Non-Flammable Gas Mixture Containing The following Component In a Nitrogen Balance Gas: Nitric Oxide: 0.0005-0.02 %

Safety Data Sheet

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

1.1 Product identifier

Product Name
Non-Flammable Gas Mixture Containing The following Component In a Nitrogen Balance Gas: Nitric Oxide: 0.0005-0.02 %

Product Code
50026

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

**OSHA HCS 2012**

---

**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
Non-Flammable Gas Mixture Containing The following Component In a Nitrogen Balance Gas: Nitric Oxide: 0.0005-0.02 %


2.4 Other information

NFPA

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>
<tbody>
<tr>
<td>Nitric oxide</td>
<td>CAS:10102-43-9, EINECS:233-271-0</td>
<td>0.0005% TO 0.02%</td>
<td>Inhalation-Rat LC50 • 1068 mg/kg</td>
<td>EU DSD/DPD: Self Classified - O, R8, T+ R26, C, R34 EU CLP: Self Classified - Press. Gas - Comp., H280; Ox. Gas 1, H270; STOT SE 1 (Lung, Blood (Methemoglobin former)), H370; Acute Tox 1 (Inhl), H330; Skin Corr. 1A, H314; Eye Dam. 1, H318 OSHA HCS 2012: Press. Gas - Comp.; Ox. Gas 1; STOT SE 1 (Lung, Blood (Methemoglobin former)); Acute Tox. 1 (Inhl); Skin Corr. 1; Eye Dam. 1</td>
</tr>
</tbody>
</table>

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
Non-Flammable Gas Mixture Containing The following Component In a Nitrogen Balance Gas: Nitric Oxide: 0.0005-0.02 %

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.
- Always wear thermal protective clothing when handling refrigerated/cryogenic liquids. 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

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

Emergency Procedures

- Stop leak if you can do it without risk. 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
6.3 Methods and material for containment and cleaning up

**Containment/Clean-up Measures**

- Stop leak if you can do it without risk.
- Do not direct water at spill or source of leak.
- 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. Isolate area until gas has dispersed.
- Ventilate the area.

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. Wear appropriate personal protective equipment, avoid direct contact. 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.

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>Result</th>
<th>Exposure Limits/Guidelines</th>
</tr>
</thead>
<tbody>
<tr>
<td>STELs</td>
<td><strong>ACGIH</strong></td>
</tr>
<tr>
<td>Nitric oxide (10102-43-9)</td>
<td>Not established</td>
</tr>
<tr>
<td>TWAs</td>
<td>25 ppm TWA</td>
</tr>
<tr>
<td></td>
<td>25 ppm TWA; 30 mg/m3 TWA</td>
</tr>
<tr>
<td></td>
<td>25 ppm TWAEV; 31 mg/m3 TWAEV</td>
</tr>
<tr>
<td></td>
<td>15 mg/m3 TWA</td>
</tr>
<tr>
<td></td>
<td>25 ppm TWA [VME]; 30 mg/m3 TWA [VME]</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Result</th>
<th>Germany DFG</th>
<th>Ireland</th>
<th>Israel</th>
<th>NIOSH</th>
<th>OSHA</th>
</tr>
</thead>
<tbody>
<tr>
<td>STELs</td>
<td>Not established</td>
<td>35 ppm STEL; 45 mg/m3 STEL</td>
<td>Not established</td>
<td>Not established</td>
<td>Not established</td>
</tr>
<tr>
<td>TWAs</td>
<td>Not established</td>
<td>25 ppm TWA; 30 mg/m3 TWA</td>
<td>25 ppm TWA</td>
<td>25 ppm TWA; 30 mg/m3 TWA</td>
<td>25 ppm TWA; 30 mg/m3 TWA</td>
</tr>
<tr>
<td>Ceilings</td>
<td>1 ppm Peak; 1.26 mg/m3 Peak</td>
<td>Not established</td>
<td>Not established</td>
<td>Not established</td>
<td>Not established</td>
</tr>
<tr>
<td>MAKs</td>
<td>0.5 ppm TWA MAK; 0.63 mg/m3 TWA MAK</td>
<td>Not established</td>
<td>Not established</td>
<td>Not established</td>
<td>Not established</td>
</tr>
</tbody>
</table>
### Exposure Limits/Guidelines (Con’t.)

