<td>7727-37-9</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Oxygen</td>
<td>7782-44-7</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Pentane</td>
<td>109-66-0</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Sulfur dioxide</td>
<td>7446-09-5</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
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Inventory

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<th>CAS</th>
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<th>Canada NDSL</th>
<th>China</th>
<th>EU EINECS</th>
<th>EU ELNICS</th>
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<tbody>
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<td>No</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
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<tr>
<td>Nitrogen</td>
<td>7727-37-9</td>
<td>Yes</td>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
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<tr>
<td>Oxygen</td>
<td>7782-44-7</td>
<td>Yes</td>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>Pentane</td>
<td>109-66-0</td>
<td>Yes</td>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>Sulfur dioxide</td>
<td>7446-09-5</td>
<td>Yes</td>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
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</table>

Inventory (Con’t.)

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</tr>
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<tbody>
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<td>Yes</td>
</tr>
<tr>
<td>Nitrogen</td>
<td>7727-37-9</td>
<td>Yes</td>
</tr>
<tr>
<td>Oxygen</td>
<td>7782-44-7</td>
<td>Yes</td>
</tr>
<tr>
<td>Pentane</td>
<td>109-66-0</td>
<td>Yes</td>
</tr>
<tr>
<td>Sulfur dioxide</td>
<td>7446-09-5</td>
<td>Yes</td>
</tr>
</tbody>
</table>

Canada

Labor

Canada - WHMIS - Classifications of Substances

- Hydrogen sulfide 7783-06-4 A, B1, D1A, D2B
- Pentane 109-66-0 B2
- Oxygen 7782-44-7 A, C
- Sulfur dioxide 7446-09-5 A, D1A, D2B, E
- Nitrogen 7727-37-9 A

Canada - WHMIS - Ingredient Disclosure List

- Hydrogen sulfide 7783-06-4 1 %
- Pentane 109-66-0 1 %
- Oxygen 7782-44-7 Not Listed
- Sulfur dioxide 7446-09-5 1 %
- Nitrogen 7727-37-9 Not Listed
## Environment

**Canada - CEPA - Priority Substances List**

- Hydrogen sulfide 7783-06-4 Not Listed
- Pentane 109-66-0 Not Listed
- Oxygen 7782-44-7 Not Listed
- Sulfur dioxide 7446-09-5 Not Listed
- Nitrogen 7727-37-9 Not Listed

## China

### Environment

**China - Ozone Depleting Substances - First Schedule**

- Hydrogen sulfide 7783-06-4 Not Listed
- Pentane 109-66-0 Not Listed
- Oxygen 7782-44-7 Not Listed
- Sulfur dioxide 7446-09-5 Not Listed
- Nitrogen 7727-37-9 Not Listed

**China - Ozone Depleting Substances - Second Schedule**

- Hydrogen sulfide 7783-06-4 Not Listed
- Pentane 109-66-0 Not Listed
- Oxygen 7782-44-7 Not Listed
- Sulfur dioxide 7446-09-5 Not Listed
- Nitrogen 7727-37-9 Not Listed

**China - Ozone Depleting Substances - Third Schedule**

- Hydrogen sulfide 7783-06-4 Not Listed
- Pentane 109-66-0 Not Listed
- Oxygen 7782-44-7 Not Listed
- Sulfur dioxide 7446-09-5 Not Listed
- Nitrogen 7727-37-9 Not Listed

## Other

### China - Annex I & II - Controlled Chemicals Lists

- Hydrogen sulfide 7783-06-4 Not Listed
- Pentane 109-66-0 Not Listed
- Oxygen 7782-44-7 Not Listed
- Sulfur dioxide 7446-09-5 Not Listed
- Nitrogen 7727-37-9 Not Listed

### China - Dangerous Goods List

- Hydrogen sulfide 7783-06-4 Not Listed
- Pentane 109-66-0 Not Listed
- Oxygen 7782-44-7 (compressed or refrigerated liquid)
- Sulfur dioxide 7446-09-5 (compressed or refrigerated liquid)
- Nitrogen 7727-37-9 Not Listed

