SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1 Product identifier

Identification of the substance: Hydrochloric acid

Article number: P708

Registration number (REACH): not relevant (mixture)

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

Identified uses:
- laboratory chemical
- laboratory and analytical use

1.3 Details of the supplier of the safety data sheet

Carl Roth GmbH + Co KG
Schoemperlenstr. 3-5
D-76185 Karlsruhe
Germany

Telephone: +49 (0) 721 - 56 06 0
Telefax: +49 (0) 721 - 56 06 149
e-mail: sicherheit@carlroth.de
Website: www.carlroth.de

Competent person responsible for the safety data sheet: Department Health, Safety and Environment

e-mail (competent person): sicherheit@carlroth.de

1.4 Emergency telephone number

Emergency information service: Poison Centre Munich: +49/(0)89 19240

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

Classification according to Regulation (EC) No 1272/2008 (CLP)

<table>
<thead>
<tr>
<th>Section</th>
<th>Hazard class</th>
<th>Hazard class and category</th>
<th>Hazard statement</th>
</tr>
</thead>
<tbody>
<tr>
<td>2.16</td>
<td>substance or mixture corrosive to metals</td>
<td>(Met. Corr. 1)</td>
<td>H290</td>
</tr>
</tbody>
</table>

2.2 Label elements

Labelling according to Regulation (EC) No 1272/2008 (CLP)

Signal word: Warning
### Pictograms

GHS05

### Hazard statements

**H290** May be corrosive to metals

### Precautionary statements

**Precautionary statements - prevention**

P234 Keep only in original packaging.

**Precautionary statements - response**

P390 Absorb spillage to prevent material damage.

**Labelling of packages where the contents do not exceed 125 ml**

Signal word: **Warning** Not required

**Symbol(s)**

### 2.3 Other hazards

There is no additional information.

### SECTION 3: Composition/information on ingredients

#### 3.2 Mixtures

**Description of the mixture**

Composition/information on ingredients.

<table>
<thead>
<tr>
<th>Name of substance</th>
<th>Identifier</th>
<th>wt%</th>
<th>Classification acc. to 1272/2008/EC</th>
<th>Pictograms</th>
<th>Specific Conc. Limits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hydrochloric acid %</td>
<td>EC No 231-595-7</td>
<td>&lt; 3</td>
<td>Skin Corr. 1B / H314 Eye Dam. 1 / H318 STOT SE 3 / H335</td>
<td></td>
<td>Skin Corr. 1B; H314: C ≥ 25 % Skin Irrit. 2; H315: 10 % ≤ C &lt; 25 % Eye Dam. 1; H318: C ≥ 25 % Eye Irrit. 2; H319: 10 % ≤ C &lt; 25 % STOT SE 3; H335: C ≥ 10 %</td>
</tr>
<tr>
<td></td>
<td>Index No 017-002-01-X</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>REACH Reg. No 01-211948462-27-xxxx</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Remarks**

For full text of Hazard- and EU Hazard-statements: see SECTION 16.
SECTION 4: First aid measures

4.1 Description of first aid measures

General notes
Take off immediately all contaminated clothing.

Following inhalation
Provide fresh air. In all cases of doubt, or when symptoms persist, seek medical advice.

Following skin contact
Immediate medical treatment required because corrosive injuries that are not treated are hard to cure.

Following eye contact
In case of contact with eyes flush immediately with plenty of flowing water for 10 to 15 minutes holding eyelids apart and consult an ophthalmologist. Protect uninjured eye.

Following ingestion
Rinse mouth immediately and drink plenty of water. Call a physician immediately.

