



MATERIAL SAFETY DATA SHEET  
MSDS

**Hydrochloric acid 33%**

REVISION DATE: 05/19/2018

**1. - IDENTIFICATION OF PRODUCT AND COMPANY**

**Product name:** HYDROCHLORIC ACID 33%.

**Internal identification code of the product:** 102.01.0.

**Company name:** USIQUÍMICA DO BRASIL LTDA.

**Address:** Rua da Lagoa, 431 – Cumbica – Guarulhos – SP.

**Business Phone:** (11) 3821-7000 (Trunk Key) – (11) 2481-3355.

**Telephones for emergencies:** SUATRANS - COTEC - Environmental Emergency.  
DDG (0800) 0111-767 - (0800) 7071-767 - 24 HOURS.  
193 –Fireman.


**Recommended main uses for the substance:** Metal pickling, surface cleaning, chloride manufacturing, effluent treatment, cationic resin acidification, alkali neutralizer among others.

**2. - HAZARD IDENTIFICATION**

**Mixture or substance classification**

Corrosive to metals, Category 1,  
Acute Toxicity - Oral, Category 4,  
Acute Toxicity - Dermal, Category 4,  
Skin corrosion / irritation, category 1B,  
Serious eye damage / eye irritation, category 1  
Respiratory sensitization, category 1 and subcategories 1A and 1B,  
Skin sensitization, category 1 and subcategories 1A and 1B,  
Aspiration hazard, category 2,  
Hazardous to the aquatic environment - Acute, Category 1,

**GHS labeling elements, including phrases of concern.:**

ELEMENTS OF THE LABEL	DATA
Identification of the supplier's product and emergency telephone number.	Trade Name: Hydrochloric Acid 33% Synonym: Muriatic acid, hydrochloric acid. Emergency telephone: SUATRANS - COTEC - Environmental Emergency. DDG (0800) 0111-767 - (0800) 7071-767 - 24 HOURS.
Chemical composition	HCl minimum 32% (w/w). Water maximum 68% (m/m).
Hazard pictograms	
Word of warning	<b>DANGER</b>
Hazard statements	- H290: May be corrosive to metals. - H302: Harmful if swallowed. - H305: May be harmful if swallowed and enters airways. - H312: Harmful in contact with skin. - H314: Causes severe skin burns and eye damage. - H317: May cause an allergic skin reaction. - H318: Causes serious eye damage. - H334: When inhaled, may cause allergic symptoms, asthma or breathing difficulties. - H400: Very toxic to aquatic organisms.



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Precautionary statements. (Prevention)	<ul style="list-style-type: none"><li>- P234: Store only in the original container.</li><li>- P261: Avoid inhaling vapors and mists.</li><li>- P264: Wash thoroughly after handling.</li><li>- P270: Do not eat, drink or smoke while using this product.</li><li>- P272: Contaminated work clothing must not be allowed out of the workplace.</li><li>- P273: Avoid release to the environment.</li><li>- P280: Wear protective gloves / protective clothing / eye protection / face protection.</li></ul>
Precautionary statements. (Emergency Answers)	<ul style="list-style-type: none"><li>- P301 + P312 IF SWALLOWED: If you feel unwell, contact a TOXICOLOGICAL INFORMATION CENTER or doctor.</li><li>- P301 + P310 IF SWALLOWED: Immediately contact a TOXICOLOGICAL INFORMATION CENTER or physician.</li><li>- P302 + P352 IF ON SKIN: Apply wet compresses.</li><li>- P303 + P361 + P353 IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water or shower.</li><li>- P304 + P340 IF INHALED: Remove person to fresh air and keep at rest in a position comfortable for breathing.</li><li>- P305 + P351 + P338 IF IN EYES: Rinse cautiously with water for several minutes. If contact lenses are worn, remove them if it is easy. Keep rinsing.</li><li>- P311 Contact a TOXICOLOGICAL INFORMATION CENTER or doctor.</li><li>- P312 If you feel unwell, contact a TOXICOLOGICAL INFORMATION CENTER or doctor.</li><li>- P321 Provide specific treatment.</li><li>- P332 + P313 In case of skin irritation: Get medical attention.</li><li>- P333 + P313 In case of irritation or rash, consult a doctor.</li><li>- P342 + P311 In case of respiratory symptoms: contact a TOXICOLOGICAL INFORMATION CENTER or doctor.</li><li>- P362 + P364 Take off all contaminated clothing and wash it before reuse.</li><li>- P390 Absorb spillage to prevent material damage.</li><li>- P405 Store locked up.</li><li>- P406 Store in a corrosion resistant container or with a strong inner liner.</li><li>- P501 Dispose of contents or container in accordance with local regulations.</li></ul>

**Other hazards that do not result in a classification:**

Violent reaction with risk of explosion on contact with concentrated alkalis and alkaline metals, and alkaline earths.

