SECTION 1. Product and company identification

1.1. Product identifier
- Product form: Mixture
- Name: NI - Butyl mercaptan 0.00001 ppm - 1%
- Other means of identification: Mixture of Butyl mercaptan and Nitrogen

1.2. Relevant identified uses of the substance or mixture and uses advised against
- Use of the substance/mixture: Industrial use. Use as directed.

1.3. Details of the supplier of the safety data sheet
- Praxair, Inc.
  10 Riverview Drive
  Danbury, CT 06810-6268 - USA
  T 1-800-772-9247 (1-800-PRAXAIR) - F 1-716-879-2146
  www.praxair.com

1.4. Emergency telephone number
- Emergency number: Onsite Emergency: 1-800-645-4633

CHEMTREC, 24 hr/day 7 days/week
— Within USA: 1-800-424-9300, Outside USA: 001-703-527-3887
(collect calls accepted, Contract 17729)

SECTION 2: Hazard identification

2.1. Classification of the substance or mixture
- GHS-US classification
  Compressed gas
  H280

2.2. Label elements
- GHS-US labelling
  Hazard pictograms (GHS-US): GHS04

  Signal word (GHS-US): WARNING
  Hazard statements (GHS-US): H280 - CONTAINS GAS UNDER PRESSURE; MAY EXPLODE IF HEATED
  OSHA-H01 - MAY DISPLACE OXYGEN AND CAUSE RAPID SUFFOCATION
  Precautionary statements (GHS-US): P271+P403 - Use and store only outdoors or in a well-ventilated place
  CGA-PG02 - Protect from sunlight when ambient temperature exceeds 52°C (125°F)

2.3. Other hazards
- Other hazards not contributing to the classification: Asphyxiant in high concentrations.

2.4. Unknown acute toxicity (GHS US)
- No data available

SECTION 3: Composition/information on ingredients

3.1. Substance
- Not applicable

3.2. Mixture
- Not applicable

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SECTION 4: First aid measures

4.1. Description of first aid measures

First-aid measures after inhalation: Remove to fresh air and keep at rest in a position comfortable for breathing. If not breathing, give artificial respiration. If breathing is difficult, trained personnel should give oxygen. Call a physician.

First-aid measures after eye contact: Immediately flush eyes thoroughly with water for at least 15 minutes. Hold the eyelids open and away from the eyeballs to ensure that all surfaces are flushed thoroughly. Contact an ophthalmologist immediately.

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

No additional information available

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

None.

SECTION 5: Firefighting measures

5.1. Extinguishing media

Suitable extinguishing media: Use extinguishing media appropriate for surrounding fire.

5.2. Special hazards arising from the substance or mixture

Reactivity: No reactivity hazard other than the effects described in sub-sections below.

5.3. Advice for firefighters

Firefighting instructions: Evacuate all personnel from the danger area. Use self-contained breathing apparatus (SCBA) and protective clothing. Immediately cool containers with water from maximum distance. Stop flow of gas if safe to do so, while continuing cooling water spray. Remove ignition sources if safe to do so. Remove containers from area of fire if safe to do so. On-site fire brigades must comply with OSHA 29 CFR 1910.156 and applicable standards (e.g. 29 CFR 1910 Subpart L—Fire Protection in the U.S.).

Protection during firefighting: Compressed gas: asphyxiant. Suffocation hazard by lack of oxygen.

Special protective equipment for fire fighters: Standard protective clothing and equipment (Self Contained Breathing Apparatus) for fire fighters.

Other information: Containers are equipped with a pressure relief device. (Exceptions may exist where authorized.).

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

6.1.1. For non-emergency personnel

No additional information available

6.1.2. For emergency responders

No additional information available

6.2. Environmental precautions

Prevent waste from contaminating the surrounding environment. Prevent soil and water pollution. Dispose of contents/container in accordance with local/regional/national/international regulations. Contact supplier for any special requirements.

