Safety Data Sheet

According To Regulation (EC) No 1907/2006 (REACH)

HYDROCHLORIC ACID SOLUTION

Version:	1.0	Preparation Date :	11/11/2013
Form No:	193239	Revision Date:	11/11/2013

1. IDENTIFICATION OF THE PRODUCT AND OF THE COMPANY/UNDERTAKING

1.1 Product Identifier

Product Name	**HYDROCHLORIC ACID SOLUTION**
SDS[1] No	193239
CAS[2] No	7647-01-0
EINECS[3] No	231-595-7
Chemical Name	Hydrochloric acid solution
Chemical Formula	ClH
Structural Formula	HCl

1.2 Relevant Identified Uses Of The Product And Uses Advised Against

Relevant Identified Uses	It is one of the basic raw materials of the Chemical Industry with a wide range of applications. Some general examples are as follows: · Water treatment · Metal Industry · Petrol Industry · Paint Industry · Textile Industry · Pharmaceutical Industry · Chemical Industry.
Uses Advised Against	See chapter 16 for a general overview

1.3 Details Of The Supplier Of The Safety Data Sheet

Supplier (Manufacturer)	**AK-KİM KİMYA SAN. VE TİC. A.Ş.** www.akkim.com.tr
Address – Factory	Denizçalı Köyü, Taşköprü Mevkii, P.K. 39 77600 Yalova / TÜRKİYE
Telephone	0 226 815 33 00
Fax	0 226 353 25 39

1.4 Information Providing Authority About Safety Data Sheet

	Ali Haydar KETİR – Environmental Engineer
Telephone	+90 (226) 815 33 00 / 33304
Fax	ali.ketir@akkim.com.tr

1.5 Emergency Telephone Number

Company Emergency	0 226 815 33 00

2. HAZARDS IDENTIFICATION

2.1 Classification Of The Product

Safety Data Sheet

According To Regulation (EC) No 1907/2006 (REACH)

HYDROCHLORIC ACID SOLUTION

Version:	1.0	Preparation Date :	11/11/2013
Form No:	193239	Revision Date:	11/11/2013

2.1.1 Classification According to Regulation (EC) No 1272/2008

- Skin corrosion, Category 1B; H314
- Specific Target Organ Toxicity (single exposure), Category 3; H335
- Corrosive to metals, Category 1; H290

2.2 Label elements

2.2.1. Labeling According to Regulation (EC) No 1272/2008 [CLP[4]/GHS[5]]

Product Identifier

Hazard Component for Labeling

- Hydrochloric acid solution

Hazard Pictograms

Signal Word

- Danger

Hazard Statements

H290	May be corrosive to metals
H314	Causes severe skin burns and eye damage
H335	May cause respiratory irritation

Precautionary Statements

General

- None

Prevention

P234	Keep only in original container
P260	Do not breathe dust/fume/gas/mist/vapours/spray

Response

P303+P361+P353	IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower.
P304+P340	IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.
P305+P351+P338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P309+P311	IF exposed or if you feel unwell: Call a POISON CENTER or doctor/physician

Storage

P403	Store in a well-ventilated place

Disposal

P501	Dispose of contents/ container to an approved waste disposal plant.

Supplemental Hazard Information (EU) Statements

None

2.2.2. Special Rules For Supplemental Label Elements For Certain Mixtures

None.

Akkim

Safety Data Sheet

According To Regulation (EC) No 1907/2006 (REACH)

HYDROCHLORIC ACID SOLUTION

Version:	1.0	Preparation Date :	11/11/2013
Form No:	193239	Revision Date:	11/11/2013

2.2.3. Additional Labeling

· Not Applicable

2.3 Hazard Identification

2.3.1. Skin Contact

Causes skin burns.

2.3.2. Eye Contact

Causes eye burns.

2.3.3. Ingestion

May cause burns.

2.3.4. Inhalation

Irritating to respiratory system..

2.3.5. Long term effects

Repeated oral uptake of the substance did not cause substance-related effects. Repeated inhallative uptake of the substance did not cause substance-related effects. The product has not been tested. The statement has been derived from products of a similar structure or composition.

