SECTION 1. IDENTIFICATION OF THE HAZARDOUS CHEMICAL SUBSTANCE AND MANUFACTURER

1.1. Name of the hazardous chemical substance	hydrochloric acid 30%
1.2. Other generic names	Muriatic Acid, Hydrocloric Acid, Hydrogen Chloride Chemical formula: HCl
1.3. Recommended use and restrictions of the hazardous chemical substance or mixture	**Recommended use:** Hydrochloric acid is used in a variety of different applications, such as: Acidification of brine for use in the production of chlorine and caustic soda, the regeneration of ion exchange resins used in wastewater treatment, pH control, acidification of oil wells, food, mineral processing, production of calcium chloride, steel pickling, recovery of semiprecious metals from used catalysts , the use as a catalyst in the synthesis, the manufacture of dyes and pigments, the purification of sand and clay.
1.4. Manufacturer information	**INDUSTRIA QUÍMICA DEL ISTMO, S.A. DE C.V.** **IQUISA SANTA CLARA, S.A. DE C.V.** **IQUISA NORESTE, S.A. DE C.V.**
COATZACOALCOS PLANT Complejo Industrial Pajaritos S/N Entre Avenida 4 y 5 Coatzacoalcos, Ver. CP 96400	**NORESTE PLANT** Carretera Sta. Catarina - García km 5.5 Estación Puerto Durazno Lote 1 Parque Industrial García García, Nuevo León CP 66000
SANTA CLARA PLANT Km 16.5 Vía Morelos Col. Santa Clara Ecatepec, EDOMEX C.P 55540	**TLAXCALA PLANT** Carretera México-Veracruz Km 128 Corredor Industrial San Cosme-Xalostoc Tlaxcala CP 90460
HERMOSILLO PLANT Calle del Plomo N° 45 Col. Parque Industrial Hermosillo, Sonora CP 83299	**Web site** http://www.cydsa.com/ http://www.iquisa.com.mx/index.html http://www.iquisa.com.mx/productos.html http://www.iquisa.com.mx/seguridad-salud-medioambiente.html
1.5 Emergency phone number	**SETIQ:** 800 00 21400 ó 55 5559 4049 **PLANTA COATZACOALCOS:** 921 211 3428 **PLANTA SANTA CLARA:**55 569 92460 ó 55 569 92483 **PLANTA HERMOSILLO:** 662 251 1024 ó 662 251 1027 **PLANTA NORESTE:** 81 8158 2679 ó 81 8158 2680 **PLANTA TLAXCALA:** 241 418 4726

SECTION 2. HAZARDS IDENTIFICATION

2.1. Classification of the hazardous chemical substance

SGA – MX Classification	
Corrosive substance for metals	**H290**
Causes severe skin burns, category 1B.	**H314**
Causes serious eye damage, category 1.	**H318**
Specific toxicity in certain organs - single exposure (Category 3), Respiratory system	**H335**
Toxic for acuatic organisms, Category 2	**H401**

Signal Word: **DANGER**

2.2. Signaling elements, precautionary statements and hazard pictograms included

Hazard Indications

Code	Hazard Indications
H290	Corrosive substance for metals
H314	Causes severe skin burns and eye damage.
H318	Causes serious eye damage.
H335	Specific toxicity in target organs (single exposure); irritation of the respiratory tract
H401	Toxic for aquatic organisms, Category 2

Precautory statemets

Prevention:	
P103	Read the label before use
P260	Do not breathe dust / smoke / gas / mist / vapors / spray.
P262	Avoid all contact with eyes, skin or clothing
P280	Wear gloves / protective clothing / protective equipment for the face / eyes
P284	In case of insufficient ventilation, wear respiratory protective equipment

Intervention:	
P302 + P352	In case of skin contact, wash with plenty of water for at least 15 minutes.
P304 + P340	In case of inhalation, transport the person outdoors and keep them in a position that facilitates breathing.
P301 + P330 + P331	In case of ingestion, rinse mouth. Do not induce vomiting
P303 + P361 + P353	In case of contact with skin or hair, immediately remove all contaminated clothing. Rinse skin with water or shower

P305 + P351 + P338	In case of contact with the eyes: Rinse with water carefully for 15 minutes. Remove contact lenses when they are present and can be done easily. Continue with the washing and Call the doctor phisician
Storage:	
P420	Store separately from incompatible materials
P406	Store in a corrosion resistant container / in a container ... with resistant inner lining
P403 + P233	Store in a well-ventilated place. Keep the recipient hermetically sealed.

2.3. Other hazards not contributing to a classification

Any

SECTION 3. COMPOSITION / INFORMATION ON INGREDIENTS

3.1. Chemical identity of the substance	Chemical Name: hydrochloric acid
3.2. Common name, synonyms of the dangerous chemical or mixture	Common name: Muriatic acid Hydrochloric acid
3.3. Chemical family of the substance	Inorganic Acids
3.4. CAS No., ONU no, and others	CAS No.: 7647-01-0 ONU No.: 1789
3.5. Impurities and stabilizing additives which are in turn classified and which contribute to the classification of the substance	Does not apply

SECTION 4. FIRST AID MEASURES

4.1. First aid description

First aid is the immediate and temporary care provided to an exposed person.