### China - Export Control List - Part I Chemicals

- Hydrogen sulfide 7783-06-4 Not Listed
- Pentane 109-66-0 Not Listed
- Oxygen 7782-44-7 Not Listed
- Sulfur dioxide 7446-09-5 Not Listed
- Nitrogen 7727-37-9 Not Listed
### Europe

<table>
<thead>
<tr>
<th>EU - CLP (1272/2008) - Annex VI - Table 3.2 - Classification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Non-Flammable Gas Mixture containing Sulfur Dioxide 0.0001%, Hydrogen Sulfide 0.001-0.025%, Pentane 0.0-0.75%, Oxygen 0.0-23.5% in Nitrogen Balance</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Substances</th>
<th>CAS Numbers</th>
<th>Classification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hydrogen sulfide</td>
<td>7783-06-4</td>
<td>F+; R12 T+; R26 N; R50</td>
</tr>
<tr>
<td>Pentane</td>
<td>109-66-0</td>
<td>F+; R12 N; R51-53 Xn; R65 R66 R67</td>
</tr>
<tr>
<td>Oxygen</td>
<td>7782-44-7</td>
<td>O; R8</td>
</tr>
<tr>
<td>Sulfur dioxide</td>
<td>7446-09-5</td>
<td>T; R23 C; R34</td>
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<tr>
<td>Nitrogen</td>
<td>7727-37-9</td>
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<thead>
<tr>
<th>EU - CLP (1272/2008) - Annex VI - Table 3.2 - Concentration Limits</th>
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<th>CAS Numbers</th>
<th>Concentration Limits</th>
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<td>Hydrogen sulfide</td>
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</tr>
<tr>
<td>Pentane</td>
<td>109-66-0</td>
<td>Not Listed</td>
</tr>
<tr>
<td>Oxygen</td>
<td>7782-44-7</td>
<td>Not Listed</td>
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</table>
| Sulfur dioxide | 7446-09-5 | 20%<=C: T; R:23 5%
| Nitrogen | 7727-37-9 | Not Listed |

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<thead>
<tr>
<th>EU - CLP (1272/2008) - Annex VI - Table 3.2 - Labelling</th>
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<tr>
<td>Hydrogen sulfide</td>
<td>7783-06-4</td>
<td>F+ T+ N R:12-26-50 S:(1/2)-9-16-36-38-45-61</td>
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<tr>
<td>Oxygen</td>
<td>7782-44-7</td>
<td>O R:8 S:(2)-17</td>
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<tr>
<td>Sulfur dioxide</td>
<td>7446-09-5</td>
<td>T:23-34 S:(1/2)-9-26-36/37/39-45</td>
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<td>Nitrogen</td>
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<thead>
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<td>Hydrogen sulfide</td>
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<td>S:(1/2)-9-16-36-38-45-61</td>
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<td>Pentane</td>
<td>109-66-0</td>
<td>S:(2)-9-16-29-33-61-62</td>
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<td>7782-44-7</td>
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<td>Sulfur dioxide</td>
<td>7446-09-5</td>
<td>S:(1/2)-9-26-36/37/39-45</td>
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### Germany

<table>
<thead>
<tr>
<th>Germany - TA Luft - Types and Classes</th>
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</table>

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<tr>
<th>Substances</th>
<th>CAS Numbers</th>
<th>Types and Classes</th>
</tr>
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<tbody>
<tr>
<td>Hydrogen sulfide</td>
<td>7783-06-4</td>
<td>inorganic gas Substance: 5.2.4, Class II</td>
</tr>
<tr>
<td>Pentane</td>
<td>109-66-0</td>
<td>Not Listed</td>
</tr>
<tr>
<td>Oxygen</td>
<td>7782-44-7</td>
<td>Not Listed</td>
</tr>
<tr>
<td>Sulfur dioxide</td>
<td>7446-09-5</td>
<td>inorganic gas Substance: 5.2.4, Class IV</td>
</tr>
<tr>
<td>Nitrogen</td>
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Preparation Date: 17/October/2014
Revision Date: 17/October/2014
Format: EU CLP/REACH Language: English (US)
WHMIS, EU CLP, EU DSD/DPD, OSHA HCS 2012
P/N 3579
Non-Flammable Gas Mixture containing Sulfur Dioxide 0.0001%, Hydrogen Sulfide 0.001-0.025%, Pentane 0.0-0.75%, Oxygen 0.0-23.5% in Nitrogen Balance