### 3. - COMPOSITION AND INFORMATION ABOUT INGREDIENTS

**Substance:** HCl (hydrogen chloride) in aqueous solution.

**Chemical or common name:** Hydrochloric acid 33%.

**Synonym:** Muriatic acid, hydrochloric acid.

**Composition:** Hydrogen chloride (HCl), minimum 32% (mass / mass).  
Water, maximum 68% (mass / mass).

**Chemical Abstract Service (CAS No):** 7647-01-0.

**Impurities that contribute to the hazard:** None.

### 4. - FIRST AID MEASURES

**First aid actions**

- **Inhalation:** Remove victim to fresh air and keep at rest in a position comfortable for breathing. Contact a TOXICOLOGICAL INFORMATION CENTER or doctor. Take this MSDS.
- **Skin Contact: IF ON SKIN (or hair):** Take off immediately all contaminated clothing. Rinse skin with water / shower. Contact a TOXICOLOGICAL INFORMATION CENTER or doctor. Take this MSDS.
- **Eye Contact:** Rinse cautiously with water for several minutes. If contact lenses are worn, remove them if it is easy. Keep rinsing. Contact a TOXICOLOGICAL INFORMATION CENTER or physician immediately. Take this MSDS.
- **Ingestion:** Corrosive product. If swallowed, do not induce vomiting. Dilute immediately by giving the victim large



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amounts of water. If spontaneous vomiting occurs, provide additional water and keep victim in fresh air. Contact a TOXICOLOGICAL INFORMATION CENTER or physician immediately. Take this MSDS.

### **Most important symptoms and effects, acute or delayed:**

Harmful in contact with skin and if swallowed may cause burn in mouth, pharynx and abdomen with incidence of vomiting and dark diarrhea. Causes severe burn to skin of brown to yellowish color, strong constant pain and difficult to heal. Causes serious eye damage with pain, tearing, conjunctival edema and corneal damage. When inhaled, it may cause shortness of breath and tiredness. May cause itching and acne. Product vapor may cause tooth corrosion and necrosis. Aspiration of the product penetrates the airways and can cause chronic bronchitis, in addition to suffering from bronchopneumonia attacks with cough, suffocation, headache and dizziness.

### **Notes to the doctor:**

Avoid contact with the product when rescuing the victim. If necessary, symptomatic treatment should include, above all, supportive measures such as correction of hydroelectrolytic, metabolic disorders, as well as respiratory assistance. In case of skin contact do not rub the affected area. To relieve pain and if necessary, administer "morphine sulfate - 5 mg" every 4 hours, avoiding central nervous system depression.

## **5. - FIRE FIGHTING MEASURES**

### **Suitable extinguishing media:**

**For small proportions:** Compatible with extinguishers.

**For large proportions:** Compatible with fog or foam water.

**Not recommended:** Water jets directly.

**Specific hazards of the mixture or substance:** Combustion of the chemical or its packaging may form irritating, toxic and corrosive gases. Produces toxic and irritating vapors when heated (hydrogen chloride gas).

**Protective measures by fire-fighters:** Positive pressure self-contained breathing apparatus (SCBA) with full protective clothing. Containers and tanks involved in the fire should be cooled with water fog.

## **6. - CONTROL MEASURES FOR SPILLAGE OR LEAKAGE**

### **Personal precautions for non-emergency personnel:**

**For non-emergency personnel:** Isolate leak and sources of ignition preemptively. Do not smoke. Do not touch damaged containers or spilled material without proper clothing. Wear personal protective equipment as described in section 8.

**For emergency responders:** Wear full PPE, splash goggles, suitable protective gloves, PVC or rubber apron, antacid protective clothing (PVC or other equivalent material), rubber or PVC boots and under normal conditions. There is no need, however, in special situations, use a (semi-facial) mask with vapor or mist filter, full face mask with air line, or even a stand-alone breathing air set.