4.2 Most important symptoms and effects, both acute and delayed

Irritant effects

4.3 Indication of any immediate medical attention and special treatment needed

none

SECTION 5: Firefighting measures

5.1 Extinguishing media

Suitable extinguishing media
Co-ordinate fire-fighting measures to the fire surroundings water spray, foam, dry extinguishing powder, carbon dioxide (CO2)

Unsuitable extinguishing media
water jet

5.2 Special hazards arising from the substance or mixture
Non-combustible.

Hazardous combustion products
In case of fire may be liberated: hydrogen chloride (HCl)

5.3 Advice for firefighters
Fight fire with normal precautions from a reasonable distance. Wear self-contained breathing apparatus. Wear full chemical protective clothing.
SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

For non-emergency personnel
Use personal protective equipment as required. Avoid contact with skin, eyes and clothes. Do not breathe vapour/spray.

6.2 Environmental precautions
Keep away from drains, surface and ground water. The product is an acid. Before discharge into sewage plants the product normally needs to be neutralised.

6.3 Methods and material for containment and cleaning up

Advices on how to contain a spill
Covering of drains.

Advices on how to clean up a spill
Wipe up with absorbent material (e.g. cloth, fleece). Absorb with liquid-binding material (e.g. sand, diatomaceous earth, acid- or universal binding agents).

Other information relating to spills and releases
Place in appropriate containers for disposal.

6.4 Reference to other sections

SECTION 7: Handling and storage

7.1 Precautions for safe handling
Provide adequate ventilation.

Advice on general occupational hygiene
Wash hands before breaks and after work. Keep away from food, drink and animal feedingstuffs.

7.2 Conditions for safe storage, including any incompatibilities
Keep only in the original container.

Incompatible substances or mixtures
Observe hints for combined storage.

Consideration of other advice

• Specific designs for storage rooms or vessels
Recommended storage temperature: 15 – 25 °C.

7.3 Specific end use(s)
No information available.
SECTION 8: Exposure controls/personal protection

8.1 Control parameters

National limit values

Occupational exposure limit values (Workplace Exposure Limits)

<table>
<thead>
<tr>
<th>Country</th>
<th>Name of agent</th>
<th>CAS No</th>
<th>Notation</th>
<th>Identifier</th>
<th>TWA [ppm]</th>
<th>TWA [mg/m³]</th>
<th>STEL [ppm]</th>
<th>STEL [mg/m³]</th>
<th>Source</th>
</tr>
</thead>
<tbody>
<tr>
<td>EU</td>
<td>hydrogen chloride</td>
<td>7647-01-0</td>
<td>IOELV</td>
<td></td>
<td>5</td>
<td>8</td>
<td>10</td>
<td>15</td>
<td>2000/39/EC</td>
</tr>
<tr>
<td>GB</td>
<td>hydrogen chloride</td>
<td>7647-01-0</td>
<td>ga</td>
<td>WEL</td>
<td>1</td>
<td>2</td>
<td>5</td>
<td>8</td>
<td>EH40/2005</td>
</tr>
</tbody>
</table>

Notation

- ga: As gases and aerosols
- STEL: Short-term exposure limit: a limit value above which exposure should not occur and which is related to a 15-minute period (unless otherwise specified)
- TWA: Time-weighted average (long-term exposure limit): measured or calculated in relation to a reference period of 8 hours time-weighted average (unless otherwise specified)

8.2 Exposure controls

Individual protection measures (personal protective equipment)

Eye/face protection

Use safety goggle with side protection.

Skin protection

- **hand protection**
  Wear suitable gloves. Chemical protection gloves are suitable, which are tested according to EN 374. For special purposes, it is recommended to check the resistance to chemicals of the protective gloves mentioned above together with the supplier of these gloves.

  - **type of material**
    NBR (Nitrile rubber)

  - **material thickness**
    >0,11 mm

  - **breakthrough times of the glove material**
    >480 minutes (permeation: level 6)

  - **other protection measures**
    Take recovery periods for skin regeneration. Preventive skin protection (barrier creams/ointments) is recommended.

Respiratory protection
Respiratory protection necessary at: Aerosol or mist formation. Type: E (against acidic gases like sulphur dioxide or hydrogen chloride, colour code: Yellow). P2 (filters at least 94 % of airborne particles, colour code: White).

