Safety Data Sheet

Section 1: Identification

Product identifier

Product Name
- n-Butane (1.0%), Ethane (1.%), Isobutane (1.0%), Methane (1.0%), Propane (1.0%) Nitrogen (Balance)

Product Code
- MSDS No. 90061

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

Recommended use
- Calibration Gas

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

Telephone (Technical)
- 713-896-2896

Telephone (Technical)
- 800-819-1704

Emergency telephone number

Manufacturer
- 800-424-9300 - CHEMTREC

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

Section 2: Hazard Identification

United States (US)
According to OSHA 29 CFR 1910.1200 HCS

Classification of the substance or mixture

OSHA HCS 2012
- Compressed Gas - H280
  Simple Asphyxiant

Label elements

OSHA HCS 2012

DANGER

Hazard statements
- Contains gas under pressure; may explode if heated - H280
- May displace oxygen and cause rapid suffocation.

Precautionary statements

Prevention
- In case of inadequate ventilation wear respiratory protection. - P285
Response  
Get medical advice/attention if you feel unwell. - P314

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

Other hazards
OSHA HCS 2012  

Canada
According to WHMIS

Classification of the substance or mixture
WHMIS  
Compressed Gas - A

Label elements
WHMIS  
Compressed Gas - A

Other hazards
WHMIS  
In Canada, the product mentioned above is considered hazardous under the Workplace Hazardous Materials Information System (WHMIS). This material is a simple asphyxiant. May displace or reduce oxygen available for breathing especially in confined spaces.

Section 3 - Composition/Information on Ingredients

Substances  
Material does not meet the criteria of a substance.

Mixtures

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>Identifiers</th>
<th>%(weight)</th>
<th>LD50/LC50</th>
<th>Classifications According to Regulation/Directive</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>n-Butane</td>
<td>CAS:106-97-8</td>
<td>1%</td>
<td>Inhalation-Rat LC50 • 658 g/m³ 4 Hour(s)</td>
<td>OSHA HCS 2012: Flam. Gas 1; Press. Gas - Comp.; Simp. Asphyx.</td>
<td>NDA</td>
</tr>
<tr>
<td>Isobutane</td>
<td>CAS:75-28-5</td>
<td>1%</td>
<td>Inhalation-Rat LC50 • 57 pph 15 Minute(s)</td>
<td>OSHA HCS 2012: Flam. Gas 1; Press. Gas - Comp.; Simp. Asphyx.</td>
<td>NDA</td>
</tr>
</tbody>
</table>
Section 4: First-Aid Measures

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.

**Most important symptoms and effects, both acute and delayed**  
- Refer to Section 11 - Toxicological Information.

**Indication of any immediate medical attention and special treatment needed**  
- 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.

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 over-exposure 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: Fire-Fighting Measures

**Extinguishing media**

**Suitable Extinguishing Media**  
- Use extinguishing agent suitable for type of surrounding fire.

**Unsuitable Extinguishing Media**  
- No data available

**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

**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

Personal precautions, protective equipment and emergency procedures

Personal Precautions
- Avoid breathing gas. Ventilate the area before entry. In case of insufficient ventilation, wear suitable respiratory equipment. Do not touch damaged containers or spilled material unless wearing appropriate protective clothing.

Emergency Procedures
- Evacuate area. Keep unauthorized personnel away. As an immediate precautionary measure, isolate spill or leak area for at least 100 meters (330 feet) in all directions. ELIMINATE all ignition sources (no smoking, flares, sparks or flames in immediate area).

Environmental precautions
- No special environmental precautions necessary.

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.
- Allow substance to evaporate.

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

Section 7 - Handling and Storage

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; exposure 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.

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.