General Advice:

- Before any action assess the danger scenario, use the personal protection equipment appropriate to the corresponding risk.
- Remove the person from the exhibition area, take off contaminated clothing under a shower with plenty of fresh water and current
- Evaluate the extent and severity of the injury, as well as the presence of multiple injuries (wounds, fractures, etc.).
- In case of respiratory arrest provide rescue breathing with a ventilation every 6 seconds ensuring the elevation of the patient's chest, use barrier devices connected to an oxygen source, in all cases avoid mouth-to-mouth breathing. (medical attention according to the current AHA protocols).
- In case of cardiorespiratory arrest initiate cardiopulmonary resuscitation maneuvers, with two ventilations for 30 chest compressions always with a barrier device connected to an oxygen source, in all cases avoid mouth-to-mouth breathing, (medical attention according to the current AHA protocols).
- Recover clothing and healing material handle as hazardous waste, taking care not to contaminate clean areas.

Skin contact (Treatment of first choice):

- Wash the affected area with plenty of running water to remove excess hydrochloric acid and dilute the concentration.
- Directly apply Phosphated buffer solution, PH 7 or gauze compresses soaked in this solution to cover the lesions. (Apply using gloves). In case of burns get medical attention immediately. Providing the safety data sheet.
- If available, apply Diphotérine in an aerosol or solution in the contaminated area according to the instructions for use.

Skin contact (Second-line treatment):

- Compliance with general measures
- Carry out washing of the affected part under a shower with plenty of fresh water and current for at least 30 minutes, if irritation persists, repeat the rinse.
- In case of burns get medical attention. Providing the safety data sheet.

Information for the doctor or providers of advanced life support:

- Treat injured areas as thermal burns.
- Assess the hospital admission and the use of antibiotics.
- Reassessment every 24 hours until complete remission of symptoms.
- Do not use antidotes or home remedies in any case.

Eye contact (Treatment of first choice):

- Compliance with general measures.
- Start rinsing with running water, as soon as it is available, apply a full bottle of DIPHOTERINE to each injured eye. (Check seccion 16.2)
- Seek specialized medical help by providing the Safety data sheet.

Eye contact (Second line treatment):

- Compliance with general measures.
- Start rinsing with running water for at least 30 minutes if irritation persists, repeat the rinse.
- In case of burns get medical attention. Providing the safety data sheet.
- Assess hospital admission, the use of antibiotics, analgesics and anti-inflammatories.
- Do not use antidotes or home remedies in any case.

Information for the doctor or providers of advanced life support:

- Assess the hospital admission, the use of antibiotics, analgesics and anti-inflammatories.
- Reassessment every 24 hours by ophthalmology.
- Do not use antidotes, neutralizing solutions or home remedies in any case.

Seek medical attention IMMEDIATELY. Do not transport the victim until the recommended rinsing period has ended, unless you can continue rinsing during transportation.

Ingestion:

- Compliance with general measures
- DO NOT PROVOKE OR INDUCE VOMITING
- Immediately transfer to a hospital environment.

- During the transfer if the victim is alert, rinse the mouth and provide 250 milliliters of water every 5 minutes for 20 minutes. If spontaneous vomiting occurs, have the victim lean forward with the head down to prevent vomiting. , rinse your mouth.

Inhalation:

- Compliance with general measures
- Start of airway management with oxygen therapy devices at high flows, with humid oxygen for as long as necessary, re-assess the airway every 10 minutes.
- Assess advanced airway management.
- Immediately transfer to a hospital environment. Providing the safety data sheet.

Information for the doctor or providers of advanced life support:

- According to treating physician, early start of drug therapy based on steroidal anti-inflammatory drugs and bronchodilators, and symptoms.
- Rate transfer to hospital unit.
- Radio chest x-ray every 24 hours, from the first day and for 5 more days.
- Closely monitor the appearance of acute pulmonary edema and treat according to symptoms.
- If conditions allow it to perform gastric lavage.
- Administer analgesics and anti-inflammatories intravenously, do not administer medication orally.
- Assess advanced airway management.

4.2. Acute or chronic most important symptoms and effects

Exposure to high concentrations can quickly lead to swelling and spasm of the throat and cause suffocation or even death. People who are more seriously exposed quickly exhibit accelerated breathing, blue skin discoloration, and narrowing of the bronchi. Severe exposures may develop an accumulation of fluid in the lungs

Chronic effects: Repeated exposure to low concentrations of dew or acid vapor can cause redness, swelling and pain (dermatitis). Exposure to low concentrations of acid mist or vapor from inhalation can cause bleeding from the nose and gums, bronchitis, stomach pain (gastritis), discoloration and erosion of the tooth enamel and inflammation of the eye membrane. Dental erosion becomes more severe with greater exposure.