Environmental exposure controls
Keep away from drains, surface and ground water.

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

Appearance
Physical state: liquid (fluid)
Colour: colourless
Odour: odourless
Odour threshold: No data available

Other physical and chemical parameters
pH (value): 1 (20 °C)
Melting point/freezing point: ~ 0 °C
Initial boiling point and boiling range: ~ 100 °C
Flash point: not determined
Evaporation rate: no data available
Flammability (solid, gas): not relevant (fluid)

Explosive limits
• lower explosion limit (LEL): this information is not available
• upper explosion limit (UEL): this information is not available
Explosion limits of dust clouds: not relevant
Vapour pressure: 23 hPa at 20 °C
Density: 1.007 g/cm³ at 20 °C
Vapour density: This information is not available.
Bulk density: Not applicable
Relative density: Information on this property is not available.

Solubility(ies)
Water solubility: miscible in any proportion

Partition coefficient
n-octanol/water (log KOW): This information is not available.
Auto-ignition temperature: Information on this property is not available.
Decomposition temperature: no data available
Viscosity: not determined
Explosive properties: Shall not be classified as explosive
SECTION 10: Stability and reactivity

10.1 Reactivity
Substance or mixture corrosive to metals.

10.2 Chemical stability
The material is stable under normal ambient and anticipated storage and handling conditions of temperature and pressure.

10.3 Possibility of hazardous reactions
Violent reaction with: Alkali (lye), Strong oxidiser

10.4 Conditions to avoid
There are no specific conditions known which have to be avoided.

10.5 Incompatible materials
different metals

10.6 Hazardous decomposition products
Hazardous combustion products: see section 5.

SECTION 11: Toxicological information

11.1 Information on toxicological effects

Acute toxicity
Shall not be classified as acutely toxic.

Skin corrosion/irritation
Shall not be classified as corrosive/irritant to skin.

Serious eye damage/eye irritation
Shall not be classified as seriously damaging to the eye or eye irritant.

Respiratory or skin sensitisation
Shall not be classified as a respiratory or skin sensitiser.

Summary of evaluation of the CMR properties
Shall not be classified as germ cell mutagenic, carcinogenic nor as a reproductive toxicant

• Specific target organ toxicity - single exposure
Shall not be classified as a specific target organ toxicant (single exposure).

• Specific target organ toxicity - repeated exposure
Shall not be classified as a specific target organ toxicant (repeated exposure).

Aspiration hazard
Shall not be classified as presenting an aspiration hazard.

Symptoms related to the physical, chemical and toxicological characteristics

• If swallowed
data are not available
**SECTION 12: Ecological information**

12.1 **Toxicity**

acc. to 1272/2008/EC: Shall not be classified as hazardous to the aquatic environment.

12.2 **Process of degradability**

The methods for determining the biological degradability are not applicable to inorganic substances.

12.3 **Bioaccumulative potential**

Data are not available.

12.4 **Mobility in soil**

Data are not available.

12.5 **Results of PBT and vPvB assessment**

Data are not available.

12.6 **Other adverse effects**

Data are not available.

**SECTION 13: Disposal considerations**

13.1 **Waste treatment methods**

This material and its container must be disposed of as hazardous waste. Dispose of contents/container in accordance with local/regional/national/international regulations.

**Sewage disposal-relevant information**

Do not empty into drains.

**Waste treatment of containers/packagings**

It is a dangerous waste; only packagings which are approved (e.g. acc. to ADR) may be used.

**Sewage disposal-relevant information**

Do not empty into drains.

**Waste treatment of containers/packagings**

It is a dangerous waste; only packagings which are approved (e.g. acc. to ADR) may be used.

13.2 **Relevant provisions relating to waste**

The allocation of waste identity numbers/waste descriptions must be carried out according to the EEC, specific to the industry and process.
13.3 Remarks
Waste shall be separated into the categories that can be handled separately by the local or national waste management facilities. Please consider the relevant national or regional provisions.