2.3.6. Adverse Environmental Effects

None

2.4. Additional Information

· None

3. COMPOSITION/INFORMATION ON INGREDIENTS

3.1 Description Of The Substance: Hydrochloric acid solution (Min 30 %)

NAME	EINECS NO	CAS NO.	CONTENT (%)	CLASSIFICATION CLP
Hydrochloric acid solution	231-595-7	7647-01-0	Min 30 %	 DANGER Skin corrosion, Category 1B; H314 Specific Target Organ Toxicity (single exposure), Category 3; H335 Corrosive to metals, Category 1; H290

3.2 Additional information

· None

4. FIRST AID MEASURES

4.1 Description of first aid measures

4.1.1 General information

· Remove contaminated clothing.

· In case of accident or unwellness, seek medical advice immediately (show directions for use or safety data sheet if possible).

4.1.2 Following inhalation

· Following release of acid vapors/ acid aerosols:

· Whilst protecting yourself remove the casualty from the hazardous area and take him to the fresh air.

Safety Data Sheet

According To Regulation (EC) No 1907/2006 (REACH)

HYDROCHLORIC ACID SOLUTION

Version:	1.0	Preparation Date :	11/11/2013
Form No:	193239	Revision Date:	11/11/2013

- The casualty should be carried or driven (horizontal position; for dyspnea half-upright position). Avoid physical effort.
- Lay the casualty down in a quiet place and protect him against hypothermia.
- As soon as possible repeatedly have the casualty deeply breath a glucocorticoid inhalation spray in.
- In the case of breathing difficulties have the casualty inhale oxygen.
- Immediately call a physician.
- If the casualty is unconscious but breathing lay him in a stable manner on his side.
- For respiratory arrest, carry out artificial ventilation, if possible with breathing apparatus (e.g. bag valve mask); the first aider must pay attention to protect him or herself.
- In the case of cardiac arrest (lack of heart beat or pulse) immediately apply heart lung resuscitation. The protection of the vital functions (heartbeat and respiration without assistance) takes priority over every other activity.
- Poisoning symptoms can appear after a period of delay.

4.1.3 Following skin contact

- Remove contaminated clothing while protecting yourself.
- Rinse the affected skin areas for 10 minutes under running water.
- Arrange medical treatment.
- After extensive contamination:
- Immediately use a (deluge) shower and avoid inhalation of acid mists!
- Lay the casualty down in a quiet place and protect him against hypothermia.
- In the meantime, call a physician to the site of the accident.

4.1.4 Following eye contact

- Following contact with liquid splashes or aerosols immediately:
- Rinse the affected eye with widely spread lids for 10 minutes under running water whilst protecting the unimpaired eye.
- Point the mild water jet directly into the eye in order to remove the acid residues as soon and as completely as possible. Then, immediately transport the casualty to an eye doctor/ to hospital...

4.1.5 Following ingestion

- If the casualty is conscious: have the casualty rinse his or her mouth and spit out the liquid.
- Immediately have the casualty drink a glass of water in sips.
- Do not make the casualty vomit.
- Do not try to neutralize the acid with alkaline and do not use charcoal!
- During spontaneous vomiting hold the head of the casualty low with the body in a prone position in order to avoid aspiration.
- Lay the casualty down in a quiet place and protect him against hypothermia.
- In the meantime, call a physician to the site of the accident..

4.1.6 Self-protection of the first aider

- Pay attention to self-protection

4.1.7 Notes for the doctor

- The damaging effect of the acid is mainly dependent on the concentration, the contact duration and the amount...

Safety Data Sheet

According To Regulation (EC) No 1907/2006 (REACH)

HYDROCHLORIC ACID SOLUTION

Version:	1.0	Preparation Date :	11/11/2013
Form No:	193239	Revision Date:	11/11/2013

