

## Safety Data Sheet

**Section 1: Identification of the Substance/Mixture and of the Company/Undertaking****1.1 Product identifier**

<b>Product Name</b>	● <b>Helium (Refrigerated Liquid)</b>
<b>Synonyms</b>	● Cryogenic Liquid Helium; He; Helium; Helium USP
<b>CAS Number</b>	● 7440-59-7
<b>Product Code</b>	● MSDS No.: 10048
<b>EC Number</b>	● 231-168-5

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

<b>Relevant identified use(s)</b>	● Medical and general analytical or synthetic chemical uses
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**1.3 Details of the supplier of the safety data sheet**

<b>Manufacturer</b>	● Air Liquide 2700 Post Oak Blvd. Houston, TX 77056 United States www.us.airliquide.com
<b>Telephone (Technical)</b>	● 713-896-2896
<b>Telephone (Technical)</b>	● 800-819-1704

**1.4 Emergency telephone number**

<b>Manufacturer</b>	● 800-424-9300 - CHEMTREC
<b>Manufacturer</b>	● +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**

<b>CLP</b>	● Refrigerated Liquefied Gas - H281
<b>DSD/DPD</b>	● Not classified

**2.2 Label Elements**

CLP

**WARNING**

**Hazard statements** ● H281 - Contains refrigerated gas; may cause cryogenic burns or injury

**Precautionary statements**

**Prevention** ● P282 - Wear cold insulating gloves, face shield and/or eye protection.

**Response** ● P336 - Thaw frosted parts with lukewarm water. Do not rub affected area.  
P315 - Get immediate medical advice/attention.

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

**DSD/DPD**

**Risk phrases** ● No label element(s) required

**2.3 Other Hazards**

**CLP** ● Contact with gas or liquefied gas will cause burns, severe injury and/or frostbite. 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** ● Contact with gas or liquefied gas will cause burns, severe injury and/or frostbite. This material is a simple asphyxiant. May displace or reduce oxygen available for breathing especially in confined spaces. This product is not considered dangerous under the European Directive 67/548/EEC

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**United States (US)**

According to OSHA 29 CFR 1910.1200 HCS

**2.1 Classification of the substance or mixture**

**OSHA HCS 2012** ● Refrigerated Liquefied Gas - H281  
Simple Asphyxiant  
Hazards Not Otherwise Classified - Health Hazard - Frostbite

**2.2 Label elements**

**OSHA HCS 2012**

**WARNING**



**Hazard statements** ● Contains refrigerated gas; may cause cryogenic burns or injury - H281  
May displace oxygen and cause rapid suffocation.

**Precautionary statements**

**Prevention** ● Wear cold insulating gloves, face shield and/or eye protection. - P282

**Response** ● Thaw frosted parts with lukewarm water. Do not rub affected area. - P336  
Get immediate medical advice/attention. - P315

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

**2.3 Other hazards**

**OSHA HCS 2012** ● Contact with gas or liquefied gas will cause burns, severe injury and/or frostbite. Under United States Regulations (29 CFR 1910.1200 - Hazard Communication Standard), this product is considered hazardous.

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**Canada**

According to WHMIS

**2.1 Classification of the substance or mixture**

**WHMIS** ● Compressed Gas - A

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## 2.2 Label elements

### WHMIS



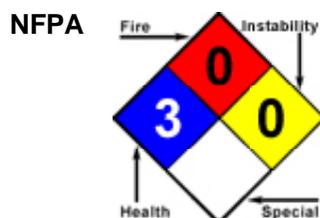
- Compressed Gas - A

## 2.3 Other hazards

### WHMIS

- Contact with gas or liquefied gas will cause burns, severe injury and/or frostbite. 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 Workplace Hazardous Materials Information System (WHMIS).