SECTION 14: Transport information

14.1 UN number
1789

14.2 UN proper shipping name
HYDROCHLORIC ACID

14.3 Transport hazard class(es)
Class 8 (corrosive substances)

14.4 Packing group
III (substance presenting low danger)

14.5 Environmental hazards
none (non-environmentally hazardous acc. to the dangerous goods regulations)

14.6 Special precautions for user
Provisions for dangerous goods (ADR) should be complied within the premises.

14.7 Transport in bulk according to Annex II of MARPOL and the IBC Code
The cargo is not intended to be carried in bulk.

14.8 Information for each of the UN Model Regulations
• Transport of dangerous goods by road, rail and inland waterway (ADR/RID/ADN)

UN number
1789

Proper shipping name
HYDROCHLORIC ACID

Particulars in the transport document
UN1789, HYDROCHLORIC ACID, 8, III, (E)

Class 8

Classification code C1

Packing group III

Danger label(s) 8

Special provisions (SP) 520

Excepted quantities (EQ) E1

Limited quantities (LQ) 5 L

Transport category (TC) 3

Tunnel restriction code (TRC) E

Hazard identification No 80

Emergency Action Code 2R
Hydrochloric acid 0,5 mol/l - 0,5 N volumetric standard solution

article number: P708

**International Maritime Dangerous Goods Code (IMDG)**

- **UN number**: 1789
- **Proper shipping name**: HYDROCHLORIC ACID
- **Particulars in the shipper's declaration**: UN1789, HYDROCHLORIC ACID, 8, III
- **Class**: 8
- **Marine pollutant**: -
- **Packing group**: III
- **Danger label(s)**: 8

**Special provisions (SP)**: 223
**Excepted quantities (EQ)**: E1
**Limited quantities (LQ)**: 5 L
**EmS**: F-A, S-B
**Stowage category**: C
**Segregation group**: 1 - Acids

**International Civil Aviation Organization (ICAO-IATA/DGR)**

- **UN number**: 1789
- **Proper shipping name**: Hydrochloric acid
- **Particulars in the shipper's declaration**: UN1789, Hydrochloric acid, 8, III
- **Class**: 8
- **Packing group**: III
- **Danger label(s)**: 8

**Special provisions (SP)**: A3
**Excepted quantities (EQ)**: E1
**Limited quantities (LQ)**: 1 L

**SECTION 15: Regulatory information**

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

**Relevant provisions of the European Union (EU)**

- **Regulation 649/2012/EU concerning the export and import of hazardous chemicals (PIC)**
  None of the ingredients are listed.

- **Regulation 1005/2009/EC on substances that deplete the ozone layer (ODS)**
  None of the ingredients are listed.
• Regulation 850/2004/EC on persistent organic pollutants (POP)
None of the ingredients are listed.

• Restrictions according to REACH, Annex XVII

<table>
<thead>
<tr>
<th>Name of substance</th>
<th>CAS No</th>
<th>Wt%</th>
<th>Type of registration</th>
<th>Conditions of restriction</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hydrochloric acid ... %</td>
<td></td>
<td>2.9</td>
<td>1907/2006/EC annex XVII</td>
<td>R3</td>
<td>3</td>
</tr>
</tbody>
</table>

