# Safety Data Sheet

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

### 1.1 Product identifier

**Product Name** • **Boron Tribromide**

**Synonyms** • Boron bromide; Tribromoborane; Tribromoboron

**CAS Number** • 10294-33-4

**SDS Number/Grade** • 70228

**EC Number** • 233-657-9

**Molecular Formula** • :B 1:Br 3:

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

**Relevant identified use(s)** • Semi-conductor etching

### 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
aloha@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

**According to EU Directive 1272/2008 (CLP)/REACH 1907/2006 [amended by 453/2010]**
**According to EU Directive 67/548/EEC (DSD) or 1999/45/EC (DPD)**

### 2.1 Classification of the substance or mixture

**CLP** • Acute Toxicity Inhalation 2 - H330
Acute Toxicity Oral 2 - H300
Skin Corrosion 1A - H314

**DSD/DPD** • Corrosive (C)
Very Toxic (T+)
R14, R26/28, R34

### 2.2 Label Elements

**CLP**

**DANGER**

**Hazard statements**
- H314 - Causes severe skin burns and eye damage
H330 - Fatal if inhaled
H300 - Fatal if swallowed

**Precautionary statements**

**Prevention**
- P233 - Keep container tightly closed.
P260 - Do not breathe dust, fume, gas, mist, vapours and/or spray.
P262 - Do not get in eyes, on skin, or on clothing.
P264 - Wash thoroughly after handling.
P270 - Do not eat, drink or smoke when using this product.
P271 - Use only outdoors or in a well-ventilated area.
P280 - Wear protective gloves/protective clothing/eye protection/face protection.

**Response**
- P305+P351+P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P304+P340 - IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.
P303+P361+P353 - IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.
P301+P330+P331 - IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.

**Storage/Disposal**
- P403+P233 - Store in a well-ventilated place. Keep container tightly closed.
P501 - Dispose of content and/or container in accordance with local, regional, national, and/or international regulations.

**DSD/DPD**


**Risk phrases**
- R14 - Reacts violently with water.
R26/28 - Very toxic by inhalation and if swallowed.
R34 - Causes burns.

**Safety phrases**
- S1/2 - Keep locked up and out of the reach of children.
S9 - Keep container in a well ventilated place
S26 - In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.
S36 - Wear suitable protective clothing.
S37 - Wear suitable gloves.
S39 - Wear eye/face protection.
S45 - In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible).

## 2.3 Other Hazards

**CLP**
- No data available

**DSD/DPD**
- No data available

## 2.4 Other information

- Boron Tribromide reacts violently with water or moisture to form highly corrosive hydrobromic acid or hydrogen bromide and heat

**NFPA**

## Section 3 - Composition/Information on Ingredients

### 3.1 Substances

| Hazardous Components | | | | | |
|---|---|---|---|---|---|
| **Chemical Name** | **Identifiers** | **%(weight)** | **LD50/LC50** | **Classifications According to Regulation/Directive** | **Comments** |
| Boron bromide | **CAS:**10294-33-4<br>**EC Number:**233-657-9<br>**EINECS:**233-657-9 | 100% | NDA | **EU DSD/DPD:** Annex I: R14 T+; R26/28 C; R35<br>**EU CLP:** Annex VI: Acute Tox. 2; Acute Tox. 2; Skin Corr. 1A; H330; H300; H314; EUH014 | |

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

### 3.2 Mixtures

*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. Give artificial respiration if victim is not breathing. If signs/symptoms continue, get medical attention.

**Skin**
- In case of contact with substance, immediately flush skin with running water for at least 20 minutes. Take off contaminated clothing and wash before reuse. Get medical attention immediately.

**Eye**
- Hold eye open and rinse slowly and gently with water for 15-20 minutes. Remove contact lenses, if present, after the first five minutes, then continue rinsing eye. Get medical attention immediately.

**Ingestion**
- If swallowed, rinse mouth with water (only if the person is conscious) If swallowed, DO NOT induce vomiting. Call a physician or poison control center immediately. If milk is available, victim should drink it after drinking water. Do not give anything by mouth to an unconscious person.

### 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.

**Antidotes**
- No data available.

## Section 5 - Firefighting Measures

### 5.1 Extinguishing media

**Suitable Extinguishing Media**
- SMALL FIRES: Dry chemical or CO2.

**Unsuitable Extinguishing Media**
- DO NOT USE WATER AND HALOGENS

**Firefighting Procedures**
- Do not get water inside containers or in contact with substance.

## 5.2 Special hazards arising from the substance or mixture

**Unusual Fire and Explosion Hazards**
- Boron Tribromide reacts violently with water to form corrosive hydrobromic acid or hydrogen bromide gas and heat, which poses a severe contact hazard to fire fighters. The react may be explosive, causing material to be broadcast over a large area and creating a severe corrosive hazard. In addition, Hydrobromic acid can form in moist environments and react with metal to liberate hydrogen, a flammable gas.

