Safety Data Sheet

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

1.1 Product identifier

Product Name: Hydrochloric Acid 37%
Synonyms: Aqueous Hydrogen Chloride; Muriatic Acid
Product Code: 70474

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

Relevant identified use(s): Semiconductor Uses

1.3 Details of the supplier of the safety data sheet

Manufacturer: Air Liquide
2700 Post Oak Blvd.
Houston, TX 77056
United States
www.us.airliquide.com
sds@airliquide.com

Telephone (Technical): 713-896-2896
Telephone (Technical): 800-819-1704

1.4 Emergency telephone number

Manufacturer: 800-424-9300 - CHEMTREC
Manufacturer: +1 703-527-3887 - Outside United States

Section 2: Hazards Identification

EU/EEC
According to EU Directive 67/548/EEC (DSD) or 1999/45/EC (DPD)

2.1 Classification of the substance or mixture

CLP
- Skin Corrosion 1B - H314
- Specific Target Organ Toxicity Single Exposure 3: Respiratory Tract Irritation - H335
DSD/DPD
- Corrosive (C)
- Irritant (Xi)
- R34, R37

2.2 Label Elements

CLP

DANGER

Preparation Date: 23/December/2014
Revision Date: 23/December/2014
Page 1 of 14
### Hazard statements
- H314 - Causes severe skin burns and eye damage.
- H335 - May cause respiratory irritation

### Precautionary statements
#### Prevention
- P260 - Do not breathe mist/vapours/spray.
- P264 - Wash thoroughly after handling.
- P271 - Use only outdoors or in a well-ventilated area.
- P280 - Wear protective gloves/protective clothing/eye protection/face protection.

#### Response
- P271 - Use only outdoors or in a well-ventilated area.
- P280 - Wear protective gloves/protective clothing/eye protection/face protection.
- P304+P340 - IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.
- P312 - Call a POISON CENTER or doctor/physician if you feel unwell.
- P303+P361+P353 - IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.
- P310 - Immediately call a POISON CENTER or doctor/physician.
- P321 - Specific treatment, see supplemental first aid information.
- P363 - Wash contaminated clothing before reuse.
- P301+P330+P331 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
- 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.
- P405 - Store locked up.
- P501 - Dispose of content and/or container in accordance with local, regional, national, and/or international regulations.

### Risk phrases
- R34 - Causes burns.
- R37 - Irritating to respiratory system.

### Safety phrases
- 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
- According to Regulation (EC) No. 1272/2008 (CLP) this material is considered hazardous.

#### DSD/DPD
- This product is considered dangerous according to 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**
  - Skin Corrosion 1B - H314
  - Serious Eye Damage 1 - H318

### 2.2 Label elements
- **OSHA HCS 2012**

**DANGER**

### Hazard statements
- Causes severe skin burns and eye damage. - H314
- Causes serious eye damage - H318

### Precautionary statements
Prevention
Do not breathe mist/vapours/spray. - P260
Wear protective gloves/protective clothing/eye protection/face protection. - P280
Wash thoroughly after handling. - P264

Response
IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing. - P304+P340
IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower. - P303+P361+P353
Immediately call a POISON CENTER or doctor/physician. - P310
Specific treatment, see supplemental first aid information. - P321
Wear protective gloves/protective clothing/eye protection/face protection. - P264
Wash contaminated clothing before reuse. - P363
IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. - P305+P351+P338
IF SWALLOWED: Rinse mouth. Do NOT induce vomiting. - P301+P330+P331

Storage/Disposal
Store locked up. - P405
Dispose of content and/or container in accordance with local, regional, national, and/or international regulations. - P501

2.3 Other hazards
OSHA HCS 2012

Canada
According to WHMIS

2.1 Classification of the substance or mixture
WHMIS
Very Toxic - D1A
Other Toxic Effects - D2A
Corrosive - E

2.2 Label elements
WHMIS
Very Toxic - D1A
Other Toxic Effects - D2A
Corrosive - E

2.3 Other hazards
WHMIS
In Canada, the product mentioned above is considered hazardous under the Workplace Hazardous Materials Information System (WHMIS).