6.3. Methods and material for containment and cleaning up

No additional information available

6.4. Reference to other sections

See also sections 8 and 13.
SECTION 7: Handling and storage

7.1. Precautions for safe handling

Precautions for safe handling: Wear leather safety gloves and safety shoes when handling cylinders. Protect cylinders from physical damage; do not drag, roll, slide or drop. While moving cylinder, always keep in place removable valve cover. Never attempt to lift a cylinder by its cap; the cap is intended solely to protect the valve. When moving cylinders, even for short distances, use a cart (trolley, hand truck, etc.) designed to transport cylinders. Never insert an object (e.g., wrench, screwdriver, pry bar) into cap openings; doing so may damage the valve and cause a leak. Use an adjustable strap wrench to remove over-tight or rusted caps. Slowly open the valve. If the valve is hard to open, discontinue use and contact your supplier. Close the container valve after each use; keep closed even when empty. Never apply flame or localized heat directly to any part of the container. High temperatures may damage the container and could cause the pressure relief device to fail prematurely, venting the container contents. For other precautions in using this product, see section 16.

7.2. Conditions for safe storage, including any incompatibilities

Storage conditions: Store in a cool, well-ventilated place. Store and use with adequate ventilation. Store only where temperature will not exceed 125°F (52°C). Firmly secure containers upright to keep them from falling or being knocked over. Install valve protection cap, if provided, firmly in place by hand. Store full and empty containers separately. Use a first-in, first-out inventory system to prevent storing full containers for long periods.

OTHER PRECAUTIONS FOR HANDLING, STORAGE, AND USE: When handling product under pressure, use piping and equipment adequately designed to withstand the pressures to be encountered. Never work on a pressurized system. Use a back flow preventive device in the piping. Gases can cause rapid suffocation because of oxygen deficiency; store and use with adequate ventilation. If a leak occurs, close the container valve and blow down the system in a safe and environmentally correct manner in compliance with all international, federal/national, state/provincial, and local laws; then repair the leak. Never place a container where it may become part of an electrical circuit.

7.3. Specific end use(s)

None.

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

<table>
<thead>
<tr>
<th></th>
<th>ACGIH</th>
<th>ACGIH TLV-TWA (ppm)</th>
<th>USA OSHA</th>
<th>USA OSHA PEL (TWA) (mg/m³)</th>
<th>USA OSHA PEL (TWA) (ppm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>n-Butyl mercaptan (109-79-5)</td>
<td></td>
<td>0.5 ppm</td>
<td></td>
<td>35 mg/m³</td>
<td>10 ppm</td>
</tr>
<tr>
<td>ACGIH</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>USA OSHA</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Nitrogen (7727-37-9)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ACGIH</td>
<td></td>
<td>Not established</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>USA OSHA</td>
<td></td>
<td>Not established</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

8.2. Exposure controls

Appropriate engineering controls: Provide adequate general and local exhaust ventilation. Ensure exposure is below occupational exposure limits (where available).

Eye protection: Wear safety glasses with side shields.

Skin and body protection: Wear metatarsal shoes and work gloves for cylinder handling, and protective clothing where needed. Wear appropriate chemical gloves during cylinder changeout or wherever contact with product is possible.

Respiratory protection: When workplace conditions warrant respirator use, follow a respiratory protection program that meets OSHA 29 CFR 1910.134, ANSI Z88.2, or MSHA 30 CFR 72.710 (where applicable). Use an air-supplied or air-purifying cartridge if the action level is exceeded. Ensure that the respirator has the appropriate protection factor for the exposure level. If cartridge type respirators are used, the cartridge must be appropriate for the chemical exposure. For emergencies or instances with unknown exposure levels, use a self-contained breathing apparatus (SCBA).

Thermal hazard protection: Wear cold insulating gloves when transfilling or breaking transfer connections.
## SECTION 9: Physical and chemical properties