**Hazardous Combustion Products**
- None known.

## 5.3 Advice for firefighters

- FIRE INVOLVING TANKS OR CAR/TRAILER LOADS: Cool containers with flooding quantities of water until well after fire is out.
  Move containers from fire area if you can do it without risk.

# Section 6 - Accidental Release Measures

## 6.1 Personal precautions, protective equipment and emergency procedures

**Personal Precautions**
- DO NOT GET WATER on spilled substance or inside containers. Do not touch damaged containers or spilled material unless wearing appropriate protective clothing. Ventilate enclosed areas. Ventilate the area before entry. Concentrations of component gases must be below any exposure limits listed in Section 8 and Oxygen levels must be above 19.5% before non-emergency personnel are allowed to re-enter area.

**Emergency Procedures**
- ELIMINATE all ignition sources (no smoking, flares, sparks or flames in immediate area) DO NOT GET WATER on spilled substance or inside containers. As an immediate precautionary measure, isolate spill or leak area for at least 50 meters (150 feet) in all directions. Stay upwind.

## 6.2 Environmental precautions

- Avoid release to the environment. Prevent entry into waterways, sewers, basements or confined areas.

## 6.3 Methods and material for containment and cleaning up

**Containment/Clean-up Measures**
- DO NOT GET WATER on spilled substance or inside containers.
  Absorb or cover with dry earth, sand or other non-combustible material and transfer to containers.
  Neutralize spill with sodium bicarbonate or other material appropriate for acids.
  Do not allow contact with water until spill has been neutralized.
  Cover with plastic sheet to prevent spreading.
  Spills in Hoods: Decontamination of all interior hood surfaces may be required after the above procedures for ‘All Spills’ have been followed. If the HEPA filter of a hood is contaminated, the unit must be labeled "Do not use-contaminated" and the filter must be changed and disposed of properly as soon as possible by trained personnel wearing protective equipment. Protective goggles should be cleaned with an alcohol wipe after the cleanup.

## 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**
- Handle and open container with care. All employees who handle this material should be trained to handle it safely. Minimize all exposures to this substance. Avoid

breathing vapors or mists of this material. All areas where this product is used should contain instant acting showers and eyewash stations in the event of contamination.

## 7.2 Conditions for safe storage, including any incompatibilities

**Storage**

- Store in a well-ventilated place. Keep container tightly closed. Store locked up. Ventilate enclosed areas.

## 7.3 Specific end use(s)

- This product is used for semi-conductor etching. Follow all industry standards for use of this product.

# Section 8 - Exposure Controls/Personal Protection

## 8.1 Control parameters

**Exposure Limits/Guidelines**

- Because of the high potential hazard of this material, stringent control measures such as fume hood or glove box should be considered to prevent all contact with this chemical. If this is not feasible, local exhaust ventilation should be used to prevent release of vapor or mist into the workplace air. Consider installation of air monitoring systems that activate alarms in the event of ventilation system failure or leaks. Adequate general (dilution) is also required. Use a properly designed corrosion-resistant ventilation system separate from other exhaust ventilation systems. Exhaust directly to the outside after taking the necessary precautions to protect the environment. Supply sufficient replacement air to make up for air removed by exhaust systems. Any use of this material in an elevated temperature process should be thoroughly evaluated to determine safe operating conditions. An eyewash and safety shower should be readily accessible.

**Exposure Limits/Guidelines**

| | Result | ACGIH | Canada Ontario | Canada Quebec | NIOSH | Singapore |
|---|---|---|---|---|---|---|
| Boron Tribromide (10294-33-4) | STELs | Not established | Not established | Not established | Not established | 1 ppm STEL; 10 mg/m3 STEL |
| | Ceilings | 1 ppm Ceiling | 1 ppm Ceiling | 1 ppm Ceiling; 10 mg/m3 Ceiling | 1 ppm Ceiling; 10 mg/m3 Ceiling | Not established |

**Exposure Limits Supplemental**

**ACGIH**

•Boron bromide (10294-33-4): **TLV Basis - Critical Effects:** (upper respiratory tract irritation)

## 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**
- In case of insufficient ventilation, wear suitable respiratory equipment.