2.4 Other information
NFPA

Section 3 - Composition/Information on Ingredients

3.1 Substances
### Composition

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>Identifiers</th>
<th>%</th>
<th>LD50/LC50</th>
<th>Classifications According to Regulation/Directive</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hydrochloric acid</td>
<td>CAS:7647-01-0EC Number:231-595-7EU Index:017-002-00-2</td>
<td>25% TO 38%</td>
<td>Ingestion/Oral-Rabbit LD50 • 900mg/kgInhalation-Rat LC50 • 45000mg/m³ 5 Minute(s)</td>
<td>EU DSD/DPD: Annex I - C; R34 Xi; R37EU CLP: Annex VI - Skin Corr. 1B, H314; STOT SE 3: Resp. Irrit; H335OSHA HCS 2012: Eye Dam. 1; Skin Corr. 1B</td>
</tr>
</tbody>
</table>

#### 3.2 Mixtures

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

### Section 4 - First Aid Measures

#### 4.1 Description of first aid measures

**Inhalation**
- Move victim to fresh air. Administer oxygen if breathing is difficult. Give artificial respiration if victim is not breathing. Do not use mouth-to-mouth method if victim inhaled the substance; give artificial respiration with the aid of a pocket mask equipped with a one-way valve or other proper respiratory medical device. Get medical attention immediately.

**Skin**
- For minor skin contact, avoid spreading material on unaffected skin. In case of contact with substance, immediately flush skin with running water for at least 20 minutes. Remove and isolate contaminated clothing. 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) Do NOT induce vomiting. Never give anything by mouth to an unconscious person. Give plenty of water to drink. Do not use mouth-to-mouth method if victim ingested the substance. Obtain medical attention immediately if ingested.

#### 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.

### Section 5 - Firefighting Measures

#### 5.1 Extinguishing media

**Suitable Extinguishing Media**
- LARGE FIRES: Dry chemical, CO2, alcohol-resistant foam or water spray.
- SMALL FIRES: Dry chemical, CO2 or water spray.

**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.
- Acid reacts with most metals to release hydrogen gas, which can form explosive mixtures with air.
- A large amount of heat is generated when highly concentrated hydrofluoric acid solutions are diluted with water.
Hazardous Combustion Products
Non-combustible, substance itself does not burn but may decompose upon heating to produce corrosive fumes.

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. Wear chemical protective clothing that is specifically recommended by the manufacturer. It may provide little or no thermal protection. Wear positive pressure self-contained breathing apparatus (SCBA). SMALL FIRES: Move containers from fire area if you can do it without risk. Runoff from fire control may cause pollution.

Section 6 - Accidental Release Measures

6.1 Personal precautions, protective equipment and emergency procedures
Personal Precautions
Ventilate enclosed areas. Do not walk through spilled material. Wear appropriate personal protective equipment, avoid direct contact. Do not touch damaged containers or spilled material unless wearing appropriate protective clothing.

Emergency Procedures
ELIMINATE all ignition sources (no smoking, flares, sparks or flames in immediate area). As an immediate precautionary measure, isolate spill or leak area for at least 50 meters (150 feet) in all directions. Keep unauthorized personnel away. Stay upwind. Keep out of low areas. Do not get water inside container.

6.2 Environmental precautions
Prevent entry into waterways, sewers, basements or confined areas.

6.3 Methods and material for containment and cleaning up
Containment/Clean-up Measures
Absorb or cover with dry earth, sand or other non-combustible material and transfer to containers. Dike to collect large liquid spills. A vapor suppressing foam may be used to reduce vapors. Use water spray to reduce vapors or divert vapor cloud drift. Neutralize residue with sodium bicarbonate, soda ash, slaked lime or other appropriate neutralizing agent. Test area with litmus paper to ensure neutralization is complete.