4.3. Indication of the need to receive immediate medical attention and, where appropriate, special treatment

Data for the doctor:
This product can cause severe pneumonitis if aspirated. If the ingestion occurred less than 2 hours ago, perform a careful gastric lavage; use an endotracheal tube to prevent aspiration. Watch that the patient does not have respiratory difficulty due to an aspiration pneumonitis. Provide artificial resuscitation and adequate chemotherapy if breathing is depressed.

After exposure, the patient should remain under medical supervision for a minimum of 48 hours as late pneumonitis may occur. **DO NOT** attempt to neutralize the acid with weak bases since the reaction will produce heat, which can extend the corrosive injury.

Strict adherence to first aid measures is essential after any exposure.

RAPIDITY IS ESSENTIAL, SEEK MEDICAL ATTENTION IMMEDIATELY.

SECTION 5. FIRE FIGHTING MEASURES

5.1. Suitable extinguishing media	Use positive pressure self-contained air (SCBA) equipment. Wear protective clothing that is specifically recommended by the manufacturer. It may provide little or no thermal protection. The structural protection suit of firefighters provides limited protection only in fire situations; it is not effective in situations where a spill occurs Water spray, in abundant quantities, should be used to cool containers exposed to fire. Extinguish the surrounding fire using the appropriate agent. Use water, in abundant quantities, in the form of fog. Water spray can be used to knock down the escaping steam. Apply the water from a far distance, as much as possible. Most foams react with the material and release corrosive / toxic gases.
5.2. Specific hazards of the chemical	Hydrochloric acid is not flammable, however, there is a risk of latent fire or explosion due to the generation of hydrogen gas when the acid comes in contact with metals, hydrogen, a highly flammable gas can accumulate in explosive concentrations inside drums or Any type of steel container or tank during storage.
5.3. Special measures to be followed by fire fighting groups	**Special fire-fighting measures:** **SMALL FIRES:** CO2 (Carbon dioxide), dry chemical powder, dry sand, alcohol resistant foam. **DO NOT USE CARBON BIOXIDE IF THERE ARE CYANURES INVOLVED IN THE FIRE.** If only water is available, use it as a mist. **LARGE FIRES:** Use water spray (DO NOT USE direct jets), fog or alcohol-resistant foam. If you can do it without any risk, move the containers from the fire area. Make a containment dam for the water that controls the fire for later disposal; do not scatter the material. **FIRE INVOLVING TANKS OR WAGONS OR TRAILERS AND THEIR LOADS:** Fight the fire from a maximum distance or use fixed supports for hoses or regulator nozzles. Do not get water inside containers. Cool containers with water jets until well after the fire is extinguished. Withdraw immediately if there is a rising sound from the safety mechanisms of the vents or if the tank starts to discolor. ALWAYS stay away from tanks engulfed in fire. **Special protective equipment to be worn by firefighters:** If there is a risk of contact with the product, normal protective clothing for firefighters may not provide adequate protection. Chemical resistant clothing (ie a chemical splash suit) and positive pressure self-contained breathing apparatus (approved by MSHA / NIOSH or equivalent) may be required. Chemical protective clothing can provide little or no thermal protection.

SECTION 6. MEASURES TO BE TAKEN IN CASE OF SPILL OR ACCIDENTAL LEAKAGE

6.1. Personal cautions, protective equipment and emergency procedure	**PRECAUTIONARY MEASURES:** Avoid contact with skin, eyes and clothing. Do not inhale the vapors. Proper ventilation. **Eye protection:** Use splash-resistant lenses or googles against chemicals. If exposure to acid vapor causes eye irritation, wear a full-face respirator. If there is a likelihood of splashing, in order to protect the face and eyes, a face shield should be used to allow the use of lenses or goggles and the full-face respirator. NOTE: Contact lenses should not be used. **Protection for the skin**: Wear acid-proof protective clothing. Only equipment approved by NIOSH or OSHA should be used. For concentrations above 100 ppm. It may be necessary to use the encapsulated suit with air supply