**Eye/Face**
- Wear eye/face protection -Face Shield and Eye Protection, .

**Hands**
- Wear protective gloves (PVC, neoprene).

**Skin/Body**
- Wear protective clothing (Overalls and rubber boots)

**Environmental Exposure Controls**

- 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

## 9.1 Information on Physical and Chemical Properties

| | | | |
|---|---|---|---|
| **Material Description** | | | |
| Physical Form | Liquid | Appearance/Description | No data available |
| Color | Clear, colorless to amber-colored. | Odor | Acrid or pungent odor. |
| Taste | No data available | Particulate Type | No data available |
| Particulate Size | No data available | Aerosol Type | No data available |
| Odor Threshold | No data available | Physical and Chemical Properties | No data available |
| **General Properties** | | | |
| Boiling Point | 90 to 92 C(194 to 197.6 F) | Melting Point | -48 to -46 C(-54.4 to -50.8 F) |
| Decomposition Temperature | No data available | Heat of Decomposition | No data available |
| pH | No data available | Specific Gravity/Relative Density | 2.69 Water=1 |
| Density | No data available | Bulk Density | No data available |
| Water Solubility | Reacts Violently | Solvent Solubility | Carbon Tetrachloride |
| Viscosity | 0.731 Centipoise (cPs, cP) or mPas @ 24 C(75.2 F) | Explosive Properties | Data lacking. |
| Oxidizing Properties: | Not an oxidizer. | | |
| **Volatility** | | | |
| Vapor Pressure | 40 mmHg (torr) @ 14 C(57.2 F) | Vapor Density | 8.6 Air=1 |
| Evaporation Rate | No data available | VOC (Wt.) | No data available |
| VOC (Vol.) | No data available | Volatiles (Wt.) | No data available |
| Volatiles (Vol.) | No data available | | |
| **Flammability** | | | |
| Flash Point | No data available | UEL | No data available |
| LEL | No data available | Autoignition | No data available |
| Self-Accelerating Decomposition Temperature (SADT) | No data available | Heat of Combustion (ΔHc) | No data available |
| Burning Time | No data available | Flame Height | No data available |
| Flame Extension | No data available | Ignition Distance | No data available |
| Flame Duration | No data available | Flammability (solid, gas) | Not relevant. Not flammable. |
| **Environmental** | | | |
| Half-Life | No data available | Octanol/Water Partition coefficient | No data available |
| Coefficient of water/oil distribution | No data available | Bioaccumulation Factor | No data available |
| Bioconcentration Factor | No data available | Biochemical Oxygen Demand BOD/BOD5 | No data available |
| Chemical Oxygen Demand | No data available | Persistence | No data available |
| Degradation | No data available | | |

## 9.2 Other Information

- 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.

# Section 10: Stability and Reactivity

## 10.1 Reactivity

- This material can react violently with water to generate hydrobromic acid. Hydrobromic acid can form in moist environments and react with metal to liberate hydrogen, a flammable gas. Can attack wood and metals.

## 10.2 Chemical stability

- This material can react violently with water to generate hydrobromic acid. Hydrobromic acid can form in moist environments and react with metal to liberate hydrogen, a flammable gas. Can attack wood and metals.

## 10.3 Possibility of hazardous reactions

- Hazardous polymerization will not occur.

## 10.4 Conditions to avoid

- Contact with incompatible materials and exposure to water, heat, sparks and other sources of ignition.

## 10.5 Incompatible materials

- Heat, strong alkalies, ammonia, or contact with water, alcohol, metallic potassium or sodium, wood, paper products and similar material. Corrosive to rubber and Bakelite.

## 10.6 Hazardous decomposition products

- Combustion: Hydrogen bromide gas, 3 moles of Hydrobromic acid per mole. Hydrolysis: Hydrogen bromide, hydrobromic acid, boric acid.

## 10.7 Other information

- No additional physical and chemical parameters noted.

# Section 11 - Toxicological Information

## 11.1 Information on toxicological effects

| GHS Properties | Classification |
|---|---|
| **Acute toxicity** | **EU/CLP** • Acute Toxicity 2 (Inhalation,Ingestion/Oral) |
| **Aspiration Hazard** | **EU/CLP** • Data lacking |
| **Carcinogenicity** | **EU/CLP** • Data lacking |
| **Germ Cell Mutagenicity** | **EU/CLP** • Data lacking |
| **Skin corrosion/Irritation** | **EU/CLP** • Skin Corrosion 1A |
| **Skin sensitization** | **EU/CLP** • Data lacking |
| **STOT-RE** | **EU/CLP** • Data lacking |
| **STOT-SE** | **EU/CLP** • Data lacking |
| **Toxicity for Reproduction** | **EU/CLP** • Data lacking |
| **Respiratory sensitization** | **EU/CLP** • Data lacking |
| **Serious eye damage/Irritation** | **EU/CLP** • Data lacking |