<table>
<thead>
<tr>
<th>Result</th>
<th>OSHA Vacated</th>
<th>Portugal</th>
<th>Spain</th>
<th>Sweden</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nitric oxide (10102-43-9)</td>
<td>TWAs 25 ppm TWA; 30 mg/m³ TWA</td>
<td>25 ppm TWA [VLE-MP]</td>
<td>25 ppm TWA [VLA-ED]; 31 mg/m³ TWA [VLA-ED]</td>
<td>25 ppm LLV; 30 mg/m³ LLV</td>
</tr>
<tr>
<td>STELs</td>
<td>Not established</td>
<td>Not established</td>
<td>Not established</td>
<td>50 ppm STV; 60 mg/m³ STV</td>
</tr>
</tbody>
</table>

### Exposure Control Notations

**Portugal**
- 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**
- Nitric oxide (10102-43-9): **Pregnancy:** (classification not yet possible)

#### 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 engineering controls to maintain airborne levels below recommended exposure limits. If exposure limits have not been established, maintain airborne levels to an acceptable level.

**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.
  - Wear safety glasses.
  - 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

- **LLV** = Limit Level Value is the exposure limit for 8-hour work day
- **STEL** = Short Term Exposure Limits are based on 15-minute exposures
- **MAK** = Maximale Arbeitsplatz Konzentration is the maximum permissible concentration
- **NIOSH** = National Institute of Occupational Safety and Health
- **OSHA** = Occupational Safety and Health Administration
- **TWA** = Time-Weighted Averages are based on 8h/day, 40h/week
- **TWAEV** = Time-Weighted Average Exposure Value

---

### Section 9 - Physical and Chemical Properties

#### 9.1 Information on Physical and Chemical Properties

| Material Description | Physical Form | Appearance/Description | Colorless gas with an irritating odor.
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Color</strong></td>
<td>Colorless</td>
<td>Odor</td>
<td>Irritating</td>
</tr>
<tr>
<td><strong>Odor Threshold</strong></td>
<td>Data lacking</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>General Properties</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Boiling Point</strong></td>
<td>-195.8 C(-320.44 F) (Nitrogen)</td>
<td>Melting Point</td>
<td>-210 C(-346 F) (Nitrogen)</td>
</tr>
</tbody>
</table>

Preparation Date: 17/October/2014
Revision Date: 17/October/2014
Non-Flammable Gas Mixture Containing The following Component In a Nitrogen Balance Gas: Nitric Oxide: 0.0005-0.02 %

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Decomposition Temperature</td>
<td>Data lacking</td>
</tr>
<tr>
<td>pH</td>
<td>Data lacking</td>
</tr>
<tr>
<td>Specific Gravity/Relative Density</td>
<td>0.906 Water=1 (Nitrogen)</td>
</tr>
<tr>
<td>Water Solubility</td>
<td>Data lacking</td>
</tr>
<tr>
<td>Viscosity</td>
<td>Data lacking</td>
</tr>
<tr>
<td>Explosive Properties</td>
<td>Data lacking</td>
</tr>
<tr>
<td>Oxidizing Properties</td>
<td>Data lacking</td>
</tr>
<tr>
<td>Volatility</td>
<td>Data lacking</td>
</tr>
<tr>
<td>Vapor Pressure</td>
<td>Data lacking</td>
</tr>
<tr>
<td>Evaporation Rate</td>
<td>Data lacking</td>
</tr>
<tr>
<td>Flammability</td>
<td></td>
</tr>
<tr>
<td>Flash Point</td>
<td>Data lacking</td>
</tr>
<tr>
<td>UEL</td>
<td>Data lacking</td>
</tr>
<tr>
<td>LEL</td>
<td>Data lacking</td>
</tr>
<tr>
<td>Autoignition</td>
<td>Data lacking</td>
</tr>
<tr>
<td>Flammability (solid, gas)</td>
<td>Data lacking</td>
</tr>
<tr>
<td>Environmental</td>
<td></td>
</tr>
<tr>
<td>Octanol/Water Partition coefficient</td>
<td>Data lacking</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
- Nitrogen reacts with Li, Nd, and Ti at high temperatures.