- *- Symptoms of acute poisoning:*
- *Eyes: pain, blepharospasm, eyelid swelling, (whitish) coagulation on the conjunctiva/ cornea, chemosis through to (irreversible) opacity/necrosis of the cornea (danger of blindness!); after exposure to vapors mostly only lacrimation, conjunctivitis*
- *Skin: severe irritation; due to > 10% acid chemical burns of first to third degree (whitish to grey eshars); following extensive corrosion, possible shock and consequences from defunctionalization of the skin.*
- *Inhalation: stinging/ burning sensation in the nose and throat, cough, headache, pressure/stinging in the chest, shortness of breath, asthmoid complaints, flu-like symptoms, reflex cardiovascular and respiratory responses (changes in pulse rate, in rhythm and depth of breathing); at higher concentrations feeling of suffication, danger of (rapidly occure) glottic edema, laryngospasm, bronchospasm, bronchoconstriction or (after a latency period) atelectasis, pulmonary edema and/ or pneumonia; due to thrombogenesis possible damage to heart, lungs, kidneys or liver as sequelae; at very high concentrations possibly immediate reflex respiratory or cardiac arrest*
- *Ingestion: burning sensation, pain and swelling in the mouth/ throat/ esophagus/ stomach, dysphagia, mostly prolonged vomiting (containing blood), cardiovascular affection;*
- *after swallowing of concentrated acid loss of mucous membranes on contact site (possible whitish-grey eshars), danger of reflex respiratory/cardiac arrest, glottic edema, perforation of esophagus/stomach; gastrointestinal bleeding, shock, acidosis, microthrombosis, disseminated intravascular coagulation, renal failure, hemolysis; possible sequelae: mediastinitis, peritonitis, strictures..*
- *- Medical advice:*
- *Following contact with the eyes, continue rinsing (with water, better with RINGER-lactate solution or physiological saline solution or still better with balanced salt solution), alleviation of pain, then ensure immediate ophthalmological treatment. [8088, 99996]*
- *Rinse contaminated skin repeatedly with water. Then, apply a dermatocorticoid foam spray to irritated areas and apply a sterile cover to chemical burns. Treatment for shock could become necessary (see below).*
- *Following inhalation of acid mists - independent of whether there are symptoms or not - administer glucocorticoids (inhalatively and i.v.), administer oxygen and carry out all further measures for pulmonary edema prophylaxis. Avoid physical effort.*
- *Treat cough with codeine. For bronchial spasm administer bronchodilators.*
- *Support cardiovascular functions. In serious cases, intubation, artificial ventilation and further measures for cardiopulmonary cerebral resuscitation can become necessary. Hospitalize the casualty as soon as possible for further monitoring and treatment.*
- *After swallowing of small amounts of the acid, immediate administration of liquid is recommended in order to achieve a rinsing effect in the esophagus.*
- *After intake of larger amounts of the acid, there are differing views on the advisability of administration of liquids (minor influence on the pH value but with possible simultaneous strong development of heat and increased probability of vomiting -> possibly leading to even greater adverse effect on the tissues). In such cases, consideration should be given to drawing off the stomach contents via a thin, flexible tube (by an expert under endoscopic visual control). The decision should be made*

Safety Data Sheet

According To Regulation (EC) No 1907/2006 (REACH)

HYDROCHLORIC ACID SOLUTION

Version:	1.0	Preparation Date :	11/11/2013
Form No:	193239	Revision Date:	11/11/2013

depending on the poisoning situation/findings (watch for a danger of perforation).

- After ingestion also early prophylaxis for glottic edema with glucocorticoids and nasal intubation as needed.
- In all cases, safeguard vital functions. For hypotension early infusion of electrolyte solutions and laying the casualty in a flat position are recommended. [8088, 7978]
- In hospital, inspection and treatment of chemical burns, prophylaxis for pulmonary edema and pneumonia and monitoring of cardiovascular and respiratory functions are of priority. Soon also check/ correct the acid base balance, observe kidney and liver functions and carry out analysis of blood gases and hemogram as well as coagulation status.
- Recommendations:
- Provide the physician information about the substance/product and treatment already administered.
- It is important to know whether contact was with very diluted or concentrated acid.
- In single literature sources, the inhalation of an aerosol from 0,5 - 2% sodium hydrogen carbonate solution in an early phase of poisoning is recommended. This treatment was successful in some poisoning cases after inhalation of chlorine gas, but reports on clinical experience regarding the inhalation of hydrochloric acid vapors are not available.
- Following high inhalative exposure to hydrochloric acid vapors prolonged monitoring of the lung functions is recommended because of possible persisting disorders..

5. FIRE-FIGHTING MEASURES

5.1 General Information and Flammable Properties

- Substance is non-combustible. Select fire and explosion prevention measures according to the other used substances.
- Inspect the electrical fittings regularly against the higher risk of corrosion.

5.2 Extinguishing media:

- Use extinguishing measures that are appropriate to local circumstances and the surrounding environment

5.3 Unsuitable extinguishing media

- None known.