**Environmental precautions:** Prevent spilled product from reaching waterways and sewers.

**Methods and material for containment and cleaning up:** Neutralize spilled product with dilute acid or dilute with plenty of water. Absorb product with earth, dry sand or other non-combustible material to avoid material damage. Place adsorbed material in appropriate containers and remove to safe place. Dispose of the adsorbent material used in the spill as appropriate. For final destination, proceed according to section 13 of this MSDS.

**Disposal:** Waste must be disposed of in accordance with applicable Environmental Legislation. Keep chemicals in their original containers. Do not mix with other waste. Handling of dirty containers should be carried out in the same manner as the product itself. An RDSR of the generated residue must be generated.

**Differences in the action of large and small leaks:** There is no distinction between the actions of large and small leaks for this product.

## **7. - HANDLING AND STORAGE**

### **Handling:**

**Technical measures:** Handle in a well-ventilated area or with general local exhaust ventilation. Avoid formation of vapors or mists. Avoid inhaling the product if vapors or mists are formed. Avoid contact with incompatible materials. Wear protective gloves, protective clothing, eye protection and / or face protection as indicated in Section 8.

Prevention of worker exposure: Avoid formation of vapors / aerosols. Work with hood / chimney. Do not inhale substance / mixture. Wear specific PPE - splash goggles, face shield, PVC gloves and protective clothing. Avoid inhaling vapors.

Wash after handling and decontaminate PPE after use. PPE must be approved for use only with the respective CAs - Certificates of Approval.

Wash hands and face thoroughly after handling and before eating, drinking, smoking or using the toilet. Contaminated



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clothing should be changed and laundered prior to reuse. Remove contaminated clothing and protective equipment before entering eating areas.

Precautions and guidelines for safe handling: Wear personal protective equipment (PPE) to avoid direct contact with the product. Handle the product in a well-ventilated place. Forms a slippery layer with water.

**Storage:**

**Suitable:** Store in a well-ventilated place away from sunlight. Keep container closed. No addition of stabilizers and antioxidants is required to ensure product durability. May react dangerously with some incompatible materials as outlined in Section 10.

**To Avoid:** Avoid extreme heat.

**Hygiene measures:**

**Appropriate:** Always sanitize hands before handling food as there is a risk of food contamination. Contaminated clothing should be washed and sanitized before use. Keep gloves always free of moisture and decontaminated.

**Inappropriate:** Direct contact with the product and / or its residues.

**Technical Measures:**

**Suitable conditions:** Keep containers closed and in a well-ventilated place. Keep containers protected from heat and direct sunlight. Avoid extreme temperatures.

**Packaging Materials**

**Recommended:** Ebonite, fiberglass resin (GRP) and high density polyethylene (HDPE) and glass.

**Not recommended:** Metals (magnesium, iron, aluminum and zinc), alkaline earth metal oxides, alkali metal hydroxides (concentrated or solid), hypochlorates, chlorates, chlorides, chlorine isocyanates, sulfites and formaldehydes, among others.

## 8. - EXPOSURE CONTROL AND PERSONAL PROTECTION

**Control Parameters:**

**Occupational Exposure Limits:**

**Hydrochloric Acid:** TLV-C (ACGIH, 2012): 2 ppm

LT (NR-15, 1978): 4 ppm - 5.5 mg / m<sup>3</sup>

**Biological indicators**

Not established

**Engineering control measures:**

Promote mechanical ventilation and direct exhaust system to the outside. These measures help to reduce exposure to the product. It is recommended to make emergency showers and eye wash available in the work area. Keep airborne concentrations of the substance or mixture below indicated occupational exposure limits.

**Personal protection measures:**

**Eye / Face Protection:**

Splash goggles, and in certain activities, face shield.

**Skin and body protection:**

PVC or rubber gloves, PVC or rubber apron, acid-resistant protective clothing (PVC or equivalent material) and rubber or PVC boots.

**Breath protection:**

Full face or semi-face mask with acid gas filter, full face mask with air line or self-contained breathing air set.

**Thermal Hazards:**

Wear personal protection when handling the heated substance and follow work and break procedures in hot environments.