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. Use only with adequate ventilation. Use caution when combining with water; DO NOT add water to corrosive liquid, ALWAYS add corrosive liquid to water while stirring to prevent release of heat, steam and fumes. Wear appropriate personal protective equipment, avoid direct contact. Do not breathe mist, vapours, spray. Do not get in eyes, on skin, or on clothing. Wash thoroughly with soap and water after handling and before eating, drinking, or using tobacco.

7.2 Conditions for safe storage, including any incompatibilities
Storage
Keep container tightly closed. Store in a cool, dry, well-ventilated place. Keep away from incompatible materials. Inspect all incoming containers before storage, to ensure containers are properly labeled and not damaged.

7.3 Specific end use(s)
Refer to Section 1.2 - Relevant identified uses.
## 8.1 Control parameters

### Exposure Limits/Guidelines

<table>
<thead>
<tr>
<th>Result</th>
<th>ACGIH</th>
<th>Canada Ontario</th>
<th>Canada Quebec</th>
<th>China</th>
<th>France</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Hydrochloric acid</strong> <em>(7647-01-0)</em></td>
<td>Ceilings</td>
<td>2 ppm Ceiling</td>
<td>2 ppm Ceiling</td>
<td>5 ppm Ceiling; 7.5 mg/m³ Ceiling [MAC]</td>
<td>Not established</td>
</tr>
<tr>
<td></td>
<td>STELs</td>
<td>Not established</td>
<td>Not established</td>
<td>Not established</td>
<td>5 ppm STEL [VLCT]; 7.6 mg/m³ STEL [VLCT]</td>
</tr>
</tbody>
</table>

### Exposure Limits/Guidelines (Con't.)

<table>
<thead>
<tr>
<th>Result</th>
<th>Germany DFG</th>
<th>Germany TRGS</th>
<th>Ireland</th>
<th>Israel</th>
<th>Italy</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Hydrochloric acid</strong> <em>(7647-01-0)</em></td>
<td>STELs</td>
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<td>Not established</td>
<td>10 ppm STEL; 15 mg/m³ STEL</td>
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<tr>
<td></td>
<td>TWAs</td>
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<td>2 ppm TWA AGW (The risk of damage to the embryo or fetus can be excluded when AGW and BGW values are observed, exposure factor 2); 3 mg/m³ TWA AGW (The risk of damage to the embryo or fetus can be excluded when AGW and BGW values are observed, exposure factor 2)</td>
<td>5 ppm TWA; 8 mg/m³ TWA</td>
<td>Not established</td>
</tr>
<tr>
<td></td>
<td>Ceilings</td>
<td>4 ppm Peak; 6 mg/m³ Peak</td>
<td>Not established</td>
<td>Not established</td>
<td>2 ppm Ceiling</td>
</tr>
<tr>
<td></td>
<td>MAKs</td>
<td>2 ppm TWA MAK; 3.0 mg/m³ TWA MAK</td>
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<td>Not established</td>
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### Exposure Limits/Guidelines (Con't.)

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<thead>
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<th>Result</th>
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<th>OSHA</th>
<th>OSHA Vacated</th>
<th>Portugal</th>
<th>Spain</th>
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<tbody>
<tr>
<td><strong>Hydrochloric acid</strong> <em>(7647-01-0)</em></td>
<td>Ceilings</td>
<td>5 ppm Ceiling; 7 mg/m³ Ceiling</td>
<td>5 ppm Ceiling; 7 mg/m³ Ceiling</td>
<td>2 ppm Ceiling [VLE-CM]</td>
<td>Not established</td>
</tr>
<tr>
<td></td>
<td>STELs</td>
<td>Not established</td>
<td>Not established</td>
<td>Not established</td>
<td>Not established</td>
</tr>
<tr>
<td></td>
<td>TWAs</td>
<td>Not established</td>
<td>Not established</td>
<td>Not established</td>
<td>5 ppm TWA [VLA-ED] (indicative limit value); 7.6 mg/m³ TWA [VLA-ED] (indicative limit value)</td>
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</table>