Specific end use(s)
- Refer to Section 1.2 - Relevant identified uses.
## Section 8 - Exposure Controls/Personal Protection

### Control parameters

<table>
<thead>
<tr>
<th></th>
<th>Exposure Limits/Guidelines</th>
<th>ACGIH</th>
<th>Canada Ontario</th>
<th>Canada Quebec</th>
<th>NIOSH</th>
<th>OSHA</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ethane (74-84-0)</td>
<td>TWAs 1000 ppm TWA (listed under Aliphatic hydrocarbon gases: Alkane C1-4)</td>
<td>1000 ppm TWA</td>
<td>Not established</td>
<td>Not established</td>
<td>Not established</td>
<td></td>
</tr>
<tr>
<td>Isobutane (75-28-5)</td>
<td>TWAs 1000 ppm TWA (listed under Aliphatic hydrocarbon gases: Alkane C1-4)</td>
<td>1000 ppm TWA</td>
<td>Not established</td>
<td>800 ppm TWA; 1900 mg/m3 TWA</td>
<td>Not established</td>
<td></td>
</tr>
<tr>
<td>Propane (74-98-6)</td>
<td>TWAs 1000 ppm TWA (listed under Aliphatic hydrocarbon gases: Alkane C1-4)</td>
<td>1000 ppm TWA</td>
<td>1000 ppm TWA; 1800 mg/m3 TWA</td>
<td>1000 ppm TWA; 1800 mg/m3 TWA</td>
<td>1000 ppm TWA; 1800 mg/m3 TWA</td>
<td></td>
</tr>
<tr>
<td>n-Butane (106-97-8)</td>
<td>TWAs 1000 ppm TWA (listed under Aliphatic hydrocarbon gases: Alkane C1-4)</td>
<td>800 ppm TWA (listed under Aliphatic hydrocarbon gases)</td>
<td>800 ppm TWA; 1900 mg/m3 TWA</td>
<td>800 ppm TWA; 1900 mg/m3 TWA</td>
<td>Not established</td>
<td></td>
</tr>
<tr>
<td>Methane (74-82-8)</td>
<td>TWAs 1000 ppm TWA (listed under Aliphatic hydrocarbon gases: Alkane C1-4)</td>
<td>1000 ppm TWA</td>
<td>Not established</td>
<td>Not established</td>
<td>Not established</td>
<td></td>
</tr>
</tbody>
</table>

### Exposure Control Notations

#### Canada Ontario
- Nitrogen (7727-37-9): **Simple Asphyxiants**: (Simple asphyxiant)
- Ethane (74-84-0): **Simple Asphyxiants**: (Simple asphyxiant)
- Nitrogen (7727-37-9): **Simple Asphyxiants**: (Simple asphyxiant)
- Methane (74-82-8): **Simple Asphyxiants**: (Simple asphyxiant)

#### ACGIH
- Nitrogen (7727-37-9): **Simple Asphyxiants**: (Simple asphyxiant)

### Exposure Limits Supplemental

#### ACGIH
- Ethane (74-84-0): **TLV Basis - Critical Effects**: (cardiac sensitization (listed under Aliphatic hydrocarbon gases: Alkanes C1-4); CNS impairment (listed under Aliphatic hydrocarbon gases: Alkanes C1-4))
- Isobutane (75-28-5): **TLV Basis - Critical Effects**: (cardiac sensitization (listed under Aliphatic hydrocarbon gases: Alkanes C1-4); CNS impairment (listed under Aliphatic hydrocarbon gases: Alkanes C1-4)) | **Notice of Intended Changes (TLVs)**: (1000 ppm STEL; TLV basis: CNS impairment (listed under Butane, all isomers))
- Propane (74-98-6): **TLV Basis - Critical Effects**: (cardiac sensitization (listed under Aliphatic hydrocarbon gases: Alkanes C1-4); CNS impairment (listed under Aliphatic hydrocarbon gases: Alkanes C1-4))
- n-Butane (106-97-8): **TLV Basis - Critical Effects**: (cardiac sensitization (listed under Aliphatic hydrocarbon gases: Alkanes C1-4); CNS impairment (listed under Aliphatic hydrocarbon gases: Alkanes C1-4)) | **Notice of Intended Changes (TLVs)**: (1000 ppm STEL; TLV basis: CNS impairment (listed under Butane, all isomers))
- Nitrogen (7727-37-9): **TLV Basis - Critical Effects**: (asphyxia)
- Methane (74-82-8): **TLV Basis - Critical Effects**: (cardiac sensitization (listed under Aliphatic hydrocarbon gases: Alkanes C1-4); CNS impairment (listed under Aliphatic hydrocarbon gases: Alkanes C1-4))

### Exposure controls

#### Engineering
- Good general ventilation should be used. Ventilation rates should be matched to
Measures/Controls

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.