	or with a self-contained breathing apparatus to prevent contact with the skin and at the same time provide respiratory protection against concentrations of the acid contained in the air. Wash contaminated clothing before reuse. Properly dispose of contaminated materials and / or clothing. An emergency shower should be located in the immediate work area and should be regularly inspected and tested. Respiratory protection: When airborne exposure levels can be exceeded, use an approved air purifying respirator. For emergencies and other conditions where exposure levels may be exceeded, use a self-contained breathing apparatus with positive pressure. NOTE: Emergencies or planned entries within unknown concentrations or IPVS conditions (IDLH): (APF = 10,000) Any self-contained breathing apparatus that has a full mask and that is operated in demand-pressure mode or other positive pressure mode. (APF = 10,000) Any ventilator with supplied air that has a full mask and that is operated in the demand-pressure mode or other positive pressure mode in combination with an auxiliary positive-pressure self-contained breathing apparatus. ESCAPE: (APF = 50) Any air-purifying respirator, full mask respirator with chin style, canister for acid gas mounted in front or back. Any appropriate escape type device, self-contained breathing apparatus.
6.2. Environmental cautions	When the hydrochloric acid is spilled on the ground, extensive evaporation will occur and it will also begin to infiltrate the subsoil. The presence of water in the soil will influence the speed of movement of the chemical in the soil. During transportation through the soil, hydrochloric acid will dissolve some of the soil material, particularly the one with carbonate base. The acid will be neutralized to a certain degree. However, it is expected that significant amounts of acid remain to be transported to the friatic beds. Hydrogen chloride in water it dissociates almost completely, since the hydrogen ion is captured by the water molecules to form the hydronium ion. It is considered as a common air pollutant. CONSIDERATIONS FOR DISPOSAL Do not dispose of waste with normal trash, nor in drainage systems. What can not be saved for recovery or recycling, including containers, must be handled in appropriate facilities and with official approval for waste disposal. The processing, use or contamination of this product may change the waste management options. Review federal, state and local requirements before disposal of suggested waste: **NOM-052-SEMARNAT-2005**: That establishes the characteristics of hazardous waste, the list thereof and the limits that make a hazardous waste. **NOM-054-SEMARNAT-1993**: That establishes the procedure to determine the incompatibility between two or more residues considered as dangerous by the Official Mexican Standard NOM-052-SEMARNAT-1993
6.3. Methods and materials for the containment and cleaning of spills or leaks	**Emission or spill:** Restrict access to the area until cleaning is completed. Make sure that the cleaning is carried out by trained personnel. Use adequate personal protective equipment. Do not touch damaged containers or spilled material, unless you are wearing appropriate protective clothing. Stop the leak, if you can do it without risk.

Prevent entry into roads or sewers, basements or confined areas. Use water spray to reduce vapors; or divert the vapor cloud adrift. Prevent water flows from coming in contact with spilled material. DO NOT INSERT WATER IN CONTAINERS. Eliminate all sources of ignition (NO smoking, DO NOT use flares, sparks or flames in the danger area). All equipment used during product handling must be electrically grounded.

Small spills:

Cover it with DRY earth, DRY sand or other non-combustible material followed by a plastic film to decrease expansion or contact with rain. Use clean, spark-proof tools to collect the material and place it in plastic containers (or lined with plastic containers). plastic) for later disposal.

Large spills:

Isolate the spill or leak area immediately for a minimum of 25 to 50 meters (80 to 160 feet) in all directions. Keep unauthorized personnel away. Stay in the direction of the wind. Stay away from low areas. Ventilate enclosed areas. Avoid entry to drains and confined areas. Make a dike with inert material (sacks of sand, earth, sprayed polyurethane, sprayed concrete, etc.). Consider the neutralization and disposition on the site. Absorb the liquid with ash or with
cement powder. Neutralize it with the recommended materials, being careful to avoid any foaming or splashing that could occur due to the neutralization reaction of the acid with these materials. Make sure that the drying materials have completely contacted and absorbed all the liquid. Transfer the material that was absorbed from the spill and any contaminated underlying soil to a suitable container for chemical waste. Make sure all tools and equipment are properly decontaminated after cleaning. It is not recommended to wash spills with water, as this tends to spread pollution and increases
the probability of permeating the acid through the subsoil and / or of having an uncontrolled flow of acid towards the drainage, rivers or other waterways.

Leakage or spillage of hydrochloric acid must not come into contact with any acid-soluble sulfide waste (such as drains) due to the danger of it becoming hydrogen sulfide gas. Comply with federal, state and local regulations regarding download reporting**.**

In spills in floor or water, sodium bicarbonate or calcium carbonate is recommended as a neutralizing agent. In air emissions apply dew or drizzle of water to knock down the vapors; water with steam brought down is corrosive or toxic, so it must be confined. The following absorbent materials have been tested and recommended for the vapor suppression and / or for the containment of hydrochloric acid solutions of 26% and 35%: a mixture of (75%) of ionic polyacrylamide (R1779) and (25%) of non-ionic polyacrylamide (Versicol W25). Use ionic polyacrylamide or non-ionic polyacrylamide and Cellosize WP3H (hydroxyethyl cellulose) individually.

SECTION 7. HANDLING AND STORAGE

7.1. Safe handling cautions

Take all necessary precautions to avoid personal contact.

Avoid discharge of steam or dew into the workplace air. Always ensure adequate ventilation in the handling areas. Place a safety shower and an eyewash station near the chemical handling area. Inspect containers for leaks before handling. Be VERY careful when diluting it with water.

Always add acid to water. CAUTION: Hydrogen, a highly flammable gas, can accumulate in explosive concentrations inside drums or any type of steel container or tank during storage. Gas should be released from the storage containers on a regular basis. Only trained personnel must

release the gas. Properly label the containers. Keep containers closed while they are not in use. Empty containers may contain residues, which are dangerous.

7.2. Conditions of safe storage, including any incompatibility

Store it in a cool, dry, well-ventilated area. The acid should not be stored near flammable or oxidizing substances, organic, alkalis or near metals (they can be attacked by the acid and react producing flammable gases). Use structural materials and corrosion resistant lighting and ventilation systems in the storage area.