### Exposure Limits/Guidelines (Con't.)

<table>
<thead>
<tr>
<th>Result</th>
<th>Sweden</th>
</tr>
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<tbody>
<tr>
<td><strong>Hydrochloric acid</strong> <em>(7647-01-0)</em></td>
<td>Ceilings</td>
</tr>
</tbody>
</table>

## 8.2 Exposure controls

**Engineering Measures/Controls**

Good general ventilation should be used. Ventilation rates should be matched to conditions. If applicable, use process enclosures, local exhaust ventilation, or other engineering controls to maintain airborne levels below recommended exposure limits.
If exposure limits have not been established, maintain airborne levels to an acceptable level.

**Personal Protective Equipment**

**Respiratory**
- Follow the OSHA respirator regulations found in 29 CFR 1910.134 or European Standard EN 149. Use a NIOSH/MSHA or European Standard EN 149 approved respirator if exposure limits are exceeded or symptoms are experienced.

**Eye/Face**
- Wear chemical splash safety goggles.

**Skin/Body**
- Wear appropriate gloves.

**Environmental Exposure Controls**
- Controls should be engineered to prevent release to the environment, including procedures to prevent spills, atmospheric release and release to waterways. Follow best practice for site management and disposal of waste.

**Key to abbreviations**

- ACGIH = American Conference of Governmental Industrial Hygiene
- MAK = Maximale Arbeitsplatz Konzentration is the maximum permissible concentration
- NIOSH = National Institute of Occupational Safety and Health
- OSHA = Occupational Safety and Health Administration
- STEL = Short Term Exposure Limits are based on 15-minute exposures
- TWA = Time-Weighted Averages are based on 8h/day, 40h/week exposures
- TWAEV = Time-Weighted Average Exposure Value

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**Section 9 - Physical and Chemical Properties**

**9.1 Information on Physical and Chemical Properties**

<table>
<thead>
<tr>
<th>Material Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Physical Form</td>
</tr>
<tr>
<td>Appearance/Description</td>
</tr>
<tr>
<td>Color</td>
</tr>
<tr>
<td>Odor Threshold</td>
</tr>
<tr>
<td>Odor</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>General Properties</th>
</tr>
</thead>
<tbody>
<tr>
<td>Boiling Point</td>
</tr>
<tr>
<td>Melting Point</td>
</tr>
<tr>
<td>Decomposition Temperature</td>
</tr>
<tr>
<td>pH</td>
</tr>
<tr>
<td>Specific Gravity/Relative Density</td>
</tr>
<tr>
<td>Water Solubility</td>
</tr>
<tr>
<td>Viscosity</td>
</tr>
<tr>
<td>Explosive Properties</td>
</tr>
<tr>
<td>Oxidizing Properties</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Volatility</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vapor Pressure</td>
</tr>
<tr>
<td>Vapor Density</td>
</tr>
<tr>
<td>Evaporation Rate</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Flammability</th>
</tr>
</thead>
<tbody>
<tr>
<td>Flash Point</td>
</tr>
<tr>
<td>UEL</td>
</tr>
<tr>
<td>LEL</td>
</tr>
<tr>
<td>Autoignition</td>
</tr>
<tr>
<td>Flammability (solid, gas)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Environmental</th>
</tr>
</thead>
<tbody>
<tr>
<td>Octanol/Water Partition coefficient</td>
</tr>
</tbody>
</table>

---

9.2 Other Information
No additional physical and chemical parameters noted.

## Section 10: Stability and Reactivity

### 10.1 Reactivity
- No dangerous reaction known under conditions of normal use.

### 10.2 Chemical stability
- Stable

### 10.3 Possibility of hazardous reactions
- Hazardous polymerization will not occur.

### 10.4 Conditions to avoid
- Excess heat.

### 10.5 Incompatible materials
- Hydrochloric Acid is incompatible with metals (e.g. steel, copper, brass or zinc), sodium, bases, formaldehyde, oxidizing agents (e.g. hydrogen peroxide, chlorates or chlorites), reducing agents (e.g. metal hydrides), perchloric acid, sulfuric acid, potassium permanganate, aldehydes or epoxides, fluorine, acetylenes (e.g. cesium acetylide or rubidium acetylide), borides (e.g. magnesium boride), carbides (e.g. rubidium carbide), phosphide (e.g. uranium phosphide) or silicides (e.g. lithium silicide), hexalithium disilicide. Mixing 36% hydrochloric acid with acetic anhydride or chlorosulphonic acid or oleum or propiolactone or propylene oxide or vinylacetate in a closed container caused the temperature and pressure to increase.