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.

Section 9 - Physical and Chemical Properties

Information on Physical and Chemical Properties

<table>
<thead>
<tr>
<th>Material Description</th>
<th>Gas</th>
<th>Appearance/Description</th>
<th>Colorless gas with a faint disagreeable odor.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Physical Form</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Color</td>
<td>Colorless</td>
<td>Odor</td>
<td>Faint disagreeable odor.</td>
</tr>
<tr>
<td>Odor Threshold</td>
<td>Data lacking</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

General Properties

| Boiling Point | -196°C(-320.8°F) | Nitrogen | Melting Point | -210°C(-346°F) | Nitrogen |
| Decomposition Temperature | Data lacking | pH | Data lacking |
| Specific Gravity/Relative Density | 0.967 Water=1 Nitrogen | Water Solubility | Moderately soluble |
| Viscosity | Data lacking |                             |                                               |

Volatile

| Vapor Pressure | Data lacking | Vapor Density | 0.991 Air=1 |
| Evaporation Rate | Data lacking |                             |                                               |

Flammability

| Flash Point | Data lacking | UEL | Data lacking |
| LEL | Data lacking | Autoignition | Data lacking |
| Flammability (solid, gas) | Flammable gas. |     |             |

Environmental

| Octanol/Water Partition coefficient | Data lacking |                             |                                               |

Section 10: Stability and Reactivity

Reactivity

● No dangerous reaction known under conditions of normal use.

Chemical stability

● Stable under normal temperatures and pressures.

Possibility of hazardous reactions

● Hazardous polymerization will not occur.
Conditions to avoid

- Excess heat.

Incompatible materials

- No data available

Hazardous decomposition products

- Under normal conditions of storage and use, hazardous decomposition products should not be produced.

---

Section 11 - Toxicological Information

Information on toxicological effects

<table>
<thead>
<tr>
<th>Component Name</th>
<th>CAS</th>
<th>Data</th>
</tr>
</thead>
<tbody>
<tr>
<td>n-Butane (1%)</td>
<td>106-97-8</td>
<td>Acute Toxicity: ihl-rat LC50:658 gm/m3/4H</td>
</tr>
<tr>
<td>Isobutane (1%)</td>
<td>75-28-5</td>
<td>Acute Toxicity: ihl-rat LC50:658000 mg/m3/4H</td>
</tr>
</tbody>
</table>

GHS Properties

<table>
<thead>
<tr>
<th>Classification</th>
<th>OSHA HCS 2012 Classification criteria not met</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acute toxicity</td>
<td>Classification criteria not met</td>
</tr>
<tr>
<td>Aspiration Hazard</td>
<td>Classification criteria not met</td>
</tr>
<tr>
<td>Carcinogenicity</td>
<td>Classification criteria not met</td>
</tr>
<tr>
<td>Germ Cell Mutagenicity</td>
<td>Classification criteria not met</td>
</tr>
<tr>
<td>Respiratory sensitization</td>
<td>Classification criteria not met</td>
</tr>
<tr>
<td>Serious eye damage/Irritation</td>
<td>Classification criteria not met</td>
</tr>
<tr>
<td>Skin corrosion/Irritation</td>
<td>Classification criteria not met</td>
</tr>
<tr>
<td>Skin sensitization</td>
<td>Classification criteria not met</td>
</tr>
<tr>
<td>STOT-RE</td>
<td>Classification criteria not met</td>
</tr>
<tr>
<td>STOT-SE</td>
<td>Classification criteria not met</td>
</tr>
<tr>
<td>Toxicity for Reproduction</td>
<td>Classification criteria not met</td>
</tr>
</tbody>
</table>

Route(s) of entry/exposure

- Inhalation, Skin, Eye, Ingestion

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)

- No data available

Eye
Acute (Immediate)
- Under normal conditions of use, no health effects are expected.
Chronic (Delayed)
- No data available

Ingestion
Acute (Immediate)
- Ingestion will not occur due to the physical form of this product.
Chronic (Delayed)
- No data available

Carcinogenic Effects
- The components of this material are not found on the following lists: NTP and IARC; therefore, they are not considered to be, nor suspected to be, cancer-causing agents by these agencies.