5.4 Special hazards arising from the product

- Attention! Hazardous decomposition products may occur.
- Hydrogen chloride gas

5.5 Advice for fire-fighters

- Wear NIOSH [6] approved breathing apparatus, eye and face protector and chemical resistant clothes.
- Welding only under supervision.
- Only work on vessels and lines after these have been completely emptied.
- Work that requires fire (e.g. welding or soldering) and is in the vicinity of chlorine-containing pipes or vessels may only be carried out if suitable measures have been taken to prevent them from being heated.

5.6 Additional information

Safety Data Sheet

According To Regulation (EC) No 1907/2006 (REACH)

HYDROCHLORIC ACID SOLUTION

Version:	1.0	Preparation Date :	11/11/2013
Form No:	193239	Revision Date:	11/11/2013

- Cool surrounding containers with water spray.
- Use water spray to cool unopened containers.
- If possible, take container out of dangerous zone.
- Heating causes a rise in pressure, risk of bursting and explosion.
- Shut off sources of ignition.
- Contain vapours with water spray.
- Do not allow runoff to get into the sewage system.

6. ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures

- Provide adequate ventilation.
- Evacuate area. Warn affected surroundings.
- The hazardous area may only be entered once suitable protective measures are implemented. Only then can the hazardous situation be removed.
- Wear respiratory protection, eye protection, hand protection and body protection (see chapter Personal Protection).
- Attempt to stop the gas from escaping. Otherwise place leaky bottles under a suctioning device or put them outdoors.
- Contain escaping gases/vapours with water.
- Afterwards ventilate area.
- Use plenty of water to clean the area surrounding the leak and equipment that has been in contact with the gas.
- Wear respiratory protection, eye protection, hand protection and body protection (Refer to protective measures listed in section 7 and 8).

6.2 Environmental precautions

- Do not let product enter drains.
- Discharge into the environment must be avoided.
- Do not empty into drains or the aquatic environment..

6.3 Methods and material for containment and cleaning up

6.3.1 For containment

- Control personal contact by using protective equipment as required
- Take up contaminated material and pass on for further processing.
- Contain spillage, and then collect with an electrically protected vacuum cleaner or by wet-brushing and place in container for disposal according to local regulations (see section 13)..
- Afterwards ventilate area and wash spill site.
- Contain for disposal according to local / national regulations.

6.3.2 For cleaning up

- Use protective equipment while cleaning if necessary.
- Use a tested industrial vacuum cleaner or suction device.
- Do not raise dust while cleaning.
- Use of a blower for cleaning is not permitted.
- Only conduct maintenance and other work on or in the vessel or closed spaces after obtaining written permission.
- Only work with vessels and lines after they have been thoroughly rinsed.

Safety Data Sheet

According To Regulation (EC) No 1907/2006 (REACH)

HYDROCHLORIC ACID SOLUTION

Version:	1.0	Preparation Date :	11/11/2013
Form No:	193239	Revision Date:	11/11/2013

6.3.3 Other information

- Dispose of waste material according to local, state and federal regulations.

6.4 Reference to other sections

- Dispose of contaminated material as waste in accordance with section 13.
- See Section 13.

7. HANDLING AND STORAGE

7.1.1 Precautions for safe handling

7.1.2 Protective measures

Personal preventions

- Avoid contact with skin. In case of contact wash skin.
- Avoid contact with eyes. In case of contact rinse the affected eye(s).
- Avoid inhalation of vapour or mist..
- Avoid contact with clothing.
- Contaminated clothes must be exchanged and cleaned carefully.

Fire preventions

- The substance/product is non-combustible
- See section 5.

Environmental precautions:

- Dispose of waste material according to local, state and federal regulations.

7.1.3 Advice on general occupational hygiene

- Clean daily.
- Use protective equipment while cleaning if necessary.
- Avoid vapor formation.
- Clean equipment and floor with a great amount of water, never dry.
- Do not raise dust while cleaning.
- Use of a blower for cleaning is not permitted.
- Only conduct maintenance and other work on or in the vessel or closed spaces after obtaining written permission.
- Only work with vessels and lines after they have been thoroughly rinsed.