## 2.4 Other information



## Section 3 - Composition/Information on Ingredients

### 3.1 Substances

Hazardous Components					
Chemical Name	Identifiers	%(weight)	LD50/LC50	Classifications According to Regulation/Directive	Comments
Helium	CAS:7440-59-7 EINECS:231-168-5	>= 99.99%	NDA	EU DSD/DPD: Not Classified - Criteria not met EU CLP: Annex VI - Press. Gas - Refr. Liq. H281 OSHA HCS 2012: Press. Gas - Comp; Simp. Asphyx.; HNOC (Health Hazard) - Frostbite	Maximum Impurities < 0.01%*

### 3.2 Mixtures

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

#### Key to abbreviations

None of the trace impurities in this product contribute significantly to the hazards associated with the product. All hazard information pertinent to this \* = product has been provided in the Safety Data Sheet, per the requirements of the OSHA Hazard Communication Standard (29 CFR 1910.1200) and state equivalent standards.

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**
- If frostbite has occurred, seek medical attention immediately; do NOT rub the affected area(s) or flush them with water. In order to prevent further tissue damage, do NOT attempt to remove frozen clothing from frostbitten areas. If frostbite has not occurred, immediately and thoroughly wash contaminated skin with soap and water.
- Eye**
- If eye tissue is frozen, seek medical attention immediately; if tissue is not frozen, immediately and thoroughly flush the eyes with large amounts of water for at least 15 minutes, occasionally lifting the upper and lower eyelids. If irritation, pain, swelling, lacrimation or photophobia persist, get medical attention as soon as possible.
- Ingestion**
- If frostbite has occurred, seek medical attention immediately; do NOT rub the affected area(s) or flush them with water. Never give anything by mouth to an unconscious person. Do NOT induce vomiting.

#### 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.

#### 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 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 - Firefighting Measures

### 5.1 Extinguishing media

- Suitable Extinguishing Media**
- Use extinguishing agent suitable for type of surrounding fire.  
SMALL FIRES: Dry chemical or CO<sub>2</sub>.  
LARGE FIRES: Water spray or fog.

- 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.

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## 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

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

### 6.3 Methods and material for containment and cleaning up

#### Containment/Clean-up Measures

- Stop leak if you can do it without risk. 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.

### 6.4 Reference to other sections

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

## Section 7 - Handling and Storage

### 7.1 Precautions for safe handling

#### Handling

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

### 7.2 Conditions for safe storage, including any incompatibilities

#### Storage

- Store in a cool, dry, well-ventilated place. Protect cylinders against physical damage. Cylinders should be firmly secured to prevent falling or being knocked-over.

### 7.3 Specific end use(s)

- Refer to Section 1.2 - Relevant identified uses.
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## Section 8 - Exposure Controls/Personal Protection

### 8.1 Control parameters

**Exposure Limits/Guidelines** • Currently there are no applicable exposure limits established for this material.

## 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. Use explosion-proof - electrical, ventilating and/or lighting equipment.

### 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

### 9.1 Information on Physical and Chemical Properties

Material Description			
Physical Form	Gas	Appearance/Description	Colorless, cryogenic liquid with no odor.
Color	Colorless	Odor	Odorless
Odor Threshold	Not relevant		
General Properties			
Boiling Point	-268.9 C(-452.02 F)	Melting Point	Not relevant
Decomposition Temperature	Data lacking	pH	Not relevant
Specific Gravity/Relative Density	Data lacking	Density	0.0103 lb(s)/ft <sup>3</sup> @ 0 C(32 F)
Bulk Density	Data lacking	Water Solubility	Slightly Soluble 0.0094 % @ 0 C(32 F)
Viscosity	Data lacking	Explosive Properties	Not explosive.
Oxidizing Properties:	Not an oxidizing gas.		
Volatility			
Vapor Pressure	Not relevant	Vapor Density	0.138 Air=1
Evaporation Rate	Not relevant		
Flammability			
Flash Point	Not relevant	UEL	Not relevant
LEL	Not relevant	Autoignition	Not relevant
Flammability (solid, gas)	Not flammable.		
Environmental			
Octanol/Water Partition coefficient	Data lacking		