Key to abbreviations
LD = Lethal Dose
MOD = Moderate
LC = Lethal Concentration

---

**Section 12 - Ecological Information**

**Toxicity**
- Material data lacking.

**Persistence and degradability**
- Material data lacking.

**Bioaccumulative potential**
- Material data lacking.

**Mobility in Soil**
- Material data lacking.

**Other adverse effects**
- Material data lacking.

---

**Section 13 - Disposal Considerations**

**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</td>
<td>UN1956</td>
<td>2.2</td>
<td>NDA</td>
<td>NDA</td>
</tr>
<tr>
<td>TDG</td>
<td>UN1956</td>
<td>2.2</td>
<td>NDA</td>
<td>NDA</td>
</tr>
</tbody>
</table>
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.

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

- Not relevant.

### Section 15 - Regulatory Information

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

#### SARA Hazard Classifications

- Pressure (Sudden Release of)

#### State Right To Know

<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>n-Butane</td>
<td>106-97-8</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Ethane</td>
<td>74-84-0</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Isobutane</td>
<td>75-28-5</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Methane</td>
<td>74-82-8</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Propane</td>
<td>74-98-6</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>TSCA</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nitrogen</td>
<td>7727-37-9</td>
<td>Yes</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>n-Butane</td>
<td>106-97-8</td>
<td>Yes</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>Ethane</td>
<td>74-84-0</td>
<td>Yes</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>Isobutane</td>
<td>75-28-5</td>
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<td>Yes</td>
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<tr>
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<td>74-82-8</td>
<td>Yes</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>Propane</td>
<td>74-98-6</td>
<td>Yes</td>
<td>No</td>
<td>Yes</td>
</tr>
</tbody>
</table>

Canada

#### Labor

Canada - WHMIS - Classifications of Substances

- Ethane 74-84-0 1% A, B1
- Isobutane 75-28-5 1% A, B1 (listed under Methyl-2 propane)
- Propane 74-98-6 1% A, B1
- n-Butane 106-97-8 1% A, B1
- Nitrogen 7727-37-9 95% A
- Methane 74-82-8 1% A, B1
### Canada - WHMIS - Ingredient Disclosure List

- Ethane 74-84-0 1% Not Listed
- Isobutane 75-28-5 1% Not Listed
- Propane 74-98-6 1% Not Listed
- n-Butane 106-97-8 1% 1%
- Nitrogen 7727-37-9 95% Not Listed
- Methane 74-82-8 1% Not Listed

### Environment
**Canada - CEPA - Priority Substances List**

- Ethane 74-84-0 1% Not Listed
- Isobutane 75-28-5 1% Not Listed
- Propane 74-98-6 1% Not Listed
- n-Butane 106-97-8 1% Not Listed
- Nitrogen 7727-37-9 95% Not Listed
- Methane 74-82-8 1% Not Listed

### Mexico
**Other**

**Mexico - Hazard Classifications**

- Ethane 74-84-0 1% Hazard Class = 2.1 UN1035; Hazard Class = 2.1 UN1961
- Isobutane 75-28-5 1% Hazard Class = 2.1 UN1969
- Propane 74-98-6 1% Hazard Class = 2.1 UN1978
- n-Butane 106-97-8 1% Hazard Class = 2.1 UN1011
- Nitrogen 7727-37-9 95% Hazard Class = 2.2 UN1066; Hazard Class = 2.2 UN1977
- Methane 74-82-8 1% Hazard Class = 2.1 (with high Methane content) UN1971; Hazard Class = 2.1 (with high Methane content) UN1972