7.2 Conditions for safe storage, including any incompatibilities

- Do not store cylinders at the working area.
- Do not force open valve.
- When changing bottles, always inspect the leak-proof closure of the filled and empty bottles.
- Tight valves can be loosened with warm air. The air temperature must not exeed 40 degree C.
- If the pressure cylinder is leaky or there are any ambiguities contact the gas cylinder filling plant.
- Prevent cylinders from falling over.
- Suck back of water into the container must be prevented. Do not allow backfeed into the container.
- Use leak-proof equipment with exhaust for refilling or transfer.
- Refilling or transfer in storage rooms is prohibited.

Safety Data Sheet

According To Regulation (EC) No 1907/2006 (REACH)

HYDROCHLORIC ACID SOLUTION

Version:	1.0	Preparation Date :	11/11/2013
Form No:	193239	Revision Date:	11/11/2013

- Usually transport occurs in containers with high pressure. Use suitable equipment for the transport.
- Tightly screw on the protective caps and blind nuts when transporting. Secure cylinders against falling over, do not throw.
- For liquid chlorine:
- Prevent seepage into flooring (use of a steel tub).

7.1 Advice on common storage

- Do not use any food containers - risk of mistake.
- Containers have to be labelled clearly and permanently.
- Store in the original container as much as possible.
- Preferably use unbreakable containers rather than glass
- containers.
- Place fragile vessels in break-proof outer vessels.
- Keep container tightly closed.
- Store in a cool place.
- Store in a dry place.
- Keep container in a well-ventilated place.
- Store smaller vessels in cabinets with collecting tubs.

7.2 Specific precautions on storage

- Storage class 8 B (Non-combustible corrosive substances)
- Only substances of the same storage class should be stored together.
- Collocated storage with the following substances is prohibited:
- - Pharmaceuticals, foods, and animal feeds including additives.
- - Infectious, radioactive und explosive substances.
- - Strongly oxidizing substances of storage class 5.1A.
- - Organic peroxides and self reactive substances.
- Under certain conditions the collocated storage with the following sub-stances is permitted:
- - Other explosive substances of storage class 4.1A.
- - Spontaneously flammable substances.
- - Substances liberating flammable gases in contact with water.
- - Ammonium nitrate and preparations containing ammonium nitrate.
- The substance should not be stored with substances with which hazardous chemical reactions are possible..

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

8.1 Control parameters

Preventive industrial and medical examinations must be carried out according to the application area.

Engineering controls are used to remove a hazard or place a barrier between the worker and the hazard. Well-designed engineering controls can be highly effective in protecting workers and will typically be independent of worker interactions to provide this high level of protection. Instruction must be provided before employment and then at a minimum of once per annum thereafter.

An escape and rescue plan must be prepared when the location, scale, and use of the work-

Safety Data Sheet

According To Regulation (EC) No 1907/2006 (REACH)

HYDROCHLORIC ACID SOLUTION

Version:	1.0	Preparation Date :	11/11/2013
Form No:	193239	Revision Date:	11/11/2013

site so demand.
It must be assured that the workplace limit values are being maintained. If the limit values are exceeded, additional protection measures are necessary.
The measurements must be recorded and kept on file.
The number of employees who work with the hazardous substance must be kept to a minimum.
Only employees are permitted to enter the work areas. Signposting to this effect must be displayed

8.1.1 Occupational exposure limits

Components with workplace control parameters

- TLV (ACGIH) : 5 ppm, 7.5mg/m3 (Ceiling)
- PEL (OSHA): 5 ppm, 7 mg/m3 (Ceiling) EV (ONTARIO): 5 ppm CEV (Ceiling)

8.2 Exposure controls

- Adequate ventilation should be used during processing
- Risk of percutaneous absorption
- Substances for which local irritant effects determine the exposure limit value, also respiratory allegens

8.2.1 Appropriate engineering controls:

- Provide local exhaust ventilation to control dust/mist/vapors
- In the immediate working surroundings there must be: Emergency shower installed.
- Make available sufficient washing facilities.
- Provide eye shower and label its location conspicuously.
- See Section 7

8.2.2 Personal protection equipment

8.2.2.1 Eye / Face protection:

- Safety glasses with side shields.
- Wear chemical safety goggles.
- If the face is at risk a protective shield must also be worn
- Contact lenses may pose a special hazard; soft contact lenses may absorb and concentrate irritants. A written policy document, describing the wearing of lens or restrictions on use, should be created for each workplace or task. This should include a review of lens absorption and adsorption for the class of chemicals in use and an account of injury experience. Medical and first-aid personnel should be trained in their removal and suitable equipment should be readily available. In the event of chemical exposure, begin eye irrigation immediately and remove contact lens as soon as practicable. Lens should be removed at the first signs of eye redness or irritation - lens should be removed in a clean environment only after workers have washed hands thoroughly.