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**9. - PHYSICAL AND CHEMICAL PROPERTIES**

**Appearance (physical state, shape and color):** Liquid, colorless to slightly yellow

**Odor and odor limit:** Pungent, penetrating and irritating

**pH:** 2 (0.2 wt% HCl solution)

**Melting Point / Freezing Point:** 15.3°C (45% by weight HCl solution)

**Initial boiling point and boiling temperature range:** 110,0°C \*

**Flash point:** Not flammable.

**Evaporation Rate:** Not Available

**Flammability (solid; gas):** Not applicable.

**Density:** Minimum 1.1628 g / cm<sup>3</sup> (at 15.5 °C), equivalent to acidity of 32% w / w HCl

**Lower and Upper Flammability or Explosive Limits:** Not Available

**Vapor pressure:** 11 mmHg at 20 ° C \*

**Vapor Density:** Not Available

**Relative Density:** Not Available

**Solubility (ies):** Soluble in water.

**Partition coefficient-n- octanol / water:** log kow: 2.11 - 2.8

**Autoignition Temperature:** Not Available

**Decomposition temperature:** Not available

**Viscosity:** Not Available

**Other information:** Critical temperature 51.0 ° C

\* Information on 30% HCl by weight solution

**10. - STABILITY AND REACTIVITY**

**Specific Conditions:**

**Stability and reactivity:** Stable under normal temperature and pressure conditions.

**Possibility of Hazardous Reactions:** Water added directly to the product may generate hazardous reactions with gas emanation. Violent reaction with risk of explosion on contact with concentrated alkalis and alkaline metals, and alkaline earths.

**Conditions to Avoid:** High temperatures and incompatible materials.

**Incompatible materials:** Strong alkalis, alkaline and alkaline earth metals.

**Hazardous Decomposition Products:** Toxic and irritating vapors such as hydrogen gas, chlorine gas, hypochlorites, nitric acid, manganese dioxide, permanganates, chlorites, chlorates and chlorinated isocyanates.

**11. - TOXICOLOGICAL INFORMATION**

**Acute Toxicity:**

**Harmful if swallowed and in contact with skin.**

LD50 (oral, rabbits): 900 mg / kg

LD50 (dermal, mice): 1449 mg / kg

LC50 (inhalation, mice, 4h): 554 ppm \*

\* Information on gaseous hydrochloric acid.

**Skin corrosion / irritation:** Causes severe skin burn with brown to yellowish color, strong constant pain and difficult to heal.

**Serious eye damage / eye irritation:** Causes serious eye damage with pain, tearing, conjunctival edema and corneal damage.

**Respiratory or skin sensitization:** When inhaled, may cause allergic symptoms, asthma or shortness of breath and tiredness. May cause an allergic skin reaction with itching and acne.

**Germ cell mutagenicity:** The product is not expected to have germ cell mutagenicity.

**Carcinogenicity:** The product is not expected to exhibit carcinogenicity.

**Reproductive toxicity:** The product is not expected to exhibit reproductive toxicity.

**Specific target organ toxicity - single exposure:** If swallowed causes burns to mouth, pharynx and abdomen with incidence of vomiting and dark diarrhea.

**Specific target organ toxicity - repeated exposure:** Product vapor may cause tooth corrosion and necrosis.

**Aspiration Hazard:** May be harmful if swallowed and enters airways and may cause chronic bronchitis, as well as attacks of bronchopneumonia with coughing, suffocation, headache and dizziness.



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**12. - ECOLOGICAL INFORMATION**

**Environmental effects, behaviors and product impacts**

**Ecotoxicity:** Harmful to aquatic organisms.

LC50 (Lepomis macrochirus, 96h): 31 - 55 mg/L.

**Persistence and degradability:** Due to lack of data, it is expected that the product will persist and not be rapidly degraded.

**Bioaccumulative potential:** Bioaccumulative potential in aquatic organisms is not expected.

**Mobility in soil:** Not determined.

**Other adverse effects:** Acid is harmful to aquatic life by reducing pH. Most aquatic species do not tolerate pH of 5.5 regardless of time. This reduction in pH may also cause the release of metal salts such as aluminum, which may also contribute to the exposed toxicity. Leaks and / or spills should be reported to the competent authorities.