<table>
<thead>
<tr>
<th>Germany - Water Classification (VvVwS) - Annex 1</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Hydrogen sulfide</td>
</tr>
<tr>
<td>• Pentane</td>
</tr>
<tr>
<td>• Oxygen</td>
</tr>
<tr>
<td>• Sulfur dioxide</td>
</tr>
<tr>
<td>• Nitrogen</td>
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</table>

<table>
<thead>
<tr>
<th>Germany - Water Classification (VvVwS) - Annex 2 - Water Hazard Classes</th>
</tr>
</thead>
<tbody>
<tr>
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<tr>
<td>• Pentane</td>
</tr>
<tr>
<td>• Oxygen</td>
</tr>
<tr>
<td>• Sulfur dioxide</td>
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<tr>
<td>• Nitrogen</td>
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<table>
<thead>
<tr>
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<tbody>
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<td>• Oxygen</td>
</tr>
<tr>
<td>• Sulfur dioxide</td>
</tr>
<tr>
<td>• Nitrogen</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Other</th>
</tr>
</thead>
<tbody>
<tr>
<td>Germany - Specifically Regulated Chemicals in TRGS</td>
</tr>
<tr>
<td>• Hydrogen sulfide</td>
</tr>
<tr>
<td>• Pentane</td>
</tr>
<tr>
<td>• Oxygen</td>
</tr>
<tr>
<td>• Sulfur dioxide</td>
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<td>• Nitrogen</td>
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<tr>
<th>Portugal</th>
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</thead>
<tbody>
<tr>
<td>Other</td>
</tr>
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<td>Portugal - Prohibited Substances</td>
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<td>• Oxygen</td>
</tr>
<tr>
<td>• Sulfur dioxide</td>
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<tr>
<td>• Nitrogen</td>
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<table>
<thead>
<tr>
<th>United Kingdom</th>
</tr>
</thead>
<tbody>
<tr>
<td>Environment</td>
</tr>
<tr>
<td>United Kingdom - Pollution Inventory - Schedule 1 - Thresholds for Releases to Air</td>
</tr>
<tr>
<td>• Hydrogen sulfide</td>
</tr>
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<td>• Pentane</td>
</tr>
<tr>
<td>• Oxygen</td>
</tr>
<tr>
<td>• Sulfur dioxide</td>
</tr>
<tr>
<td>• Nitrogen</td>
</tr>
</tbody>
</table>
### Other

#### United Kingdom - Workplace Exposure Limits (WELs) - Substances in Review
- Hydrogen sulfide: 7783-06-4, Not Listed
- Pentane: 109-66-0, Not Listed
- Oxygen: 7782-44-7, Not Listed
- Sulfur dioxide: 7446-09-5, Not Listed
- Nitrogen: 7727-37-9, Not Listed

#### United Kingdom - List of Dangerous Substances in Water
- Hydrogen sulfide: 7783-06-4, Not Listed
- Pentane: 109-66-0, Not Listed
- Oxygen: 7782-44-7, Not Listed
- Sulfur dioxide: 7446-09-5, Not Listed
- Nitrogen: 7727-37-9, Not Listed

### United States

#### Labor

##### U.S. - OSHA - Process Safety Management - Highly Hazardous Chemicals
- Hydrogen sulfide: 7783-06-4, 1500 lb TQ
- Pentane: 109-66-0, Not Listed
- Oxygen: 7782-44-7, Not Listed
- Sulfur dioxide: 7446-09-5, 1000 lb TQ (liquid)
- Nitrogen: 7727-37-9, Not Listed

##### U.S. - OSHA - Specifically Regulated Chemicals
- Hydrogen sulfide: 7783-06-4, Not Listed
- Pentane: 109-66-0, Not Listed
- Oxygen: 7782-44-7, Not Listed
- Sulfur dioxide: 7446-09-5, Not Listed
- Nitrogen: 7727-37-9, Not Listed