Use containers that are labeled safely and protected from damage. Storage tanks should be painted with an acid resistant material. Use transfer equipment resistant to corrosion when it is distributed. Limit the amount of material stored. Restrict access to the storage area. Post warning signs as necessary. Keep the storage area separate from work areas where there are people. Inspect periodically to check for faults, such as damage or leaks. The storage tanks must be above ground level and surrounded by dams capable of containing all their capacity.

The electrical equipment must be flameproof and protected against corrosive action.
It should be stored at room temperature or lower. No part of the container for
Storage must be subject to temperatures greater than 52 ° C.

The storage areas must be well ventilated, have floors resistant to the action of acid, have drainage to a recovery tank and have protection against direct sunlight and any other source of heat.

SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1. Control parameters

Comp. / (CAS)	VLE(LMPE)-PT	VLE(LMPE)-PT-CT	VLE(LMPE)-P	IDLH
7647-01-0	2 ppm	2 ppm	2 ppm	50ppm

Exposure limit control:
VLA-ED (HCl): 2 ppm or 3 mg/m3
VLA-EC (HCl): 10 ppm or 15 mg/m3

8.2. Appropriate technical controls

GUIDELINES FOR THE EXHIBITION.

ACGIH Limit exposure limit (TLV-C):	2 ppm
Limit exposure limit OSHA (PEL-C):	2 ppm
Immediately Dangerous for Life and Health (IDLH):	50 ppm

AIHA - Planning guidelines for emergency responses (ERPGs)

The ERPGs are for the planning of emergency limits for the community and not for the limits of exposure in the workplace.

ERPG-1:	3 ppm
ERPG-2:	20 ppm
ERPG-3:	100 ppm

The ERPG-1

It is the maximum concentration in the air below which it is believed that all people could be exposed for up to one hour without experiencing more than light and transient adverse health effects, or perceive a clearly defined odor to which they can object.

The ERPG-2

It is the maximum concentration in the air below which it is believed that almost all people could be exposed for up to one hour without experiencing or developing irreversible or serious effects to their health, other effects or serious symptoms for their health, which they could impede the person's ability to take protective action.

The ERPG-3

It is the maximum concentration in the air below which it is believed that almost all people could be exposed for up to one hour without experiencing or developing health effects that put their lives at risk.

8.3. Individual protection measures, such as personal protective equipment , PPE

General information:
The evaluation of the risk in each work area must be carried out and documented to evaluate the risks related to the use of the product and to select the individual protection equipment corresponding to the risk. The following recommendations should be followed. Have self-contained breathing apparatus for use in case of emergency. Have a suit resistant to the product to use in case of emergency. Personal protective equipment for the body must be selected based on the tasks to be performed and the risks involved. Protect eyes, face and skin from contact with the product.

Eye / face protection:
In case of vapors / aerosols, use suitable **respiratory equipment. Filter E (HCl). Filter P (HCl).**

Protection of Hands:
When handling this product, protective PVC, nitrile or butyl protective gloves should be worn.

Body protection:
Wear work clothes and safety shoes resistant to chemicals. Wear full antacid suit for spill repairs of solid or liquid soda**.**

Respiratory protection:
A NIOSH / MSHA approved air purifying respirator equipped with acid spray cartridges in concentrations up to 10 times the TLV. Use an air respirator if the concentrations are higher or unknown**.**

Environmental exposure controls:
For information on disposal, see section 13.

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

Boiling temperature:	See table IV-1
Fusion temperature:	See table IV-1
Inflammation temperature:	NA, it's not combustible
Auto ignition temperature:	NA, it's not combustible
Density:	See table IV-1
pH	Less than 1
Molecular weight:	36.465
Odor:	Spicy, suffocating
Evaporation Speed:	>1 (Butyl acetate = 1)
Water solubility):	Miscible with water
Vapor pressure:	See table IV-1
Volatility percentage	100
Lower limit of explosivity in air:	NA, no it's not combustible
Upper limit of explosivity in air:	NA, it's not combustible
Physical State:	Liquid
Odor:	Colorless to light yellow

TABLA IV-1

BAUME	**20oBe**	**22oBe**	**23oBe**
Vapor pressure (mm Hg@20°C)	25	76	150
Boling temperature(°C)	81-84	61-63	48-52
Fusion temperature (°C)	-45	-32	-27
Specific gravity(15.5°C)	1.1600	1.1789	1.1885

SECTION 10. STABILITY AND REACTIVITY

10.1. Reactivity	There is no danger of reactivity other than those described below
10.2. Chemical stability	Stable under normal conditions of use and storage.
10.3. Possibility of dangerous reactions	Hydrochloric acid reacts rapidly, and sometimes violently, with metal oxides, some organic compounds and alkaline materials (Example: caustic soda). Even poisonous gases can be generated by the reaction with hypochlorites, sulfides and cyanides. Contact with metals can produce flammable hydrogen gas. When diluted, add the acid to the water. DO NOT ADD water to acid. NOTE: Hydrochloric acid is highly corrosive to most metals.
10.4. Conditions to be avoided	Avoid contact with metals as it can cause the generation of flammable concentrations of hydrogen gas. Avoid heat, flames, sparks and other sources of ignition.
10.5. Incompatible materials	Hydrochloric acid reacts rapidly, and sometimes violently, with metal oxides, some organic compounds and alkaline materials (Example: caustic soda). Even poisonous gases can be generated by the reaction with hypochlorites, sulfides and cyanides. Contact with metals can produce flammable hydrogen gas. When diluted, add the acid to the water. DO NOT ADD water to acid. NOTE: Hydrochloric acid is highly corrosive to most metals.
10.6. Hazardous decomposition products	When heated to decomposition, it emits toxic vapors of hydrogen chloride. Reacts violently with oxidants forming chlorine gas. In contact with air releases corrosive fumes of hydrogen chloride. Attacks many metals forming hydrogen.