### 10.6 Hazardous decomposition products

## Section 11 - Toxicological Information

### 11.1 Information on toxicological effects

<table>
<thead>
<tr>
<th>GHS Properties</th>
<th>Classification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acute toxicity</td>
<td>EU/CLP • Classification criteria not met</td>
</tr>
<tr>
<td></td>
<td>OSHA HCS 2012 • Classification criteria not met</td>
</tr>
<tr>
<td>Aspiration Hazard</td>
<td>EU/CLP • Classification criteria not met</td>
</tr>
<tr>
<td></td>
<td>OSHA HCS 2012 • Classification criteria not met</td>
</tr>
<tr>
<td>Carcinogenicity</td>
<td>EU/CLP • Classification criteria not met</td>
</tr>
<tr>
<td></td>
<td>OSHA HCS 2012 • Classification criteria not met</td>
</tr>
<tr>
<td>Germ Cell Mutagenicity</td>
<td>EU/CLP • Classification criteria not met</td>
</tr>
<tr>
<td></td>
<td>OSHA HCS 2012 • Classification criteria not met</td>
</tr>
<tr>
<td>Skin corrosion/Irritation</td>
<td>EU/CLP • Skin Corrosion 1B</td>
</tr>
<tr>
<td></td>
<td>OSHA HCS 2012 • Skin Corrosion 1B</td>
</tr>
<tr>
<td>Skin sensitization</td>
<td>EU/CLP • Classification criteria not met</td>
</tr>
<tr>
<td></td>
<td>OSHA HCS 2012 • Classification criteria not met</td>
</tr>
<tr>
<td>STOT-RE</td>
<td>EU/CLP • Classification criteria not met</td>
</tr>
<tr>
<td></td>
<td>OSHA HCS 2012 • Classification criteria not met</td>
</tr>
</tbody>
</table>
### Potential Health Effects

#### Inhalation

**Acute (Immediate)**
- May cause respiratory irritation. May cause corrosive burns - irreversible damage.

**Chronic (Delayed)**
- Repeated or prolonged exposure to corrosive fumes may cause bronchial irritation with chronic cough.

#### Skin

**Acute (Immediate)**
- Causes severe skin burns and eye damage.

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

#### Eye

**Acute (Immediate)**
- Causes serious eye damage.

**Chronic (Delayed)**
- Repeated or prolonged exposure to corrosive materials or fumes may cause conjunctivitis.

#### Ingestion

**Acute (Immediate)**
- May cause irreversible damage to mucous membranes.

**Chronic (Delayed)**
- Repeated or prolonged exposure to corrosive materials or fumes may cause gastrointestinal disturbances.

### Section 12 - Ecological Information

#### 12.1 Toxicity
- Material data lacking.

#### 12.2 Persistence and degradability
- Material data lacking.

#### 12.3 Bioaccumulative potential
- Material data lacking.

#### 12.4 Mobility in Soil
- Material data lacking.

#### 12.5 Results of PBT and vPvB assessment
- No PBT and vPvB assessment has been conducted.

#### 12.6 Other adverse effects
- No studies have been found.

### Section 13 - Disposal Considerations

#### 13.1 Waste treatment methods
- Dispose of content and/or container in accordance with local, regional, national, and/or...
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>DOT</th>
<th>UN number</th>
<th>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>UN1789</td>
<td>Hydrochloric acid</td>
<td>8</td>
<td>II</td>
<td>NDA</td>
<td></td>
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<tr>
<td>DOT</td>
<td>UN1789</td>
<td>HYDROCHLORIC ACID</td>
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<td>Hydrochloric acid</td>
<td>8</td>
<td>II</td>
<td>NDA</td>
</tr>
</tbody>
</table>

14.6 Special precautions for user

None known.