### 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**

- No data available

**10.4 Conditions to avoid**

- No data available

**10.5 Incompatible materials**

- No data available

**10.6 Hazardous decomposition products**

- No data available

**Section 11 - Toxicological Information****11.1 Information on toxicological effects**

GHS Properties	Classification
Acute toxicity	EU/CLP • Classification criteria not met OSHA HCS 2012 • Classification criteria not met
Aspiration Hazard	EU/CLP • Classification criteria not met OSHA HCS 2012 • Classification criteria not met
Carcinogenicity	EU/CLP • Classification criteria not met OSHA HCS 2012 • Classification criteria not met
Germ Cell Mutagenicity	EU/CLP • Classification criteria not met OSHA HCS 2012 • Classification criteria not met
Skin corrosion/Irritation	EU/CLP • Classification criteria not met OSHA HCS 2012 • Classification criteria not met
Skin sensitization	EU/CLP • Classification criteria not met OSHA HCS 2012 • Classification criteria not met
STOT-RE	EU/CLP • Classification criteria not met OSHA HCS 2012 • Classification criteria not met
STOT-SE	EU/CLP • Classification criteria not met OSHA HCS 2012 • Classification criteria not met
Toxicity for Reproduction	EU/CLP • Classification criteria not met OSHA HCS 2012 • Classification criteria not met
Respiratory sensitization	EU/CLP • Classification criteria not met OSHA HCS 2012 • Classification criteria not met
Serious eye damage/Irritation	EU/CLP • Classification criteria not met OSHA HCS 2012 • Classification criteria not met

**Potential Health Effects****Inhalation****Acute (Immediate)**

- This material is a simple asphyxiant. May displace or reduce oxygen available for

breathing especially in confined spaces.

**Chronic (Delayed)**

- No data available

**Skin****Acute (Immediate)**

- Contact with gas or liquefied gas will cause burns, severe injury and/or frostbite.

**Chronic (Delayed)**

- No data available

**Eye****Acute (Immediate)**

- Contact with gas or liquefied gas will cause burns, severe injury and/or frostbite.

**Chronic (Delayed)**

- No data available

**Ingestion****Acute (Immediate)**

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

**Chronic (Delayed)**

- No data available.

## Section 12 - Ecological Information

**12.1 Toxicity**

- Helium gas occurs naturally in the atmosphere. The gas will be dissipated rapidly in well-ventilated areas.

**12.2 Persistence and degradability**

- No data available

**12.3 Bioaccumulative potential**

- No data available

**12.4 Mobility in Soil**

- No data available

**12.5 Results of PBT and vPvB assessment**

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

**12.6 Other adverse effects**

## 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	UN1963	Helium, refrigerated liquid	2.2	NDA	NDA

<b>TDG</b>	UN1963	HELIUM, REFRIGERATED LIQUID	2.2	NDA	NDA
<b>IMO/IMDG</b>	UN1963	HELIUM, REFRIGERATED LIQUID	2.2	NDA	NDA
<b>IATA/ICAO</b>	UN1963	Helium, refrigerated liquid	2.2	NDA	NDA

**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)

State Right To Know				
Component	CAS	MA	NJ	PA
Helium	NDA	No	No	No

Inventory						
Component	CAS	Canada DSL	Canada NDSL	China	EU EINECS	EU ELNICS
Helium	NDA	No	No	No	No	No