SECTION 11. TOXICOLOGICAL INFORMATION

11.1. Information about probable income routes	Hydrochloric acid (HCl) is a very strong acid. The solutions can be extremely corrosive.

	The severity of the effects depends on the concentration of the solution and the duration of the contact. In general, HCl solutions and sprays with a pH of 3 or less are a major health problem. Inhalation: The hydrochloric acid gas is intensely irritating to the mucous membranes of the nose, throat and respiratory tract. Short exposures of up to 35 ppm cause throat irritation and levels of 50 to 100 ppm are barely tolerable for 1 hour. The greatest impact is on the upper respiratory tract. Skin Contact: Corrosive! Concentrated solutions can cause pain, as well as deep and severe burns to the skin and mucous membranes. Contact with less concentrated acid or with steam or mist may cause reddening of the skin and moderate inflammation. Eye contact: Eye exposure to vapors or acid solution can cause pain, tearing, severe irritation with corneal damage, which can result in permanent deterioration The vision, being able to arrive at the blindness. Exposure to low concentrations of vapor or dew from the acid can be irritating immediately and cause redness.
11.2. Symptoms related to physical, chemical and toxicological characteristics	Strong abdominal pain Respiratory distress due to inflammation of the throat Strong chest pain Drooling Fever Strong pain in the mouth Rapid decrease in blood pressure (shock) Severe throat pain
11.3. Immediate and delayed effects, as well as chronic effects produced by a short or long term exposure	Exposure to high concentrations can quickly lead to swelling and spasm of the throat and cause suffocation or even death. People who are more seriously exposed quickly exhibit accelerated breathing, blue skin discoloration, and narrowing of the bronchi. Severe exposures may develop an accumulation of fluid in the lungs **Chronic effects**: Repeated exposure to low concentrations of dew or acid vapor can cause redness, swelling and pain (dermatitis). Exposure to low concentrations of acid mist or vapor from inhalation can cause bleeding from the nose and gums, bronchitis, stomach pain (gastritis), discoloration and erosion of the tooth enamel and inflammation of the eye membrane. Dental erosion becomes more severe with greater exposure.
11.4. Numerical measures of toxicity (such as estimates of acute toxicity)	**Acute toxicity:** LD50 (oral, rabbit) = 900 mg / kg Skin irritation or corrosion: Skin irritation (rabbit, calc.): Corrosive **Serious eye damage or eye irritation:** It can cause severe burns and damage to the cornea, which can result in permanent blindness. **Acute inhalation toxicity:** ACGIH Limit exposure limit (TLV-C): 5 ppm OSHA Exposure Limit Limit (PEL-C): 5 ppm Hazardous to life and health (IDLH): 50 ppm LC50 (inhalation, rat) = 3.124 ppm for 1 hour **Respiratory or cutaneous sensitization:** Dew can irritate the nose and throat.
11.5. Carcinogenicity:	It is not classified as a carcinogen for humans
11.6. When specific chemical data are not available	N/A
11.7. Mixtures	N/A
11.8. Information about the mixture or its components	N/A

11.9. Other information	**Reproductive toxicity:** Reproductive risks for humans are not known. Few studies have been directed to the reproductive effects in experimental animals exposed to hydrochloric acid. No data were found about maternal transfer through the placenta or in breast milk **Mutagenicity in germ cells**: No information available.

SECTION 12. ECOTOXICOLOGICAL INFORMATION

12.1 Toxicity:	Toxicity in fish: LC100 Trout 10mg / L / 24hr LC50 Shrimp 100 to 330ppm / 48hr (salt water) LC50 Starfish 100 to 330 mg / L / 48 hr TLm Mosquito fish 282 ppm / 96hr (fresh water) LC50 Gold fish 178 mg / L (one to two hours of survival) LC50 Beach Crab 240 mg / L / 48 hr
12.2 Mobility in the soil:	When the hydrochloric acid is spilled on the ground, extensive evaporation will occur and, furthermore, it will begin its infiltration into the subsoil. The presence of water in the soil will influence the speed of movement of the chemical in the soil. During transportation through the soil, hydrochloric acid will dissolve some of the soil material, particularly the one with carbonate base. The acid will be neutralized to a certain degree. However, it is expected that significant amounts of acid remain to be transported to the ice sheets. .
12.3 Other adverse effects:	In general, its effect is important in the spill area and acutely. Its long-term effect is not so important if the spill is not frequent. The treatment is neutralization.