### 9.1. Information on basic physical and chemical properties

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Physical state</td>
<td>Gas</td>
</tr>
<tr>
<td>Colour</td>
<td>Colourless</td>
</tr>
<tr>
<td>Odour</td>
<td>No data available</td>
</tr>
<tr>
<td>Odour threshold</td>
<td>No data available</td>
</tr>
<tr>
<td>pH</td>
<td>Not applicable.</td>
</tr>
<tr>
<td>Relative evaporation rate (butylacetate=1)</td>
<td>No data available</td>
</tr>
<tr>
<td>Relative evaporation rate (ether=1)</td>
<td>Not applicable.</td>
</tr>
<tr>
<td>Melting point</td>
<td>No data available</td>
</tr>
<tr>
<td>Freezing point</td>
<td>No data available</td>
</tr>
<tr>
<td>Boiling point</td>
<td>No data available</td>
</tr>
<tr>
<td>Flash point</td>
<td>No data available</td>
</tr>
<tr>
<td>Auto-ignition temperature</td>
<td>No data available</td>
</tr>
<tr>
<td>Decomposition temperature</td>
<td>No data available</td>
</tr>
<tr>
<td>Flammability (solid, gas)</td>
<td>No data available</td>
</tr>
<tr>
<td>Vapour pressure</td>
<td>Not applicable.</td>
</tr>
<tr>
<td>Relative vapour density at 20 °C</td>
<td>No data available</td>
</tr>
<tr>
<td>Relative density</td>
<td>No data available</td>
</tr>
<tr>
<td>Solubility</td>
<td>Water: No data available</td>
</tr>
<tr>
<td>Log Pow</td>
<td>Not applicable.</td>
</tr>
<tr>
<td>Log Kow</td>
<td>Not applicable.</td>
</tr>
<tr>
<td>Viscosity, kinematic</td>
<td>Not applicable.</td>
</tr>
<tr>
<td>Viscosity, dynamic</td>
<td>Not applicable.</td>
</tr>
<tr>
<td>Explosive properties</td>
<td>Not applicable.</td>
</tr>
<tr>
<td>Oxidizing properties</td>
<td>None.</td>
</tr>
<tr>
<td>Explosive limits</td>
<td>No data available</td>
</tr>
</tbody>
</table>

### 9.2. Other information

No additional information available

## SECTION 10: Stability and reactivity

### 10.1. Reactivity

No reactivity hazard other than the effects described in sub-sections below.

### 10.2. Chemical stability

Stable under normal conditions.

### 10.3. Possibility of hazardous reactions

No additional information available

### 10.4. Conditions to avoid

No additional information available

### 10.5. Incompatible materials

No additional information available

### 10.6. Hazardous decomposition products

No additional information available

## SECTION 11: Toxicological information

### 11.1. Information on toxicological effects

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acute toxicity</td>
<td>Not classified</td>
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</tbody>
</table>
n-Butyl mercaptan (109-79-5)

<table>
<thead>
<tr>
<th>LD50 oral rat</th>
<th>1500 mg/kg</th>
</tr>
</thead>
<tbody>
<tr>
<td>LD50 dermal rabbit</td>
<td>&gt; 34600 mg/kg</td>
</tr>
<tr>
<td>LC50 inhalation rat (ppm)</td>
<td>4020 ppm/4h</td>
</tr>
<tr>
<td>ATE US (oral)</td>
<td>1500.000 mg/kg bodyweight</td>
</tr>
<tr>
<td>ATE US (gases)</td>
<td>4020.000 ppmv/4h</td>
</tr>
</tbody>
</table>

Skin corrosion/irritation: Not classified
Serious eye damage/irritation: Not classified
Respiratory or skin sensitisation: Not classified
Germ cell mutagenicity: Not classified
Reproductive toxicity: Not classified
Specific target organ toxicity (single exposure): Not classified
Specific target organ toxicity (repeated exposure): Not classified
Aspiration hazard: Not classified

SECTION 12: Ecological information

12.1. Toxicity
No additional information available

12.2. Persistence and degradability

**NI - Butyl mercaptan 0.00001 ppm - 1%**
Persistence and degradability: No ecological damage caused by this product.

**Nitrogen (7727-37-9)**
Persistence and degradability: No ecological damage caused by this product.

12.3. Bioaccumulative potential

**NI - Butyl mercaptan 0.00001 ppm - 1%**
Log Pow: Not applicable.
Log Kow: Not applicable.
Bioaccumulative potential: No ecological damage caused by this product.

**n-Butyl mercaptan (109-79-5)**
Log Pow: 2.28

**Nitrogen (7727-37-9)**
Log Pow: Not applicable for inorganic gases.
Log Kow: Not applicable.
Bioaccumulative potential: No ecological damage caused by this product.

12.4. Mobility in soil

**NI - Butyl mercaptan 0.00001 ppm - 1%**
Mobility in soil: No data available.

**Nitrogen (7727-37-9)**
Mobility in soil: No data available.
Ecology - soil: No ecological damage caused by this product.

12.5. Other adverse effects

Effect on the ozone layer: None
SECTION 13: Disposal considerations

13.1. Waste treatment methods

Waste disposal recommendations: Dispose of contents/container in accordance with local/regional/national/international regulations. Contact supplier for any special requirements.