#### 10.6 Hazardous decomposition products
- Nitric Oxide will react with water or moist air to form nitrogen dioxide and other oxides of nitrogen. Nitric Oxide can produce brownish Nitrogen Dioxide after reaction with oxygen.

### Section 11 - Toxicological Information

#### 11.1 Information on toxicological effects

<table>
<thead>
<tr>
<th>Components</th>
<th>Acute Toxicity: Inhalation-Rat LC50 • 160 mg/m³; Mutagen: Mutation in Mammalian Somatic Cells • Inhalation-Rat • 27 ppm 3 Hour(s)-Continuous</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nitric oxide (0.0005% TO 0.02%)</td>
<td>10102-43-9</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>GHS Properties</th>
<th>Classification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acute toxicity</td>
<td>EU/CLP ● Classification criteria not met</td>
</tr>
<tr>
<td></td>
<td>OSHA HCS 2012 ● Classification criteria not met</td>
</tr>
</tbody>
</table>
Non-Flammable Gas Mixture Containing The following Component In a Nitrogen Balance Gas: Nitric Oxide: 0.0005-0.02 %

<table>
<thead>
<tr>
<th>Potential Health Effects</th>
<th>Inhalation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aspiration Hazard</td>
<td>EU/CLP • Classification criteria not met</td>
</tr>
<tr>
<td>OSHA HCS 2012 • Classification criteria not met</td>
<td></td>
</tr>
<tr>
<td>Carcinogenicity</td>
<td>EU/CLP • Classification criteria not met</td>
</tr>
<tr>
<td>OSHA HCS 2012 • Classification criteria not met</td>
<td></td>
</tr>
<tr>
<td>Germ Cell Mutagenicity</td>
<td>EU/CLP • Classification criteria not met</td>
</tr>
<tr>
<td>OSHA HCS 2012 • Classification criteria not met</td>
<td></td>
</tr>
<tr>
<td>Skin corrosion/Irritation</td>
<td>EU/CLP • Classification criteria not met</td>
</tr>
<tr>
<td>OSHA HCS 2012 • Classification criteria not met</td>
<td></td>
</tr>
<tr>
<td>Skin sensitization</td>
<td>EU/CLP • Classification criteria not met</td>
</tr>
<tr>
<td>OSHA HCS 2012 • Classification criteria not met</td>
<td></td>
</tr>
<tr>
<td>STOT-RE</td>
<td>EU/CLP • Classification criteria not met</td>
</tr>
<tr>
<td>OSHA HCS 2012 • Classification criteria not met</td>
<td></td>
</tr>
<tr>
<td>STOT-SE</td>
<td>EU/CLP • Classification criteria not met</td>
</tr>
<tr>
<td>OSHA HCS 2012 • Classification criteria not met</td>
<td></td>
</tr>
<tr>
<td>Toxicity for Reproduction</td>
<td>EU/CLP • Classification criteria not met</td>
</tr>
<tr>
<td>OSHA HCS 2012 • Classification criteria not met</td>
<td></td>
</tr>
<tr>
<td>Respiratory sensitization</td>
<td>EU/CLP • Classification criteria not met</td>
</tr>
<tr>
<td>OSHA HCS 2012 • Classification criteria not met</td>
<td></td>
</tr>
<tr>
<td>Serious eye damage/Irritation</td>
<td>EU/CLP • Classification criteria not met</td>
</tr>
<tr>
<td>OSHA HCS 2012 • Classification criteria not met</td>
<td></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
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>14.1 UN number</th>
<th>14.2 UN proper shipping name</th>
<th>14.3 Transport hazard class(es)</th>
<th>14.4 Packing group</th>
<th>14.5 Environmental hazards</th>
</tr>
</thead>
<tbody>
<tr>
<td>DOT UN1956</td>
<td>Compressed gas, n.o.s (Nitric Oxide, Nitrogen)</td>
<td>2.2</td>
<td>NDA</td>
<td>NDA</td>
</tr>
<tr>
<td>TDG UN1956</td>
<td>COMPRESSED GAS, N.O.S. (Nitric Oxide, Nitrogen)</td>
<td>2.2</td>
<td>NDA</td>
<td>Potential Marine Pollutant</td>
</tr>
<tr>
<td>IMO/IMDG UN1956</td>
<td>COMPRESSED GASES, N.O.S., (Nitric Oxide, Nitrogen)</td>
<td>2.2</td>
<td>NDA</td>
<td>NDA</td>
</tr>
<tr>
<td>IATA/ICAO UN1956</td>
<td>Compressed gases, n.o.s. (Nitric Oxide, Nitrogen)</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 Code