#### Environment

##### U.S. - CAA (Clean Air Act) - 1990 Hazardous Air Pollutants
- Hydrogen sulfide: 7783-06-4, Not Listed
- Pentane: 109-66-0, Not Listed
- Oxygen: 7782-44-7, Not Listed
- Sulfur dioxide: 7446-09-5, Not Listed
- Nitrogen: 7727-37-9, Not Listed

##### U.S. - CERCLA/SARA - Hazardous Substances and their Reportable Quantities
- Hydrogen sulfide: 7783-06-4, 100 lb final RQ; 45.4 kg final RQ
- Pentane: 109-66-0, Not Listed
- Oxygen: 7782-44-7, Not Listed
- Sulfur dioxide: 7446-09-5, Not Listed
- Nitrogen: 7727-37-9, Not Listed

##### U.S. - CERCLA/SARA - Radionuclides and Their Reportable Quantities
- Hydrogen sulfide: 7783-06-4, Not Listed
- Pentane: 109-66-0, Not Listed
- Oxygen: 7782-44-7, Not Listed
- Sulfur dioxide: 7446-09-5, Not Listed
- Nitrogen: 7727-37-9, Not Listed

Preparation Date: 17/October/2014
Revision Date: 17/October/2014
U.S. - CERCLA/SARA - Section 302 Extremely Hazardous Substances EPCRA RQs
• Hydrogen sulfide 7783-06-4 100 lb EPCRA RQ
• Pentane 109-66-0 Not Listed
• Oxygen 7782-44-7 Not Listed
• Sulfur dioxide 7446-09-5 500 lb EPCRA RQ
• Nitrogen 7727-37-9 Not Listed

U.S. - CERCLA/SARA - Section 302 Extremely Hazardous Substances TPQs
• Hydrogen sulfide 7783-06-4 500 lb TPQ
• Pentane 109-66-0 Not Listed
• Oxygen 7782-44-7 Not Listed
• Sulfur dioxide 7446-09-5 500 lb TPQ
• Nitrogen 7727-37-9 Not Listed

U.S. - CERCLA/SARA - Section 313 - Emission Reporting
• Hydrogen sulfide 7783-06-4 1.0 % de minimis concentration
• Pentane 109-66-0 Not Listed
• Oxygen 7782-44-7 Not Listed
• Sulfur dioxide 7446-09-5 Not Listed
• Nitrogen 7727-37-9 Not Listed

U.S. - CERCLA/SARA - Section 313 - PBT Chemical Listing
• Hydrogen sulfide 7783-06-4 Not Listed
• Pentane 109-66-0 Not Listed
• Oxygen 7782-44-7 Not Listed
• Sulfur dioxide 7446-09-5 Not Listed
• Nitrogen 7727-37-9 Not Listed

U.S. - RCRA (Resource Conservation & Recovery Act) - Hazardous Constituents - Appendix VIII to 40 CFR 261
• Hydrogen sulfide 7783-06-4 waste number U135
• Pentane 109-66-0 Not Listed
• Oxygen 7782-44-7 Not Listed
• Sulfur dioxide 7446-09-5 Not Listed
• Nitrogen 7727-37-9 Not Listed

U.S. - RCRA (Resource Conservation & Recovery Act) - U Series Wastes - Acutely Toxic Wastes & Other Hazardous Characteristics
• Hydrogen sulfide 7783-06-4 waste number U135
• Pentane 109-66-0 Not Listed
• Oxygen 7782-44-7 Not Listed
• Sulfur dioxide 7446-09-5 Not Listed
• Nitrogen 7727-37-9 Not Listed

United States - California

Environment
U.S. - California - Proposition 65 - Carcinogens List
• Hydrogen sulfide 7783-06-4 Not Listed
• Pentane 109-66-0 Not Listed
• Oxygen 7782-44-7 Not Listed
• Sulfur dioxide 7446-09-5 Not Listed
• Nitrogen 7727-37-9 Not Listed
### U.S. - California - Proposition 65 - Developmental Toxicity
- Hydrogen sulfide: 7783-06-4, Not Listed
- Pentane: 109-66-0, Not Listed
- Oxygen: 7782-44-7, Not Listed
devitational toxicity, initial
date 7/29/11
- Sulfur dioxide: 7446-09-5, Not Listed
- Nitrogen: 7727-37-9, Not Listed

