

**Name of the substance or mixture: Hydrochloric Acid (HCl)**

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## 1. Identification

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**Chemical or mixture (trade name):**HYDROCHLORIC ACID (HCl)

**Main recommended uses for the substance or mixture:**Cleaning and treating of ferrous metals;

Flotation and mineral processing; Acidification of oil wells; Regeneration of ion exchange resins; Construction; Neutralization effluent;

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## 2. Hazards identification

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**the substance or mixture:**

Corrosion / skin irritation: Category 1B

Toxicity for specific target organs - single exposure: Category 3.

**GHS label elements**



**Words of warning:**Danger

**Phrase (s) of danger**

H314 - Causes severe skin burns and eye damage.

H290 - May be corrosive to metals.

H335 - May cause respiratory irritation.

**Phrase (s) of caution:**

- **General:**not suitable
- **Prevention**

P271 - Use only outdoors or in well-ventilated areas.

P280 - Wear protective gloves / protective clothing / eye protection / face protection.

- **the emergency response:**

P304 + P340 - INHALATION: Remove person to fresh air and keep at rest in a position breathing.

P305 + P351 + P338 - IN CASE OF EYE CONTACT: Rinse thoroughly with water for several minutes. In the case of wearing contact lenses, remove them, if it is easy. Continue rinsing.

P303 + P361 + P353 - IN CONTACT WITH SKIN (or hair): Immediately remove all contaminated clothing. Rinse skin with water / take a shower.

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- **Storage:**P405 - Store in a locked place.

**Other hazards which do not result in classification:**The aspiration of hydrochloric acid may cause chemical pneumonitis and lead to an inflammatory response.

**Other information:**Not available.

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### 3. Composition and information about ingredients

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**Product type:**Substance.

**Ingredients or impurities contributing to hazard:**

Common chemical name or technical	CAS	Concentration or concentration range (%)
HYDROCHLORIC ACID	7647-01-0	33

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### 4. First aid actions

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- **Inhalation:**Remove the person from contaminated area to fresh air. If not breathing, resuscitate and administer oxygen. Seek medical attention immediately.
- **Skin contact:**Wash contaminated areas with soap and plenty of water for at least 20 minutes. A soothing ointment may be applied to irritated skin after vigorous cleaning. Remove contaminated clothing and shoes, and wash clothing before reuse. Discard footwear which can not be decontaminated. Do not attempt to neutralize the affected area with alkaline solutions. Get medical help.
- **Eye contact:**immediately flush eyes with plenty of water for at least 20 minutes, holding the eyelids apart to ensure flushing of the entire surface of the eyes. Do not attempt to neutralize the affected area with alkaline solutions. Get medical help.
- **ingestion:**Never give anything to drink to an unconscious person. If swallowed, do not induce vomiting. Give large quantities of water or milk. Seek medical attention immediately.

**Most important symptoms and effects, acute and delayed:**It causes severe skin burns and eye damage. Can be corrosive to metals. May result in respiratory irritation.

**Notes to physician:**Symptomatic treatment is advised. Do not induce vomiting.

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### 5. Fire fighting measures

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**Suitable extinguishing agents:** Suppressing gas / mist with water spray.

**Unsuitable extinguishing media:** None known.

**Specific hazards of the substance or mixture:** The substance is not flammable or explosive. The product reacts with metals with highly flammable hydrogen evolution.

**Protective measures of the fire fighting team:** In case of insufficient ventilation, wear suitable respiratory equipment.

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## 6. control measures to spill or leak

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### Personal precautions, protective equipment and emergency procedures

- **For staff that is not part of the emergency services:** Corrosive product. Do not allow the product contact with skin, eyes and mucous membranes. Do not handle broken packages. Do not touch the spilled material. Ventilate indoors.
- **For emergency service personnel:** Use personal protective equipment described in section 8. Corrosive product.

**Environmental precautions:** Avoid environmental contamination. Do not get in contact with the sewage and rainwater. Do not dump the soil.

**Methods and materials for sealing and containing:** Use PPE. Collect the contaminated material into containers suitable acid-proof. Eliminate the contaminated material and its container as hazardous waste in accordance with local regulations.

**area isolation:** Keep unauthorized persons away.

**Methods and materials for cleaning:** Neutralize small spillages with lime or sodium carbonate. remaining rinse with plenty of water.

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## 7. Handling and Storage

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### Precautions for safe handling

- **Worker exposure prevention:** Use personal protective equipment as described in Section 8.
- **Fire and explosion prevention:** The substance is not flammable.
- **Precautions and guidelines for safe handling:** The usual precautions for handling chemicals should be observed. Avoid any direct contact with the material.
- **Hygiene measures**
  - **appropriate:** Wash hands before breaks and at the end of the working period. Do not eat food or smoke during the work period. Remove contaminated clothing immediately.
  - **inappropriate:** Do not eat, drink or smoke when handling the product.

### Safe storage conditions

- **appropriate conditions:** Keep container tightly closed and in a well-ventilated container.
- **Conditions that should be avoided, including any incompatibilities:** Do not mix with incompatible materials (see "stability and reactivity" section).
- **Packaging materials**
  - **recommended:** Tanks of steel coated with hard rubber or plastic containers made of PE or PP or other strong material.
  - **inadequate:** PVC and polyester are not fully resistant.

**Other information:** Maintaining the sealed container. Use dikes or natural barriers to contain the leakage of the product. Take up dry. If possible leakage sealed using plugs, sealing strap or reversing the hole / slot / crumpled up. Collect all the material in containers suitable and properly labeled for subsequent treatment and disposal. Waste must be disposed of according to environmental local, state or federal law. To verify an appropriate location overflow and perform the security procedures described above.