- Not relevant.

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>Nitrogen</td>
<td>7727-37-9</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Nitric oxide</td>
<td>10102-43-9</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
</tbody>
</table>

**Inventory**

<table>
<thead>
<tr>
<th>Component</th>
<th>CAS</th>
<th>Canada DSL</th>
<th>Canada NDSL</th>
<th>China</th>
<th>EU EINECS</th>
<th>EU ELNICS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nitrogen</td>
<td>7727-37-9</td>
<td>Yes</td>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>Nitric oxide</td>
<td>10102-43-9</td>
<td>Yes</td>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
</tr>
</tbody>
</table>

**Inventory (Con't.)**

<table>
<thead>
<tr>
<th>Component</th>
<th>CAS</th>
<th>TSCA</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nitrogen</td>
<td>7727-37-9</td>
<td>Yes</td>
</tr>
<tr>
<td>Nitric oxide</td>
<td>10102-43-9</td>
<td>Yes</td>
</tr>
</tbody>
</table>

**Canada**

**Labor**

Canada - WHMIS - Classifications of Substances
- Nitric oxide 10102-43-9 A, C, D1A, E
- Nitrogen 7727-37-9 A

Canada - WHMIS - Ingredient Disclosure List
- Nitric oxide 10102-43-9 1 %
- Nitrogen 7727-37-9 Not Listed

**Environment**

Canada - CEPA - Priority Substances List
- Nitric oxide 10102-43-9 Not Listed
- Nitrogen 7727-37-9 Not Listed

**China**

**Environment**

China - Ozone Depleting Substances - First Schedule
- Nitric oxide 10102-43-9 Not Listed
- Nitrogen 7727-37-9 Not Listed

China - Ozone Depleting Substances - Second Schedule
- Nitric oxide 10102-43-9 Not Listed
- Nitrogen 7727-37-9 Not Listed

China - Ozone Depleting Substances - Third Schedule
- Nitric oxide 10102-43-9 Not Listed
- Nitrogen 7727-37-9 Not Listed

**Other**

China - Annex I & II - Controlled Chemicals Lists
- Nitric oxide 10102-43-9 Not Listed
### Non-Flammable Gas Mixture Containing The following Component In a Nitrogen Balance Gas: Nitric Oxide: 0.0005-0.02%

<table>
<thead>
<tr>
<th>Component</th>
<th>CAS Number</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nitric oxide</td>
<td>10102-43-9</td>
<td>(compressed or refrigerated liquid)</td>
</tr>
<tr>
<td>Nitrogen</td>
<td>7727-37-9</td>
<td>Not Listed</td>
</tr>
</tbody>
</table>

### China - Dangerous Goods List
- Nitric oxide
- Nitrogen

### China - Export Control List - Part I Chemicals
- Nitric oxide
- Nitrogen

### Europe

#### Other

**EU - CLP (1272/2008) - Annex VI - Table 3.2 - Classification**
- Nitric oxide: 10102-43-9 Not Listed
- Nitrogen: 7727-37-9 Not Listed

**EU - CLP (1272/2008) - Annex VI - Table 3.2 - Concentration Limits**
- Nitric oxide: 10102-43-9 Not Listed
- Nitrogen: 7727-37-9 Not Listed

**EU - CLP (1272/2008) - Annex VI - Table 3.2 - Labelling**
- Nitric oxide: 10102-43-9 Not Listed
- Nitrogen: 7727-37-9 Not Listed