8.2.2.2 Skin protection

Hand protection

- The use of resistant protective gloves is recommended.
- The glove material must be sufficiently impermeable and resistant to the substance. Check the tightness before wear. Gloves should be well cleaned before being removed, then stored in a well ventilated location. Pay attention to skin care.

Safety Data Sheet

According To Regulation (EC) No 1907/2006 (REACH)

HYDROCHLORIC ACID SOLUTION

Version:	1.0	Preparation Date :	11/11/2013
Form No:	193239	Revision Date:	11/11/2013

- Skin protection cremes do not protect sufficiently against the substance.
- Textile or leather gloves are completely unsuitable.
- Following data refers to chloric acid solutions (10% and 20%) :
- The following materials are suitable for protective gloves (Permeation time >= 8 hours):
- Natural rubber/Natural latex - NR (0,5 mm) (use non-powdered and allergen free products)
- Polychloroprene - CR (0,5 mm)
- Nitrile rubber/Nitrile latex - NBR (0,35 mm)
- Butyl rubber - Butyl (0,5 mm)
- Fluoro carbon rubber - FKM (0,4 mm)
- Polyvinyl chloride - PVC (0,5 mm)
- Following data refers to chloric acid (32%) :
- The following materials are suitable for protective gloves (Permeation time >= 8 hours):
- Polychloroprene - CR (0,5 mm)
- Nitrile rubber/Nitrile latex - NBR (0,35 mm)
- Butyl rubber - Butyl (0,5 mm)
- Fluoro carbon rubber - FKM (0,4 mm)
- Polyvinyl chloride - PVC (0,5 mm)
- Protective gloves of the following materials should not be worn longer than 4 hours continually (Permeation time >= 4 hours):
- Natural rubber/Natural latex - NR (0,5 mm) (use non-powdered and allergen free products)
- Following data refers to chloric acid (37%) :
- The following materials are suitable for protective gloves (Permeation time >= 8 hours):
- Polychloroprene - CR (0,5 mm)
- Nitrile rubber/Nitrile latex - NBR (0,35 mm)
- Butyl rubber - Butyl (0,5 mm)
- Fluoro carbon rubber - FKM (0,4 mm)
- Polyvinyl chloride - PVC (0,5 mm)
- Protective gloves of the following materials should not be worn longer than 2 hours continually (Permeation time >= 2 hours):
- Natural rubber/Natural latex - NR (0,5 mm) (use non-powdered and allergen free products)
- The times listed are suggested by measurements taken at 22 °C and constant contact. Temperatures raised by warmed substances, body heat, etc. and a weakening of the effective layer thickness caused by expansion can lead to a significantly shorter breakthrough time. In case of doubt contact the gloves' manufacturer. A 1.5-times increase / decrease in the layer thickness doubles / halves the breakthrough time. This data only applies to the pure substance. Transferred to mixtures of substances, these figures should only be taken as an aid to orientation.

Body protection

- Use protective boots while handling gas cylinders.
- Keep full protective suits made from suitable materials ready to be used in case of an

Safety Data Sheet

According To Regulation (EC) No 1907/2006 (REACH)

HYDROCHLORIC ACID SOLUTION

Version:	1.0	Preparation Date :	11/11/2013
Form No:	193239	Revision Date:	11/11/2013

accidental release.

- Protective suits have to be checked for embrittlement after each use.

Other protection

- Handle in accordance with good industrial hygiene and safety practice.

8.2.2.3 Respiratory protection

- In an emergency (e.g.: unintentional release of the substance) respiratory protection must be worn. Consider the maximum period for wear.
- Take along escape filters.
- Respiratory protection: Gas filter B, colour code grey.
- Do not use small filters (filter class 1).
- Perhaps also necessary for improved protection:
- Respiratory protection: Combination filter E - P2 or E - P3, colour code yellow-white.
- Use insulating device for concentrations above the usage limits for filter devices, for oxygen concentrations below 17% volume, or in circumstances which are unclear.

8.2.3 Environmental exposure controls

- Legislation for the protection of the environment must be met in full.