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## 8. Exposure control and personal protection

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**Control parameters**

- **Occupational exposure limits:** NR 15: 4 ppm (5.5 mg / m<sup>3</sup>) 48 hours / week.
- **Biological indicators:** There are biological indicators of exposure established by Brazilian legislation - NR 07.

**Engineering control measures:** No action is required engineering. It is recommended adequate ventilation and existence device as emergency showers and eye wash.

**Personal protective measures**

- **eye / face protection:** wide vision safety goggles.
- **Skin Protection:** PVC boots and resistant to acids overalls.
- **Breath protection:** Respirator with chemical filter (the case of brief exposure). In case of longer exposure, use an autonomous breathing mask.
- **Hand protection:** rubber gloves (PVC)
- **Thermal Hazards:** Not available.

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**9. Physical and chemical properties**

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- **Aspect**
  - **physical state:** Liquid (aqueous solution) steaming clear, slightly yellowish
- **Odor:** pungent odor and irritating
- **Odor threshold:** Not available
- **pH:** 2 (0.2% solution of HCl by weight)
- **Melting point / freezing point:** Not available
- **Initial boiling point:** 110 ° C (solution at 30% by weight of HCl)
- **Boiling Temperature Range:** Not available
- **Flash Point:** Non flammable
- **Evaporation rate:** Not available
- **Flammability (solid, gas):** Non flammable
- **lower flammability limit or explosive:** Not available
- **flammability limit or greater explosiveness:** Not available
- **Steam pressure:** 11 mm Hg (30% solution by weight HCl at 20 ° C)
- **Vapor Density:** Not available
- **Relative density:** 1.16 g / m<sup>3</sup> (solution at 30% by weight HCl at 20 ° C)
- **Solubility (s):** full
- **Partition coefficient - n - octanol / water:** Not available
- **Autoignition Temperature:** Not available
- **Decomposition temperature:** Not available
- **Viscosity:** 1.7 cp

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**10. Stability and reactivity**

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**Chemical stability:** Stable under recommended conditions of storage and handling refer to handling and storage.

**Reactivity:** Reaction with strong oxidizing agents.

**Possibility of hazardous reactions:** Reaction with alkalis (bases).

**Conditions to avoid:** None known.

**Incompatible materials:** strong alkalis and oxidizing agents.

**Hazardous decomposition products:** Chlorine and Hydrogen.

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## 11. toxicological information

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**Acute toxicity:** In contact with skin and / or eyes, causes severe burns

**Corrosion / skin irritation:** It causes severe skin burns

**Serious eye damage / irritation:** It causes severe ocular burns

**respiratory or skin sensitization:** May result in respiratory irritation

**Germ cell mutagenicity:** Conclusion: not sufficient for classification

**carcinogenicity:** Conclusion: not sufficient for classification

**Reproductive toxicity:** Conclusion: not sufficient for classification

**Toxicity for specific target organs - single exposure:** May result in respiratory irritation

**Toxicity for specific target organs - repeated exposure:** Conclusion: not sufficient for classification

**Aspiration hazard:** May result in respiratory irritation

**Other information:** Not available

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## 12. ecological information

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**ecotoxicity:** Hydrochloric acid may be severely toxic to aquatic life through the reduction of the total aqueous pH. Typically, most aquatic species can not tolerate pH below 5.5 at any time

**Persistence and degradability:** Not available

**bioaccumulative potential:** Not available

**Mobility in soil:** water soluble - Final destination of the product: Water.

**Other adverse effects:** Do not allow that he shall come tanks, rivers and rainwater.

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## 13. Considerations disposal

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### Recommended methods for disposal

- **Product:** Keep any leftover product in their original containers tightly closed. Do not dispose in sewer systems, waterways and sewage treatment plants.
- **Used packaging:** Do not reuse empty containers. The containers should be washed and neutralized. Improper disposal of empty containers and remains of products on the environment cause contamination of soil, water and air, damaging the fauna, flora and human health.

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## 14. Transport Information

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**National and international regulations:****land**

- **UN:**1789
- **Proper Shipping Name:**HYDROCHLORIC ACID
- **Class / Subclass:**8
- **Number of risk:**80
- **Packing group:**II
- **Dangerous for the environment:**Yes
- **Ground rules:**National Land Transportation Agency - Law 10,233 of June 5, 2001. NBR 7503/08

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**15. Regulatory Information**

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**specific safety regulations, health and the environment for the chemical:**

BRAZIL - MINISTRY OF LABOR - NR 26 - Decree 229.

BRAZIL - MINISTRY OF TRANSPORT - ANTT - Resolution No. 5232, of December 14, 2016.

BRAZIL - ABNT NBR 14725 Parts 1, 2, 3 and 4.

BRAZIL - MINISTRY OF LABOR - Decree 2657.

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**16. Other information**

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**important information, but not specifically described the previous sections:**

This MSDS was based on the current knowledge of the product and provides information on the protection, safety, health and the environment.

The caveat is that the handling of any chemical substance requires prior knowledge of its hazards for the user. It is up to the user company's product promotes training of its employees and contractors about the possible risks from the product.

**References:** [ABNT] ASSOCIATION BRAZILIAN TECHNICAL STANDARDS NBR 14725.

BRAZIL. Ministry of Transport. National Land Transportation Agency.

[ECHA] European Union. ECHA European Chemical Agency

**Captions and abbreviations:** CAS - Chemical Abstracts Service