Legend
R3
1. Shall not be used in:
   - ornamental articles intended to produce light or colour effects by means of different phases, for example in ornamental lamps and ashtrays,
   - tricks and jokes,
   - games for one or more participants, or any article intended to be used as such, even with ornamental aspects,
2. Articles not complying with paragraph 1 shall not be placed on the market.
3. Shall not be placed on the market if they contain a colouring agent, unless required for fiscal reasons, or perfume, or both, if they:
   - can be used as fuel in decorative oil lamps for supply to the general public, and,
   - present an aspiration hazard and are labelled with R65 or H304.
4. Decorative oil lamps for supply to the general public shall not be placed on the market unless they conform to the European Standard on Decorative oil lamps (EN 14059) adopted by the European Committee for Standardisation (CEN).
5. Without prejudice to the implementation of other Community provisions relating to the classification, packaging and labelling of dangerous substances and mixtures, suppliers shall ensure, before the placing on the market, that the following requirements are met:
   (a) lamp oils, labelled with R65 or H304, intended for supply to the general public are visibly, legibly and indelibly marked as follows: ‘Keep lamps filled with this liquid out of the reach of children’; and, by 1 December 2010, ‘Just a sip of lamp oil - or even sucking the wick of lamps - may lead to life-threatening lung damage’;
   (b) grill lighter fluids, labelled with R65 or H304, intended for supply to the general public are legibly and indelibly marked by 1 December 2010 as follows: ‘Just a sip of grill lighter may lead to life-threatening lung damage’;
   (c) lamp oils and grill lighters, labelled with R65 or H304, intended for supply to the general public are packaged in black opaque containers not exceeding 1 litre by 1 December 2010.
6. No later than 1 June 2014, the Commission shall request the European Chemicals Agency to prepare a dossier, in accordance with Article 69 of the present Regulation with a view to ban, if appropriate, grill lighter fluids and fuel for decorative lamps, labelled R65 or H304, intended for supply to the general public.
7. Natural or legal persons placing on the market for the first time lamp oils and grill lighter fluids, labelled with R65 or H304, shall by 1 December 2011, and annually thereafter, provide data on alternatives to lamp oils and grill lighter fluids labelled R65 or H304 to the competent authority in the Member State concerned. Member States shall make those data available to the Commission.

• Restrictions according to REACH, Title VIII
None.

• List of substances subject to authorisation (REACH, Annex XIV)/SVHC - candidate list
none of the ingredients are listed

• Seveso Directive

<table>
<thead>
<tr>
<th>2012/18/EU (Seveso III)</th>
</tr>
</thead>
<tbody>
<tr>
<td>No</td>
</tr>
<tr>
<td>-----</td>
</tr>
<tr>
<td></td>
</tr>
</tbody>
</table>

• Directive 75/324/EEC relating to aerosol dispensers

Filling batch

<table>
<thead>
<tr>
<th>VOC content</th>
<th>0 %</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>0 g/L</td>
</tr>
</tbody>
</table>
Hydrochloric acid 0,5 mol/l - 0,5 N volumetric standard solution

article number: P708

**Directive on industrial emissions (VOCs, 2010/75/EU)**

<table>
<thead>
<tr>
<th>VOC content</th>
<th>0 %</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>VOC content</th>
<th>Water content was discounted</th>
<th>0 g/l</th>
</tr>
</thead>
</table>

**Directive 2011/65/EU on the restriction of the use of certain hazardous substances in electrical and electronic equipment (RoHS) - Annex II**

None of the ingredients are listed.

**Regulation 166/2006/EC concerning the establishment of a European Pollutant Release and Transfer Register (PRTR)**

None of the ingredients are listed.

**Directive 2000/60/EC establishing a framework for Community action in the field of water policy (WFD)**

None of the ingredients are listed.

**Regulation 98/2013/EU on the marketing and use of explosives precursors**

none of the ingredients are listed

**Regulation 111/2005/EC laying down rules for the monitoring of trade between the Community and third countries in drug precursors**

<table>
<thead>
<tr>
<th>Name of substance</th>
<th>CAS No</th>
<th>Classification</th>
<th>CN Code</th>
<th>Threshold level</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hydrochloric acid ... %</td>
<td>7647-01-0</td>
<td>Category 3</td>
<td>2806 10 00</td>
<td></td>
</tr>
</tbody>
</table>