**EU - CLP (1272/2008) - Annex VI - Table 3.2 - Notes - Substances and Preparations**
- Nitric oxide: 10102-43-9 Not Listed
- Nitrogen: 7727-37-9 Not Listed

**EU - CLP (1272/2008) - Annex VI - Table 3.2 - Safety Phrases**
- Nitric oxide: 10102-43-9 Not Listed
- Nitrogen: 7727-37-9 Not Listed

### Germany

#### Environment

**Germany - TA Luft - Types and Classes**
- Nitric oxide: 10102-43-9 Not Listed
- Nitrogen: 7727-37-9 Not Listed

**Germany - Water Classification (VwVwS) - Annex 1**
- Nitric oxide: 10102-43-9 Not Listed
- Nitrogen: 7727-37-9 ID Number 1351, not considered hazardous to water

**Germany - Water Classification (VwVwS) - Annex 2 - Water Hazard Classes**
- Nitric oxide: 10102-43-9 ID Number 285, hazard class 1 - low hazard to waters
- Nitrogen: 7727-37-9 Not Listed

**Germany - Water Classification (VwVwS) - Annex 3**
- Nitric oxide: 10102-43-9 Not Listed
- Nitrogen: 7727-37-9 Not Listed
### Other

#### Germany - Specifically Regulated Chemicals in TRGS
- Nitric oxide: 10102-43-9, Not Listed
- Nitrogen: 7727-37-9, Not Listed

#### Portugal

#### Other
- Portugal - Prohibited Substances
  - Nitric oxide: 10102-43-9, Not Listed
  - Nitrogen: 7727-37-9, Not Listed

#### United Kingdom

#### Environment
- United Kingdom - Pollution Inventory - Schedule 1 - Thresholds for Releases to Air
  - Nitric oxide: 10102-43-9, Not Listed
  - Nitrogen: 7727-37-9, Not Listed

#### Other
- United Kingdom - Workplace Exposure Limits (WELs) - Substances in Review
  - Nitric oxide: 10102-43-9, Not Listed
  - Nitrogen: 7727-37-9, Not Listed
- United Kingdom - List of Dangerous Substances in Water
  - Nitric oxide: 10102-43-9, Not Listed
  - Nitrogen: 7727-37-9, Not Listed

#### United States

#### Labor
- U.S. - OSHA - Process Safety Management - Highly Hazardous Chemicals
  - Nitric oxide: 10102-43-9, 250 lb TQ
  - Nitrogen: 7727-37-9, Not Listed
- U.S. - OSHA - Specifically Regulated Chemicals
  - Nitric oxide: 10102-43-9, Not Listed
  - Nitrogen: 7727-37-9, Not Listed

#### U.S. - CAA (Clean Air Act) - 1990 Hazardous Air Pollutants
- Nitric oxide: 10102-43-9, Not Listed
- Nitrogen: 7727-37-9, Not Listed

#### U.S. - CERCLA/SARA - Hazardous Substances and their Reportable Quantities
- Nitric oxide: 10102-43-9
  - 10 lb final RQ (releases to the air in amounts <1000 pounds per 24 hours which are the result of combustion and combustion-related activities are exempt from the notification requirements per 40 CFR 302.6); 4.54 kg final RQ (releases to the air in amounts <1000 pounds per 24 hours which are the result of
Non-Flammable Gas Mixture Containing The following Component In a Nitrogen Balance Gas: Nitric Oxide: 0.0005-0.02 %