### Potential Health Effects

### Inhalation

**Acute (Immediate)**

- Boron Tribromide is extremely irritating or corrosive, depending on concentration and duration of exposure. Low levels of this material may irritate the lungs and throat. At higher levels, inhalation exposure may result in severe irritation and burns of mucous membranes, throat and lungs. Delayed pulmonary damage, chemical pneumonitis and breathing difficulty may also occur. Severe inhalation over-exposures can be fatal. As a result of severe exposures to this material, permanent lung injury may occur.

**Chronic (Delayed)**

- Prolonged or repeated over-exposures to low levels of Boron Tribromide may cause impaired lung function, bronchitis, or emphysema. The onset of the symptoms of pulmonary edema can be delayed for hours or days after the exposure. Inhalation of high concentrations of the vapors (as may occur if is this product is used or released

in a poorly-ventilated area or confined space, or during a release of large volumes of this product), may be fatal. Additional symptoms may include coughing, nose bleeds, abdominal pain and diarrhea, and measle-like eruptions on torso and extremities.

### Skin

**Acute (Immediate)**
- At low levels, Boron Tribroimde may be irritating to the skin. At higher levels severe irritation and burns of the skin may occur. Repeated, low level skin contact may result in dermatitis (dry, red, itchy skin)

**Chronic (Delayed)**
- Repeated or prolonged exposure to corrosive materials will cause dermatitis.

### Eye

**Acute (Immediate)**
- Low levels in contact with the eyes will cause watering, pain and irritation. Higher levels will cause severe injury and swelling of the eye tissue and burns. Temporary vision impairment or permanent damage or blindness may occur.

**Chronic (Delayed)**
- No data available

### Ingestion

**Acute (Immediate)**
- Ingestion is not anticipated to be a significant route of over-exposure for this product. If this product is swallowed, symptoms of such exposure can include nausea, vomiting and severe irritation or burns to the gastrointestinal system.

**Chronic (Delayed)**
- A significant hazard associated with ingestion of this product is via aspiration; aspiration of this material into the lungs can cause severe lung irritation and tissue damage, which can result in the development of chemical pneumonia or pulmonary edema (which are potentially fatal conditions).

### Other

**Chronic (Delayed)**
- As a boron compound, this material may cause adverse effects on the central nervous system, depression of circulation, rash, subnormal temperature, persistent vomiting and diarrhea, and profound shock or coma. Chronic boron compound poisoning can cause anorexia, weight loss, skin rash, alopecia, convulsions and anemia and kidney damage.

## Section 12 - Ecological Information

### 12.1 Toxicity

- This product has not been tested for aquatic or animal toxicity. All release to terrestrial, atmospheric and aquatic environments should be avoided.

### 12.2 Persistence and degradability

- No specific information was found in available literature on the persistence potential or level of biodegradability of this compound. The chemistry of boron compounds is dominated by its tendency to form stable bonds with electronegative atoms, especially oxygen. Reduced boron compounds (halides, hydrides, alkyls and aryls) tend to oxidize and hydrolyze readily, and would be expected to be converted into various boron-oxide compounds in the environment. Inorganic boron compounds are nonvolatile and would not be expected to volatilize from moist or dry soil surfaces.

### 12.3 Bioaccumulative potential

- Material data lacking.

### 12.4 Mobility in Soil

- No information was found in available literature on the potential for mobility in soil. It is expected to be mobile in soil due to liquid form.

### 12.5 Results of PBT and vPvB assessment

- No PBT and vPvB assessment has been conducted.

### 12.6 Other adverse effects

- This material is not expected to have any ozone depletion potential.

## 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

| | 14.1 UN number | 14.2 UN proper shipping name | 14.3 Transport hazard class(es) | 14.4 Packing group | 14.5 Environmental hazards |
|---|---|---|---|---|---|
| **DOT** | UN2692 | Boron tribromide | 8,6.1 | I | NDA |
| **TDG** | UN2692 | BORON TRIBROMIDE | 8,6.1 | I | NDA |
| **IMO/IMDG** | UN2692 | Boron tribromide | 8,6.1 | I | NDA |
| **IATA/ICAO** | UN2692 | Boron Tribromide | 8,6.1 | I | NDA |

**14.6 Special precautions for user**
- Boron Tribromide is poisonous by inhalation. Shipments must be properly described as inhalation hazards. ZONE B.