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

Acute

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>Hydrochloric acid</td>
<td>7647-01-0</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
</tbody>
</table>

Inventory

<table>
<thead>
<tr>
<th>Component</th>
<th>CAS</th>
<th>Canada DSL</th>
<th>Canada NDSL</th>
<th>China</th>
<th>EU EINECS</th>
<th>EU ELNICS</th>
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<tbody>
<tr>
<td>Hydrochloric acid</td>
<td>7647-01-0</td>
<td>Yes</td>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
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</tbody>
</table>

Inventory (Con’t.)

<table>
<thead>
<tr>
<th>Component</th>
<th>CAS</th>
<th>TSCA</th>
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<tbody>
<tr>
<td>Hydrochloric acid</td>
<td>7647-01-0</td>
<td>Yes</td>
</tr>
</tbody>
</table>

Canada Labor

Canada - WHMIS - Classifications of Substances

- Hydrochloric acid 7647-01-0 A, D1A, E (listed under Hydrogen chloride); D1A, E; E (0.036% in aqueous solution, 0.36% in aqueous solution, 3.6% in aqueous solution); D1B, E (28% in aqueous solution); D1A, E (31.45% in aqueous solution, 35.2% in aqueous solution)
### Environment

**Canada - CEPA - Priority Substances List**

<table>
<thead>
<tr>
<th>Substance</th>
<th>CAS Number</th>
<th>Concentration</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hydrochloric acid</td>
<td>7647-01-0</td>
<td>1 %</td>
</tr>
</tbody>
</table>

**China - Ozone Depleting Substances**

- **First Schedule**
  - Hydrochloric acid
    - CAS Number: 7647-01-0
    - Status: Not Listed

- **Second Schedule**
  - Hydrochloric acid
    - CAS Number: 7647-01-0
    - Status: Not Listed

- **Third Schedule**
  - Hydrochloric acid
    - CAS Number: 7647-01-0
    - Status: Not Listed

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

- Hydrochloric acid
  - CAS Number: 7647-01-0
  - Status: Not Listed

**China - Dangerous Goods List**

- Hydrochloric acid
  - CAS Number: 7647-01-0
  - Description: (anhydrous, refrigerated liquid or Hydrochloric acid)

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

- Hydrochloric acid
  - CAS Number: 7647-01-0
  - Status: Not Listed

### Europe

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

- Hydrochloric acid
  - CAS Number: 7647-01-0
  - Hazard Classifications: T; R23; C; R35

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

- Hydrochloric acid
  - CAS Number: 7647-01-0
  - Status: Not Listed

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

- Hydrochloric acid
  - CAS Number: 7647-01-0

**EU - CLP (1272/2008) - Annex VI - Table 3.2 - Notes - Substances and Preparations**

- Hydrochloric acid
  - CAS Number: 7647-01-0
  - Notes: 5

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

- Hydrochloric acid
  - CAS Number: 7647-01-0

### Germany

**Environment**

- **Germany - TA Luft - Types and Classes**
  - Hydrochloric acid
    - CAS Number: 7647-01-0
    - Status: Not Listed