SECTION 13. INFORMATION CONCERNING THE DISPOSAL OF PRODUCTS

13.1. Description of the waste and information on how to handle it safely and its disposal methods, including disposal of contaminated containers	Dispose of the waste material in an approved facility for the treatment and disposal of waste, in accordance with the applicable regulations. Do not dispose of in normal garbage or drainage systems. **Note** - The cleaning material can be considered as hazardous waste according to the LGEEPA.
	Review federal, state and local requirements before disposal of waste. Suggested: **NOM-052-SEMARNAT-2005**: That establishes the characteristics of hazardous waste, the list of them and the limits that make a hazardous waste because of its toxicity to the environment. **NOM-054-SEMARNAT-1993**: That establishes the procedure to determine the incompatibility between two or more residues considered as dangerous by the Official Mexican Standard NOM-052-SEMARNAT-1993 Do not dispose of waste with normal trash, nor in drainage systems.

What can not be saved for recovery or recycling, including containers, must be handled in appropriate facilities and with official approval for waste disposal. The processing, use or contamination of this product may change the waste management options.

SECTION 14. INFORMATION CONCERNING TRANSPORTATION

14.1. UN number	UN 1789
14.2. Official United Nations transport designations	Hydrochloric acid
14.3. Class (s) of hazards in the transport	Class: 8 Classification in the USA OSHA Classification: Hazardous according to the definition of the Hazard Communication Standard. TSCA inventory status: Yes SARA risk categories: ACUTE: Yes CHRONICLE: No FIRE: No REAGENT: Yes SUDDEN DOWNLOAD: No

Primary risk labels	**Secondary risk labels**
	N/A

14.4. Packing group, if applicable	II
14.5. Environmental risks	When the hydrochloric acid is spilled on the ground, extensive evaporation will occur and, furthermore, it will begin its infiltration into the subsoil. The presence of water in the soil will influence the speed of movement of the chemical in the soil. During transportation through the soil, hydrochloric acid will dissolve some of the soil material, particularly the one with carbonate base. The acid will be neutralized to a certain degree. However, it is expected that significant amounts of acid remain to be transported to the friatic beds. The hydrogen chloride in water dissociates almost completely, since the hydrogen ion is captured by the water molecules to form the hydronium ion. It is considered a common air pollutant.
14.6. Special precautions for the user	**Individual precautions:** Avoid contact with skin, eyes and clothing. Do not inhale the vapors. Proper ventilation. **Precautions for environmental protection**: Prevent contamination of soil, water and drainage.

	Collection / cleaning methods: Pick up with absorbent materials or in the absence of sand or dry earth and deposit in waste containers for subsequent disposal in accordance with the regulations in force. Neutralized with dilute sodium hydroxide.
14.7. Transport in bulk according to Annex II of MARPOL 73/78 and to the IBC Code (IBC)s	N/A

SECTION 15. REGULATORY INFORMATION

15.1. Specific provisions on safety, health and environment for dangerous chemical substances or mixture in question	Do not dispose of waste with normal trash, nor in drainage systems. What can not be saved for recovery or recycling, including containers, must be handled in appropriate and approved facilities for waste disposal. The processing, use or contamination of this product may change the waste management options. Analyze the waste material to verify its corrosivity, before disposal. **NOM-054-SEMARNAT-1993**: Which establishes the procedure to determine the incompatibility between two or more residues considered as dangerous **NOM-018-STPS-2015**: System for the identification and communication of hazards and risks from hazardous chemical substances in work centers. **NOM-002-SCT-SEMAR-ARTF/2023**: List of dangerous substances and materials (dangerous goods). **NOM-003-SCT/2008**: Characteristics of containers and packaging labels, intended for the transport of hazardous substances, materials and waste. **NOM-005-SCT/2008**: Emergency information for the transport of dangerous substances, materials and waste. **NOM-043-SCT/2003**: Shipping document for hazardous substances, materials and waste.

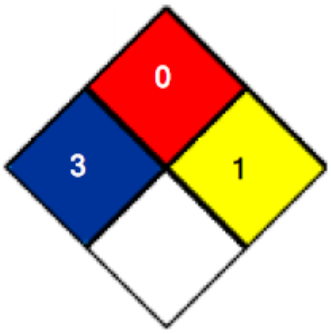
SECTION 16. OTHER INFORMATION INCLUDING THOSE CONCERNING THE PREPARATION AND UPDATING OF SAFETY DATA SHEET

16.1. The information is considered correct, but is not exhaustive and will be used only as guidance, which is based on current knowledge of the chemical or mixture and is applicable to the appropriate safety precautions for the product.

Before using the product in a new process or experiment, a complete safety and compatibility study of the materials must be carried out. Ensure proper air ventilation. Make sure that national and local regulations are complied with. Although special care has been taken during the preparation of this document, no liability is accepted for injuries or damages.

This information should be used to make an independent determination of methods to protect workers and the environment.