SECTION 14: Transport information

In accordance with DOT

Transport document description: UN1956 Compressed gas, n.o.s., 2.2
UN-No.(DOT): UN1956
Proper Shipping Name (DOT): Compressed gas, n.o.s.
Hazard labels (DOT): 2.2 - Non-flammable gas

DOT Symbols: G - Identifies proper shipping name (PSN) requiring the addition of technical name(s) in parentheses following the PSN

Additional information

Other information: No supplementary information available.
Special transport precautions: Avoid transport on vehicles where the load space is not separated from the driver's compartment. Ensure vehicle driver is aware of the potential hazards of the load and knows what to do in the event of an accident or an emergency. Before transporting product containers:
- Ensure there is adequate ventilation.
- Ensure that containers are firmly secured.
- Ensure cylinder valve is closed and not leaking.
- Ensure valve outlet cap nut or plug (where provided) is correctly fitted.
- Ensure valve protection device (where provided) is correctly fitted.

Transport by sea

UN-No. (IMDG): 1956
Proper Shipping Name (IMDG): COMPRESSED GAS, N.O.S.
Class (IMDG): 2.2 - Non-flammable, non-toxic gases

Air transport

UN-No. (IATA): 1956
Proper Shipping Name (IATA): COMPRESSED GAS, N.O.S.
Class (IATA): 2

SECTION 15: Regulatory information

15.1. US Federal regulations

No additional information available

15.2. International regulations

CANADA

n-Butyl mercaptan (109-79-5)
Listed on the Canadian DSL (Domestic Substances List)

Nitrogen (7727-37-9)
Listed on the Canadian DSL (Domestic Substances List)

EU-Regulations
### 15.2.2. National regulations

No additional information available

### 15.3. US State regulations

#### Butyl mercaptan 0.00001 ppm - 1%

<table>
<thead>
<tr>
<th>State/Proposition</th>
<th>Carcinogens List</th>
<th>Developmental Toxicity</th>
<th>Reproductive Toxicity - Female</th>
<th>Reproductive Toxicity - Male</th>
</tr>
</thead>
<tbody>
<tr>
<td>U.S. - California</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>U.S. - California</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
</tr>
</tbody>
</table>

#### n-Butyl mercaptan (109-79-5)

<table>
<thead>
<tr>
<th>State/Proposition</th>
<th>Carcinogens List</th>
<th>Developmental Toxicity</th>
<th>Reproductive Toxicity - Female</th>
<th>Reproductive Toxicity - Male</th>
</tr>
</thead>
<tbody>
<tr>
<td>U.S. - California</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>U.S. - California</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
</tr>
</tbody>
</table>

#### Nitrogen (7727-37-9)

<table>
<thead>
<tr>
<th>State/Proposition</th>
<th>Carcinogens List</th>
<th>Developmental Toxicity</th>
<th>Reproductive Toxicity - Female</th>
<th>Reproductive Toxicity - Male</th>
</tr>
</thead>
<tbody>
<tr>
<td>U.S. - California</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>U.S. - California</td>
<td>No</td>
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<td>No</td>
</tr>
</tbody>
</table>

#### n-Butyl mercaptan (109-79-5)

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

#### Nitrogen (7727-37-9)

<table>
<thead>
<tr>
<th>State/Proposition</th>
<th>Right To Know List</th>
<th>Right to Know Hazardous Substance List</th>
<th>RTK (Right to Know) List</th>
</tr>
</thead>
<tbody>
<tr>
<td>U.S. - Massachusetts</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>U.S. - New Jersey</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>U.S. - Pennsylvania</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
</tbody>
</table>
SECTION 16: Other information

When you mix two or more chemicals, you can create additional, unexpected hazards. Obtain and evaluate the safety information for each component before you produce the mixture. Consult an industrial hygienist or other trained person when you evaluate the end product. Before using any plastics, confirm their compatibility with this product.

Praxair asks users of this product to study this SDS and become aware of the product hazards and safety information. To promote safe use of this product, a user should (1) notify employees, agents, and contractors of the information in this SDS and of any other known product hazards and safety information, (2) furnish this information to each purchaser of the product, and (3) ask each purchaser to notify its employees and customers of the product hazards and safety information.

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SDS US (GHS HazCom 2012) - PDI

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