**National inventories**

<table>
<thead>
<tr>
<th>Country</th>
<th>National inventories</th>
<th>Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>AU</td>
<td>AICS</td>
<td>all ingredients are listed</td>
</tr>
<tr>
<td>CA</td>
<td>DSL</td>
<td>all ingredients are listed</td>
</tr>
<tr>
<td>CN</td>
<td>IECSC</td>
<td>all ingredients are listed</td>
</tr>
<tr>
<td>EU</td>
<td>ECSI</td>
<td>all ingredients are listed</td>
</tr>
<tr>
<td>EU</td>
<td>REACH Reg.</td>
<td>all ingredients are listed</td>
</tr>
<tr>
<td>JP</td>
<td>CSCL-ENCS</td>
<td>all ingredients are listed</td>
</tr>
<tr>
<td>KR</td>
<td>KECI</td>
<td>all ingredients are listed</td>
</tr>
<tr>
<td>MX</td>
<td>INSQ</td>
<td>all ingredients are listed</td>
</tr>
<tr>
<td>NZ</td>
<td>NZIoC</td>
<td>all ingredients are listed</td>
</tr>
<tr>
<td>PH</td>
<td>PICCS</td>
<td>all ingredients are listed</td>
</tr>
<tr>
<td>TR</td>
<td>CICR</td>
<td>not all ingredients are listed</td>
</tr>
<tr>
<td>TW</td>
<td>TCSI</td>
<td>all ingredients are listed</td>
</tr>
<tr>
<td>US</td>
<td>TSCA</td>
<td>all ingredients are listed</td>
</tr>
</tbody>
</table>

**Legend**

- **AICS**: Australian Inventory of Chemical Substances
- **CICR**: Chemical Inventory and Control Regulation
- **CSCL-ENCS**: List of Existing and New Chemical Substances (CSCL-ENCS)
- **DSL**: Domestic Substances List (DSL)
- **ECSI**: EC Substance Inventory (EINECS, ELINCS, NLP)
- **IECSC**: Inventory of Existing Chemical Substances Produced or Imported in China
15.2 Chemical Safety Assessment

Chemical safety assessments for substances in this mixture were not carried out.

---

**Abbreviations and acronyms**

<table>
<thead>
<tr>
<th>Abbr.</th>
<th>Descriptions of used abbreviations</th>
</tr>
</thead>
<tbody>
<tr>
<td>ADN</td>
<td>Accord européen relatif au transport international des marchandises dangereuses par voies de navigation intérieures (European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways)</td>
</tr>
<tr>
<td>ADR</td>
<td>Accord européen relatif au transport international des marchandises dangereuses par route (European Agreement concerning the International Carriage of Dangerous Goods by Road)</td>
</tr>
<tr>
<td>CAS</td>
<td>Chemical Abstracts Service (service that maintains the most comprehensive list of chemical substances)</td>
</tr>
<tr>
<td>CLP</td>
<td>Regulation (EC) No 1272/2008 on classification,labelling and packaging of substances and mixtures</td>
</tr>
<tr>
<td>CMR</td>
<td>Carcinogenic, Mutagenic or toxic for Reproduction</td>
</tr>
<tr>
<td>CN Code</td>
<td>Combined Nomenclature</td>
</tr>
<tr>
<td>DGR</td>
<td>Dangerous Goods Regulations (see IATA/DGR)</td>
</tr>
<tr>
<td>EC No</td>
<td>The EC Inventory (EINECS, ELINCS and the NLP-list) is the source for the seven-digit EC number, an identifier of substances commercially available within the EU (European Union)</td>
</tr>
<tr>
<td>EINECS</td>
<td>European Inventory of Existing Commercial Chemical Substances</td>
</tr>
<tr>
<td>ELINCS</td>
<td>European List of Notified Chemical Substances</td>
</tr>
<tr>
<td>EmS</td>
<td>Emergency Schedule</td>
</tr>
<tr>
<td>Eye Dam.</td>
<td>seriously damaging to the eye</td>
</tr>
<tr>
<td>Eye Irrit.</td>
<td>irritant to the eye</td>
</tr>
<tr>
<td>GHS</td>
<td>“Globally Harmonized System of Classification and Labelling of Chemicals” developed by the United Nations</td>
</tr>
<tr>
<td>IATA</td>
<td>International Air Transport Association</td>
</tr>
<tr>
<td>IATA/DGR</td>
<td>Dangerous Goods Regulations (DGR) for the air transport (IATA)</td>
</tr>
<tr>
<td>ICAO</td>
<td>International Civil Aviation Organization</td>
</tr>
<tr>
<td>IMDG</td>
<td>International Maritime Dangerous Goods Code</td>
</tr>
<tr>
<td>index No</td>
<td>the Index number is the identification code given to the substance in Part 3 of Annex VI to Regulation (EC) No 1272/2008</td>
</tr>
<tr>
<td>IOELV</td>
<td>indicative occupational exposure limit value</td>
</tr>
<tr>
<td>MARPOL</td>
<td>International Convention for the Prevention of Pollution from Ships (abbr. of &quot;Marine Pollutant&quot;)</td>
</tr>
<tr>
<td>NLP</td>
<td>No-Longer Polymer</td>
</tr>
<tr>
<td>PBT</td>
<td>Persistent, Bioaccumulative and Toxic</td>
</tr>
</tbody>
</table>
Safety data sheet
according to Regulation (EC) No. 1907/2006 (REACH), amended by 2015/830/EU