**13. - DISPOSAL CONSIDERATIONS**

**Recommended Methods for Final Destination:**

Treatment and disposal of product residues should be done in a suitable environment by trained personnel using special equipment and recommended PPE to avoid contact with the product, its vapors or mists. Leaks should be contained and collected for later disposal after neutralization.

**Product:**

Ensure that all Federal, State, and local agencies receive appropriate notification of spills and disposal methods. CONAMA Resolution 005/1993, Law No. 12,305, of August 2, 2010 (National Policy on Solid Waste).

**Product Waste:**

Consult environmental regulatory agencies for advice on acceptable disposal practices. Contact the relevant local authorities. May be incinerated when in compliance with local regulations. Or dispose of in an approved chemical waste landfill.

**Used packing:**

Empty containers should be drained and capped before handling and transport operations. If the packaging is not properly washed and decontaminated, it is considered to contain product.

**14. - TRANSPORT INFORMATION**

**National and International Regulations**

**Terrestrial:**

Resolution No. 5232 of December 14, 2016 of the National Land Transport Agency (ANTT), Approves the Supplementary Instructions to the Regulation of Inland Transport of Dangerous Goods and its modifications.

**UN Number:** 1789

**Proper Shipping Name:** HYDROCHLORIC ACID

**Hazard class:** 8

**Risk subclass:** -

**Hazard Number:** 80

**Packing group:** II

**Waterway:**

DPC - Ports and Coasts Directorate (Transport in Brazilian waters) Maritime Authority Standards (NORMAM) NORMAM 01 / DPC: Boats Used in Open Sea Navigation.

**UN Number:** 1789

**Proper Shipping Name:** HYDROCHLORIC ACID

**Hazard class:** 8

**Risk subclass:** -

**Hazard Number:** 80

**Packing group:** II

**EmS:** F-A, S-B

**Air:**

ANAC - National Civil Aviation Agency - Resolution No. 129 of January 8, 2009

RBAC No. 175 - (BRAZILIAN CIVIL AVIATION REGULATION) - TRANSPORT OF HAZARDOUS ARTICLES IN CIVIL AIRCRAFT.

IS N° 175-001 – INSTRUÇÃO SUPLEMENTAR – IS



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ICAO – “International Civil Aviation Organization” - Doc 9284-NA/905

IATA – “International Air Transport Association” - Dangerous Goods Regulation (DGR)

**UN Number:** 1789

**Proper Shipping Name:** HYDROCHLORIC ACID

**Hazard class:** 8

**Risk subclass:** -

**Hazard Number:** 80

**Packing group:** II

**Danger to the environment:**

The product is not considered marine pollutant. The extreme pH of the product may cause changes in environmental compartments causing damage to organisms.

**15. - REGULATORY INFORMATION**

**Specific regulations for the chemical:**

Federal Decree No. 2,657, of July 3, 1998;

Standard ABNT-NBR 14725: 2014;

Ordinance No. 229, of May 24, 2011 - Amends Regulatory Standard No. 26.

**16. - OTHER INFORMATION**

The information in this sheet corresponds to the current state of our knowledge and product experience and is not exhaustive. Applies to the product under the conditions specified, unless otherwise stated. In case of combinations or mixtures, make sure that no new hazards appear. This information does not exempt, in any case, the user of the product from respecting the set of laws, regulations and administrative texts related to the product, safety, hygiene and protection of human and environmental health.

**bibliographic references:**

AMERICAN CONFERENCE OF GOVERNMENTAL INDUSTRIALS HYGIENISTS. TLVs® and BEIs®. Based on “Documentation” of Occupational Exposure Limits (TLVs®) for Chemicals and Physical Agents & Biological Exposure Indices (BEIs®).

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NIOSH – NATIONAL INSTITUTE OF OCCUPATIONAL AND SAFETY. International Chemical Safety Cards. available in:

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NITE-GHS JAPAN – NATIONAL INSTITUTE OF TECHNOLOGY AND EVALUATION. available in:

<[http://www.safe.nite.go.jp/english/ghs\\_index.html](http://www.safe.nite.go.jp/english/ghs_index.html)>. Accessed on: January, 2018.



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U.S. ENVIRONMENTAL PROTECTION AGENCY. ECOSAR – Ecological Structure-Activity Relationships. Version 1.11.  
Disponível em: <<http://www.epa.gov/oppt/newchems/tools/21ecosar.htm>>. Accessed on: January, 2018 available in.