NFPA Risk



Health: **3**
Fire: **0**
Reactivity: **1**
Specific: **N / A**

16.2. Abbreviations and acronyms

ACGIH = American Conference of Governmental Industrial Hygienists.
AIHA = American Industrial Hygiene Association.
AHA = American Heart Association.
APF = Assigned Protection Factor.
° C = Celsius degrees.
C = Ceiling.
CAS = Chemical Abstract Service.
CERCLA: Comprehensive Environmental Response, Compensation, and Liability Act.
CEPA = Canadian Environmental Protection Act.
CLR = Clear Language Regulations.
CO_2 = Carbon dioxide.
CT = Short Time.
DOT = Department of Transportation.
ERPG =
° F = Degrees Fahrenheit.
HCl = Hydrochloric acid.
HDS = Safety Data Sheet.
IARC = International Agency for Research on Cancer.
IDLH = Immediately Dangerous to Life or Health.
IPVS = Immediately Hazardous to Life and Health.
L = Liters.
LC50 = Lethal Concentration, the concentration of the material in the air is expected kill 50% of a group of test animals.
LD50 = Lethal dose, is expected to kill 50% of a group of test animals.
LGEEPA: General Law of Ecological Balance and Environmental Protection.
LMPE = Maximum Allowed Limit of Exposure.
mg / m^3 = milligrams per cubic meter.
mL = milliliters.
NIOSH = National Institute for Occupational Safety and Health.
NFPA = National Fire Protection Agency.
NOM = Official Mexican Standard.
UN = United Nations Organization.
OSHA = Occupational Safety & Health Administration.
oz = ounces
P = Peak
PEL = Permissible Exposure Limit.

pH = Hydrogen Potential.
PPT = Average Weighted in Time.
CPR = Cardiac pulmonary resuscitation
SARA: Superfund Amendments and Reauthorization Act of the U.S. EPA
SCBA = Self-Contained Breathing Apparatus.
SCT = Ministry of Communications and Transportation.
SEMARNAT = Secretariat of the Environment and Natural Resources.
STEL = Short Term Exposure Limit.
STPS = Ministry of Labor and Social Security.
TDG = Transportation of Dangerous Goods.
TLm = median Threshold Limit.
TLV = Threshold Limit Value.
TWA = Time-Weighted Average.
UN = United Nation.
VLA-ED = environmental limit value of daily exposure, or
WHMIS = Workplace Hazardous Materials Information System.
Diphotérine® = is a solution for washing projections ocular or cutaneous chemicals. Placed in the workplace and used as first aid, allows to minimize or avoid the appearance of a chemical burn, stopping the action of the irritant or corrosive and its penetration thanks to its properties, chelating, amphoteric and hypertonic.

Ask your doctor for more information

16.3. References

NOM-010-STPS-2014, Chemical agents polluting the work environment Recognition, evaluation and control.

NOM-018-STPS-2015: System for the identification and communication of hazards and risks from hazardous chemicals in the workplace.

GLOBALLY HARMONIZED SYSTEM OF CLASSIFICATION AND LABELING OF CHEMICAL PRODUCTS (GHS)

Emergency Response Guide (Mexico), Version 2020

Kirck & Othmer; Enciclopedia of Chemical Technology; Volumen 11, Hexanes to Ion Exchange; Interscience Publishers; Jhon Wiley & Sons, Inc.; New York, U.S.A.; 1966

Editores: Elvers B, Hawkins S y otros; Ullman´s Encyclopedia of Industrial Chemistry; Volumen 13; Quinta edición completamente revisada; Editorial VCH; New York, U.S.A.; 1989

Environmental Protection Agency (EPA). List of IRIS substances, Hydrogen Chloride [on líne]. Enero de 1989, revisado enero de 1995 [citado abril 3 de 2003]. Available in http://www.epa.gov/iris/subst/0396.htm

Agency for Toxic Substances and Disease Registry. Managing Hazardous Material Incidents, Hydrogen Chloride [en línea]. Fecha de publicación desconocida, actualizado marzo de 2003 [citado abril 3 de 2003]. Disponible en http://www.atsdr.cdc.gov/MHMI/mmg173.pdf

Organización Mundial de la Salud (OMS). Environmental Health Criteria 21, Chlorine and Hydrogen Chloride [en línea]. 1982 [citado Abril 4 de 2003]. Available in Http://www.inchem.org/documents/ehc/ehc/ehc21.htm

Organización Mundial de la Salud (OMS). International Chemical Safety Cards, Hydrogen Chloride [en línea].abril de 2000 [citado abril 4 de 2003]. Available in http://www.ilo.org/public/english/protection/safework/cis/products/icsc/dtasht/_icsc01/icsc0163.htm

Occupational Safety and Health Administration (OSHA). Chemical Sampling Information, Safety and Health Topics: Hydrogen Chloride [en línea]. Mayo de 2003 [citado abril 4 de 2003]. Available in Http://www.osha.gov/dts/chemicalsampling/data/CH_246300.html

Organización Internacional del Trabajo (OIT). Chemical Safety Training Modules, Annex 4. List of Classified Chemicals [on líne]. 1999 [April 2003].