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Nitrogen</td>
<td>7727-37-9</td>
<td>Not Listed</td>
<td>7727-37-9</td>
<td>Not Listed</td>
<td>7727-37-9</td>
<td>Not Listed</td>
<td>7727-37-9</td>
<td>Not Listed</td>
</tr>
<tr>
<td>Nitric oxide</td>
<td>10102-43-9</td>
<td>Not Listed</td>
<td>10102-43-9</td>
<td>10 lb EPCRA RQ (Releases to the air in amounts &lt;1000 pounds per 24 hours which are the result of combustion and combustion-related activities are exempt from the notification requirements per 40 CFR 355.31)</td>
<td>10 lb EPCRA RQ (Releases to the air in amounts &lt;1000 pounds per 24 hours which are the result of combustion and combustion-related activities are exempt from the notification requirements per 40 CFR 355.31)</td>
<td>10 lb EPCRA RQ (Releases to the air in amounts &lt;1000 pounds per 24 hours which are the result of combustion and combustion-related activities are exempt from the notification requirements per 40 CFR 355.31)</td>
<td>10 lb EPCRA RQ (Releases to the air in amounts &lt;1000 pounds per 24 hours which are the result of combustion and combustion-related activities are exempt from the notification requirements per 40 CFR 355.31)</td>
<td>10 lb EPCRA RQ (Releases to the air in amounts &lt;1000 pounds per 24 hours which are the result of combustion and combustion-related activities are exempt from the notification requirements per 40 CFR 355.31)</td>
</tr>
<tr>
<td>Nitrogen</td>
<td>7727-37-9</td>
<td>Not Listed</td>
<td>7727-37-9</td>
<td>Not Listed</td>
<td>7727-37-9</td>
<td>Not Listed</td>
<td>7727-37-9</td>
<td>Not Listed</td>
</tr>
</tbody>
</table>

United States - California

Environment

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Nitric oxide</td>
<td>10102-43-9</td>
<td>10102-43-9</td>
<td>10102-43-9</td>
</tr>
<tr>
<td>Nitric oxide</td>
<td>10102-43-9</td>
<td>10102-43-9</td>
<td>10102-43-9</td>
</tr>
<tr>
<td>Nitric oxide</td>
<td>10102-43-9</td>
<td>10102-43-9</td>
<td>10102-43-9</td>
</tr>
</tbody>
</table>
Non-Flammable Gas Mixture Containing The following Component In a Nitrogen Balance Gas: Nitric Oxide: 0.0005-0.02 %

<table>
<thead>
<tr>
<th>U.S. - California - Proposition 65 - No Significant Risk Levels (NSRL)</th>
<th>10102-43-9</th>
<th>Not Listed</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Nitric oxide</td>
<td>10102-43-9</td>
<td>Not Listed</td>
</tr>
<tr>
<td>• Nitrogen</td>
<td>7727-37-9</td>
<td>Not Listed</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>U.S. - California - Proposition 65 - Reproductive Toxicity - Female</th>
<th>10102-43-9</th>
<th>Not Listed</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Nitric oxide</td>
<td>10102-43-9</td>
<td>Not Listed</td>
</tr>
<tr>
<td>• Nitrogen</td>
<td>7727-37-9</td>
<td>Not Listed</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>U.S. - California - Proposition 65 - Reproductive Toxicity - Male</th>
<th>10102-43-9</th>
<th>Not Listed</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Nitric oxide</td>
<td>10102-43-9</td>
<td>Not Listed</td>
</tr>
<tr>
<td>• Nitrogen</td>
<td>7727-37-9</td>
<td>Not Listed</td>
</tr>
</tbody>
</table>

United States - Pennsylvania

<table>
<thead>
<tr>
<th>Labor</th>
<th>10102-43-9</th>
<th>Not Listed</th>
</tr>
</thead>
<tbody>
<tr>
<td>U.S. - Pennsylvania - RTK (Right to Know) - Environmental Hazard List</td>
<td>10102-43-9</td>
<td>Not Listed</td>
</tr>
<tr>
<td>• Nitric oxide</td>
<td>10102-43-9</td>
<td>Not Listed</td>
</tr>
<tr>
<td>• Nitrogen</td>
<td>7727-37-9</td>
<td>Not Listed</td>
</tr>
</tbody>
</table>

| U.S. - Pennsylvania - RTK (Right to Know) - Special Hazardous Substances | 10102-43-9 | Not Listed |
|• Nitric oxide                                                         | 10102-43-9 | Not Listed |
|• Nitrogen                                                             | 7727-37-9  | Not Listed |

15.2 Chemical Safety Assessment

- No Chemical Safety Assessment has been carried out.

Section 16 - Other Information

Relevant Phrases (code & full text)

- H314 - Causes severe skin burns and eye damage.
- H318 - Causes serious eye damage
- H370 - Causes damage to organs.
- R8 - Contact with combustible material may cause fire.
- R34 - Causes burns.

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