Inventory (Con't.)			
Component	CAS	Japan ENCS	TSCA
Helium	NDA	No	No

**Australia****Environment**

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

- Helium 7440-59-7 >= 99.99% Not Listed

**Canada****Labor**

## Canada - WHMIS - Classifications of Substances

- Helium 7440-59-7 >= 99.99% A

## Canada - WHMIS - Ingredient Disclosure List

- Helium 7440-59-7 >= 99.99% Not Listed

## Environment

### Canada - CEPA - Priority Substances List

- Helium 7440-59-7 >= 99.99% Not Listed

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## China

### Environment

#### China - Ozone Depleting Substances - First Schedule

- Helium 7440-59-7 >= 99.99% Not Listed

#### China - Ozone Depleting Substances - Second Schedule

- Helium 7440-59-7 >= 99.99% Not Listed

#### China - Ozone Depleting Substances - Third Schedule

- Helium 7440-59-7 >= 99.99% Not Listed

### Other

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

- Helium 7440-59-7 >= 99.99% Not Listed

#### China - Dangerous Goods List

- Helium 7440-59-7 >= 99.99% UN1046; UN1963

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

- Helium 7440-59-7 >= 99.99% Not Listed

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## Europe

### Other

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

- Helium 7440-59-7 >= 99.99% Not Listed

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

- Helium 7440-59-7 >= 99.99% Not Listed

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## Germany

### Environment

#### Germany - TA Luft - Types and Classes

- Helium 7440-59-7 >= 99.99% Not Listed

#### Germany - Water Classification (VwVwS) - Annex 1

- Helium 7440-59-7 >= 99.99% Not Listed

#### Germany - Water Classification (VwVwS) - Annex 2 - Water Hazard Classes

- Helium 7440-59-7 >= 99.99% Not Listed

#### Germany - Water Classification (VwVwS) - Annex 3

- Helium 7440-59-7 >= 99.99% Not Listed

### Other

#### Germany - Specifically Regulated Chemicals in TRGS

- Helium 7440-59-7 >= 99.99% Not Listed

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## Portugal

### Other

#### Portugal - Prohibited Substances

- Helium 7440-59-7 >= 99.99% Not Listed

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## United Kingdom

### Environment

#### United Kingdom - Pollution Inventory - Schedule 1 - Thresholds for Releases to Air

- Helium 7440-59-7 >= 99.99% Not Listed

**United Kingdom - Substances Contained in Dangerous Substances or Preparations**

- Helium 7440-59-7 >= 99.99% Not Listed

**Other**

**United Kingdom - Workplace Exposure Limits (WELs) - Substances in Review**

- Helium 7440-59-7 >= 99.99% Not Listed

**United Kingdom - The Red List - Dangerous Substances in Water**

- Helium 7440-59-7 >= 99.99% Not Listed

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**United States**

**Labor**

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

- Helium 7440-59-7 >= 99.99% Not Listed

**U.S. - OSHA - Specifically Regulated Chemicals**

- Helium 7440-59-7 >= 99.99% Not Listed

**Environment**

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

- Helium 7440-59-7 >= 99.99% Not Listed

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

- Helium 7440-59-7 >= 99.99% Not Listed

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

- Helium 7440-59-7 >= 99.99% Not Listed

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

- Helium 7440-59-7 >= 99.99% Not Listed

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

- Helium 7440-59-7 >= 99.99% Not Listed

#### **U.S. - RCRA (Resource Conservation & Recovery Act) - Basis for Listing - Appendix VII**

- Helium 7440-59-7 >= 99.99% Not Listed

#### **U.S. - RCRA (Resource Conservation & Recovery Act) - Hazardous Constituents - Appendix VIII to 40 CFR 261**

- Helium 7440-59-7 >= 99.99% Not Listed

## **United States - California**

### **Environment**

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

- Helium 7440-59-7 >= 99.99% Not Listed

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

- Helium 7440-59-7 >= 99.99% Not Listed

#### **U.S. - California - Proposition 65 - Reproductive Toxicity - Female**

- Helium 7440-59-7 >= 99.99% Not Listed

#### **U.S. - California - Proposition 65 - Reproductive Toxicity - Male**

- Helium 7440-59-7 >= 99.99% Not Listed

## **United States - Pennsylvania**

### **Labor**

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

- Helium 7440-59-7 >= 99.99% Not Listed

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

- Helium 7440-59-7 >= 99.99% Not Listed

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## 15.2 Chemical Safety Assessment

- No Chemical Safety Assessment has been carried out.
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### Section 16 - Other Information

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|--|---|
| <b>Last Revision Date</b>                | <ul style="list-style-type: none"><li>• 04/February/2013</li></ul>  |
| <b>Preparation Date</b>                  | <ul style="list-style-type: none"><li>• 04/February/2013</li></ul>  |
| <b>Disclaimer/Statement of Liability</b> | <ul style="list-style-type: none"><li>• 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.</li></ul> |
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