**14.7 Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code**
- No data available

## Section 15 - Regulatory Information

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

**SARA Hazard Classifications**
- No data available

| State Right To Know | | | | |
|---|---|---|---|---|
| **Component** | **CAS** | **MA** | **NJ** | **PA** |
| Boron bromide | 10294-33-4 | Yes | Yes | Yes |

| Inventory | | | | | | |
|---|---|---|---|---|---|---|
| **Component** | **CAS** | **Canada DSL** | **China** | **EU EINECS** | **Japan ENCS** | **Korea KECL** |
| Boron bromide | 10294-33-4 | Yes | Yes | Yes | Yes | Yes |

| Inventory (Con't.) | | |
|---|---|---|
| **Component** | **CAS** | **TSCA** |
| Boron bromide | 10294-33-4 | Yes |

### Australia

**Labor**

**Australia - List of Designated Hazardous Substances - Classification**

- Boron Tribromide 10294-33-4 T+, C R14, R26/28, R35

### Environment

**Australia - National Pollutant Inventory (NPI) Substance List**

- Boron Tribromide 10294-33-4 Not Listed

**Australia - Ozone Protection Act - Scheduled Substances**

- Boron Tribromide 10294-33-4 Not Listed

## Canada

### Labor

**Canada - WHMIS - Classifications of Substances**

- Boron Tribromide 10294-33-4 E, F

**Canada - WHMIS - Ingredient Disclosure List**

- Boron Tribromide 10294-33-4 1 %

### Environment

**Canada - CEPA - Priority Substances List**

- Boron Tribromide 10294-33-4 Not Listed

## Europe

### Other

**EU - CLP (1272/2008) - Annex VI - Table 3.2 - Classification**

- Boron Tribromide 10294-33-4 R14 T+; R26/28 C; R35

**EU - CLP (1272/2008) - Annex VI - Table 3.2 - Labelling**

- Boron Tribromide 10294-33-4 T+ C R:14-26/28-35 S:(1/2)-9-26-28-36/37/39-45

**EU - CLP (1272/2008) - Annex VI - Table 3.2 - Safety Phrases**

- Boron Tribromide 10294-33-4 S:(1/2)-9-26-28-36/37/39-45

## Mexico

### Other

**Mexico - Hazard Classifications**

- Boron Tribromide 10294-33-4 Hazard Class = 8 PG = I UN2692

**Mexico - Regulated Substances**

- Boron Tribromide 10294-33-4 UN2692

## United States

### Labor

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

- Boron Tribromide 10294-33-4 Not Listed

### Environment

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

- Boron Tribromide 10294-33-4 Not Listed

**U.S. - CERCLA/SARA - Section 302 Extremely Hazardous Substances EPCRA RQs**

- Boron Tribromide 10294-33-4 Not Listed

**U.S. - CERCLA/SARA - Section 302 Extremely Hazardous Substances TPQs**

- Boron Tribromide 10294-33-4 Not Listed

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

- Boron Tribromide 10294-33-4 Not Listed

**U.S. - CERCLA/SARA - Section 313 - PBT Chemical Listing**

- Boron Tribromide 10294-33-4 Not Listed

## United States - California

**Environment**

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

- Boron Tribromide 10294-33-4 Not Listed

**U.S. - California - Proposition 65 - Developmental Toxicity**

- Boron Tribromide 10294-33-4 Not Listed

## United States - Pennsylvania

**Labor**

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

- Boron Tribromide 10294-33-4 Not Listed

## 15.2 Chemical Safety Assessment

- No data available

# Section 16 - Other Information

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

- H300 - Fatal if swallowed
  H314 - Causes severe skin burns and eye damage
  H330 - Fatal if inhaled
  P260 - Do not breathe dust, fume, gas, mist, vapours and/or spray.
  P264 - Wash : thoroughly after handling.
  P270 - Do not eat, drink or smoke when using this product.
  P271 - Use only outdoors or in a well-ventilated area.
  P280 - Wear protective gloves/protective clothing/eye protection/face protection.
  P301+P330+P331 - IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.
  P303+P361+P353 - IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.
  P304+P340 - IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.
  P305+P351+P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
  P310 - Immediately call a POISON CENTER or doctor/physician.
  P363 - Wash contaminated clothing before reuse.
  P403+P233 - Store in a well-ventilated place. Keep container tightly closed.
  P405 - Store locked up.
  P501 - Dispose of content and/or container in accordance with local, regional, national, and/or international regulations.

**Last Revision Date**

- 29/October/2012

**Preparation Date**

- 17/October/2011

**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.