**Mexico - Regulated Substances**

- Ethane 74-84-0 1% UN1035; UN1961
- Isobutane 75-28-5 1% UN1969
- Propane 74-98-6 1% UN1978
- n-Butane 106-97-8 1% UN1011
- Nitrogen 7727-37-9 95% UN1066; UN1977
- Methane 74-82-8 1% UN1971 (with high Methane content); UN1972 (with high Methane content)

### United States
**Labor**

**U.S. - OSHA - Process Safety Management - Highly Hazardous Chemicals**

Preparation Date: 13/November/2012
Revision Date: 13/November/2012
n-Butane (1.0%), Ethane (1%), Isobutane (1%), Methane (1%), Propane (1%) Nitrogen (Balance)

- Ethane 74-84-0 1% Not Listed
- Isobutane 75-28-5 1% Not Listed
- Propane 74-98-6 1% Not Listed
- n-Butane 106-97-8 1% Not Listed
- Nitrogen 7727-37-9 95% Not Listed
- Methane 74-82-8 1% Not Listed

U.S. - OSHA - Specifically Regulated Chemicals

- Ethane 74-84-0 1% Not Listed
- Isobutane 75-28-5 1% Not Listed
- Propane 74-98-6 1% Not Listed
- n-Butane 106-97-8 1% Not Listed
- Nitrogen 7727-37-9 95% Not Listed
- Methane 74-82-8 1% Not Listed

Environment

U.S. - CAA (Clean Air Act) - 1990 Hazardous Air Pollutants

- Ethane 74-84-0 1% Not Listed
- Isobutane 75-28-5 1% Not Listed
- Propane 74-98-6 1% Not Listed
- n-Butane 106-97-8 1% Not Listed
- Nitrogen 7727-37-9 95% Not Listed
- Methane 74-82-8 1% Not Listed

U.S. - CERCLA/SARA - Hazardous Substances and their Reportable Quantities

- Ethane 74-84-0 1% Not Listed
- Isobutane 75-28-5 1% Not Listed
- Propane 74-98-6 1% Not Listed
- n-Butane 106-97-8 1% Not Listed
- Nitrogen 7727-37-9 95% Not Listed
- Methane 74-82-8 1% Not Listed

U.S. - CERCLA/SARA - Radionuclides and Their Reportable Quantities

- Ethane 74-84-0 1% Not Listed
- Isobutane 75-28-5 1% Not Listed
- Propane 74-98-6 1% Not Listed
- n-Butane 106-97-8 1% Not Listed
- Nitrogen 7727-37-9 95% Not Listed
- Methane 74-82-8 1% Not Listed

U.S. - CERCLA/SARA - Section 302 Extremely Hazardous Substances EPCRA RQs
<table>
<thead>
<tr>
<th>Substance</th>
<th>Formula</th>
<th>CAS Number</th>
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**U.S. - CERCLA/SARA - Section 302 Extremely Hazardous Substances TPQs**

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**U.S. - CERCLA/SARA - Section 313 - Emission Reporting**

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**United States - California**

**Environment**

**U.S. - California - Proposition 65 - Carcinogens List**

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</table>
United States - Pennsylvania

Labor

U.S. - Pennsylvania - RTK (Right to Know) - Environmental Hazard List

- Ethane  74-84-0  1%  Not Listed
- Isobutane  75-28-5  1%  Not Listed
- Propane  74-98-6  1%  Not Listed
- n-Butane  106-97-8  1%  Not Listed
- Nitrogen  7727-37-9  95%  Not Listed
- Methane  74-82-8  1%  Not Listed

U.S. - Pennsylvania - RTK (Right to Know) - Special Hazardous Substances

- Ethane  74-84-0  1%  Not Listed
- Isobutane  75-28-5  1%  Not Listed
- Propane  74-98-6  1%  Not Listed
- n-Butane  106-97-8  1%  Not Listed
- Nitrogen  7727-37-9  95%  Not Listed
- Methane  74-82-8  1%  Not Listed

Section 16 - Other Information

Last Revision Date: 13/November/2012
Preparation Date: 13/November/2012
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.