Hydrochloric acid 0,5 mol/l - 0,5 N volumetric standard solution

article number: P708

<table>
<thead>
<tr>
<th>Abbr.</th>
<th>Descriptions of used abbreviations</th>
</tr>
</thead>
<tbody>
<tr>
<td>ppm</td>
<td>parts per million</td>
</tr>
<tr>
<td>REACH</td>
<td>Registration, Evaluation, Authorisation and Restriction of Chemicals</td>
</tr>
<tr>
<td>RID</td>
<td>Règlement concernant le transport International ferroviaire des marchandises Dangereuses (Regulations concerning the International carriage of Dangerous goods by Rail)</td>
</tr>
<tr>
<td>Skin Corr.</td>
<td>corrosive to skin</td>
</tr>
<tr>
<td>Skin Irrit.</td>
<td>irritant to skin</td>
</tr>
<tr>
<td>STEL</td>
<td>short-term exposure limit</td>
</tr>
<tr>
<td>STOT SE</td>
<td>specific target organ toxicity - single exposure</td>
</tr>
<tr>
<td>SVHC</td>
<td>Substance of Very High Concern</td>
</tr>
<tr>
<td>TWA</td>
<td>time-weighted average</td>
</tr>
<tr>
<td>VOC</td>
<td>Volatile Organic Compounds</td>
</tr>
<tr>
<td>vPvB</td>
<td>very Persistent and very Bioaccumulative</td>
</tr>
<tr>
<td>WEL</td>
<td>workplace exposure limit</td>
</tr>
</tbody>
</table>

Key literature references and sources for data
- Regulation (EC) No. 1272/2008 (CLP, EU GHS)
- Dangerous Goods Regulations (DGR) for the air transport (IATA)
- International Maritime Dangerous Goods Code (IMDG)

List of relevant phrases (code and full text as stated in chapter 2 and 3)

<table>
<thead>
<tr>
<th>Code</th>
<th>Text</th>
</tr>
</thead>
<tbody>
<tr>
<td>H290</td>
<td>may be corrosive to metals</td>
</tr>
<tr>
<td>H314</td>
<td>causes severe skin burns and eye damage</td>
</tr>
<tr>
<td>H318</td>
<td>causes serious eye damage</td>
</tr>
<tr>
<td>H335</td>
<td>may cause respiratory irritation</td>
</tr>
</tbody>
</table>

Disclaimer
The above information describes exclusively the safety requirements of the product and is based on our present-day knowledge. The information is intended to give you advice about the safe handling of the product named in this safety data sheet, for storage, processing, transport and disposal. The information cannot be transferred to other products. In the case of mixing the product with other products or in the case of processing, the information on this safety data sheet is not necessarily valid for the new made-up material.