- **Germany - Water Classification (VwVwS) - Annex 1**
  - Hydrochloric acid
    - CAS Number: 7647-01-0
    - Status: Not Listed
<table>
<thead>
<tr>
<th>Country</th>
<th>Regulations/Standards</th>
<th>Substance</th>
<th>ID Number</th>
<th>Hazard Class</th>
<th>Notes</th>
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<tr>
<td>Germany</td>
<td>Water Classification (VwVwS) - Annex 2 - Water Hazard Classes</td>
<td>Hydrochloric acid</td>
<td>7647-01-0</td>
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<td>Low hazard to waters (footnote 8)</td>
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<td>Water Classification (VwVwS) - Annex 3</td>
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<td>Portugal</td>
<td>Specifically Regulated Chemicals in TRGS</td>
<td>Hydrochloric acid</td>
<td>7647-01-0</td>
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<td>Not Listed</td>
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<tr>
<td></td>
<td>Prohibited Substances</td>
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<tr>
<td>United Kingdom</td>
<td>Pollution Inventory - Schedule 1 - Thresholds for Releases to Air</td>
<td>Hydrochloric acid</td>
<td>7647-01-0</td>
<td>10000 kg</td>
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</tr>
<tr>
<td></td>
<td>Workplace Exposure Limits (WELs) - Substances in Review</td>
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<tr>
<td></td>
<td>List of Dangerous Substances in Water</td>
<td>Hydrochloric acid</td>
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<td>United States</td>
<td>Process Safety Management - Highly Hazardous Chemicals</td>
<td>Hydrochloric acid</td>
<td>7647-01-0</td>
<td>5000 lb TQ; 5000 lb TQ (anhydrous)</td>
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<tr>
<td></td>
<td>Specifically Regulated Chemicals</td>
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<td>CAA (Clean Air Act) - 1990 Hazardous Air Pollutants</td>
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<td>CERCLA/SARA - Hazardous Substances and their Reportable Quantities</td>
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<td>7647-01-0</td>
<td>5000 lb final RQ; 2270 kg final RQ</td>
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<tr>
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<td>Radionuclides and Their Reportable Quantities</td>
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<td>Section 302 Extremely Hazardous Substances EPCRA RQs</td>
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<td>5000 lb EPCRA RQ (gas only)</td>
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</tbody>
</table>
U.S. - CERCLA/SARA - Section 302 Extremely Hazardous Substances TPQs
• Hydrochloric acid 7647-01-0 500 lb TPQ (gas only)

U.S. - CERCLA/SARA - Section 313 - Emission Reporting
• Hydrochloric acid 7647-01-0 1.0 % de minimis concentration (acid aerosols including mists, vapors, gas, fog, and other airborne forms of any particle size)

U.S. - CERCLA/SARA - Section 313 - PBT Chemical Listing
• Hydrochloric acid 7647-01-0 Not Listed

United States - California

Environment
U.S. - California - Proposition 65 - Carcinogens List
• Hydrochloric acid 7647-01-0 Not Listed

U.S. - California - Proposition 65 - Developmental Toxicity
• Hydrochloric acid 7647-01-0 Not Listed

U.S. - California - Proposition 65 - Maximum Allowable Dose Levels (MADL)
• Hydrochloric acid 7647-01-0 Not Listed

U.S. - California - Proposition 65 - No Significant Risk Levels (NSRL)
• Hydrochloric acid 7647-01-0 Not Listed

U.S. - California - Proposition 65 - Reproductive Toxicity - Female
• Hydrochloric acid 7647-01-0 Not Listed

U.S. - California - Proposition 65 - Reproductive Toxicity - Male
• Hydrochloric acid 7647-01-0 Not Listed

United States - Pennsylvania

Labor
U.S. - Pennsylvania - RTK (Right to Know) - Environmental Hazard List
• Hydrochloric acid 7647-01-0

U.S. - Pennsylvania - RTK (Right to Know) - Special Hazardous Substances
• Hydrochloric acid 7647-01-0 Not Listed

15.2 Chemical Safety Assessment
No Chemical Safety Assessment has been carried out.

Section 16 - Other Information

Last Revision Date 23/December/2014
Preparation Date 23/December/2014
Disclaimer/Statement of Liability
To the best of Air Liquide's knowledge, the information contained herein is reliable and accurate as of this date; however, accuracy, suitability or completeness are not guaranteed and no warranties of any type, either express or implied, are provided. The information contained herein relates only to this specific product. If this gas mixture is
combined with other materials, all component properties must be considered. Data may be changed from time to time. Be sure to consult the latest edition.

**Key to abbreviations**
NDA = No data available