### U.S. - California - Proposition 65 - Maximum Allowable Dose Levels (MADL)
- Hydrogen sulfide: 7783-06-4, Not Listed
- Pentane: 109-66-0, Not Listed
- Oxygen: 7782-44-7, Not Listed
- Sulfur dioxide: 7446-09-5, Not Listed
- Nitrogen: 7727-37-9, Not Listed

### U.S. - California - Proposition 65 - No Significant Risk Levels (NSRL)
- Hydrogen sulfide: 7783-06-4, Not Listed
- Pentane: 109-66-0, Not Listed
- Oxygen: 7782-44-7, Not Listed
- Sulfur dioxide: 7446-09-5, Not Listed
- Nitrogen: 7727-37-9, Not Listed

### U.S. - California - Proposition 65 - Reproductive Toxicity - Female
- Hydrogen sulfide: 7783-06-4, Not Listed
- Pentane: 109-66-0, Not Listed
- Oxygen: 7782-44-7, Not Listed
- Sulfur dioxide: 7446-09-5, Not Listed
- Nitrogen: 7727-37-9, Not Listed

### U.S. - California - Proposition 65 - Reproductive Toxicity - Male
- Hydrogen sulfide: 7783-06-4, Not Listed
- Pentane: 109-66-0, Not Listed
- Oxygen: 7782-44-7, Not Listed
- Sulfur dioxide: 7446-09-5, Not Listed
- Nitrogen: 7727-37-9, Not Listed

### United States - Pennsylvania

#### Labor

**U.S. - Pennsylvania - RTK (Right to Know) - Environmental Hazard List**
- Hydrogen sulfide: 7783-06-4
- Pentane: 109-66-0, Not Listed
- Oxygen: 7782-44-7, Not Listed
- Sulfur dioxide: 7446-09-5
- Nitrogen: 7727-37-9, Not Listed

**U.S. - Pennsylvania - RTK (Right to Know) - Special Hazardous Substances**
- Hydrogen sulfide: 7783-06-4, Not Listed
- Pentane: 109-66-0, Not Listed
- Oxygen: 7782-44-7, Not Listed
- Sulfur dioxide: 7446-09-5, Not Listed
- Nitrogen: 7727-37-9, Not Listed

### 15.2 Chemical Safety Assessment
Non-Flammable Gas Mixture containing Sulfur Dioxide 0.0001%, Hydrogen Sulfide 0.001-0.025%, Pentane 0.0-0.75%, Oxygen 0.0-23.5% in Nitrogen Balance

15.3 Other Information

- No Chemical Safety Assessment has been carried out.

**WARNING:** This product contains a chemical known to the State of California to cause birth defects or other reproductive harm.

### Section 16 - Other Information

**Relevant Phrases (code & full text)**

- H220 - Extremely flammable gas
- H224 - Extremely flammable liquid and vapour
- H270 - May cause or intensify fire; oxidizer
- H304 - May be fatal if swallowed and enters airways H314 - Causes severe skin burns and eye damage. H330 - Fatal if inhaled
- H331 - Toxic if inhaled
- H400 - Very toxic to aquatic life
- R8 - Contact with combustible material may cause fire.
- R12 - Extremely flammable.
- R23 - Toxic by inhalation.
- R26 - Very toxic by inhalation.
- R34 - Causes burns.
- R50 - Very toxic to aquatic organisms.
- R51 - Toxic to aquatic organisms.
- R53 - May cause long-term adverse effects in the aquatic environment. R65 - Harmful: may cause lung damage if swallowed.
- R66 - Repeated exposure may cause skin dryness or cracking.
- R67 - Vapours may cause drowsiness and dizziness.

**Last Revision Date**

- 17/October/2014

**Preparation Date**

- 17/October/2014

**Disclaimer/Statement of Liability**

- To the best of Air Liquide's knowledge, the information contained herein is reliable and accurate as of this date; however, accuracy, suitability or completeness are not guaranteed and no warranties of any type, either express or implied, are provided. The information contained herein relates only to this specific product. If this gas mixture is combined with other materials, all component properties must be considered. Data may be changed from time to time. Be sure to consult the latest edition.

**Key to abbreviations**

NDA = No Data Available