9. PHYSICAL AND CHEMICAL PROPERTIES

9.1 Appearance

Form/Physical state	Liquid
Color	Colorless - light yellow,
Odor	Pungent, acid

	Value
pH (0.1 M solution) @ (20(°C)	1.0
Freezing point/range (°C)	Not available
Boiling point/range (°C)101,3 kPa	80
Melting point (°C)	Not available
Flash Point (°C)closed cup	Not Flammable in Air
Ignition temperature (°C)	Not available
Viscosity cp	Not available
Density	1.152 gr/cm3
Vapour Density @ 20°C	Not available
Solubility in water g/l @ 20°C	Completely soluble
Vapour pressure	Not available
Partition coefficient n-Octanol/Water (log Ko/w)	Not available
Evaporation rate	Not available
Oxidation Property	Not available

Note: The above features were determined according to prescribed methods at the Classification, Packaging and Labeling of Hazardous. Substances Regulation Section A-3 or a method comparable to the other.

10. STABILITY AND REACTIVITY

10.1 Reactivity

- Reacts with air under formation of caustic acid fumes which are heavier than air.
- Strong acid which reacts vigorously with bases.

10.2 Chemical stability

· Stable under recommended storage and handling conditions. (See section 7.)

10.3 Possibility of hazardous reactions

Risk of explosion in contact with:
· alkali metals
· conc. sulphuric acid; potassium permanganate (seldom);
The substance can react dangerously with:
· aluminium
· alkali hydroxide
· amines
· ammonia
· fluorine
· bases
· oxidizing agents
· metal carbides; calcium hydride; formaldehyde; copper sulphide; lithium silicide; metals; sodium hydride; sodium hypochlorite and its solutions; natron bleaching solution; silanes; silicon dioxide; vinyl methyl ether; zinc

10.4 Conditions to avoid:

· Heat and moisture.

10.5 Incompatible materials:

· Bases, Amines, Alkali metals, Metals, permanganates, e.g. potassium permanganate, Fluorine, metal acetylides, hexalithium disilicide

10.6 Hazardous decomposition products:

· Hydrogen chloride, hydrogen, chlorine.

10.7 Hazardous polymerization:

· None.

11. TOXICOLOGICAL INFORMATION

11.1 General Information

· Acute or chronic health hazards result from the substance

11.2 Acute toxicity

· Oral rabbit LD 50: 900 mg/ kg Rat LC50 : 3.124 ppm/1hr.
· LC50 Inhalation - rat - 1 h - 293 ppm

11.3 Skin corrosion/irritation and Eye damage/irritation:

Skin: Skin - rabbit Result: Causes burns.
Eye: Eyes - rabbit (Hydrochloric acid) Result: Corrosive to eyes

11.4 CMR effects (Carcinogenity) :

· For humans, no causal relationship between an inhalative exposure to HCl and increased tumor incidence was found.
· In a 128-week inhalation study on rats, which inhaled 10 ppm HCl, no exposure-related increase of neoplasia or preneoplasia in the respiratory tract was demonstrable.
· This product is or contains a component that is not classifiable as to its carcinogenicity based on its IARC, ACGIH, NTP, or EPA classification. (Hydrochloric acid)
· IARC: 3 - Group 3: Not classifiable as to its carcinogenicity to humans (Hydrochloric

Safety Data Sheet

According To Regulation (EC) No 1907/2006 (REACH)

HYDROCHLORIC ACID SOLUTION

Version:	1.0	Preparation Date :	11/11/2013
Form No:	193239	Revision Date:	11/11/2013

acid)

11.5 CMR effects (Mutagenicity and Toxicity for reproduction) :

Reproductive toxicity:

- There is no reason to fear a risk of damage to the developing embryo or foetus when MAK and BAT values are observed.
- If the maximum workplace value is observed, neither disturbances of the chloride balance nor acidosis are expected, so that damage to developing embryo or fetes can be ruled out, although no valid studies are available on this.
- According to an analogous estimation, an influence on fertility is not to be expected either..
- Mutagenicity:
- In in-vitro tests with HCl, both negative and positive results have been shown which were, however, attributed to the decreased pH value in the test medium. Because the pH value is physiologically regulated in vivo, these findings were considered non-relevant

11.6 Other Toxicological Effects:

Allergic Effects	no data available
Effects on Repeated Doses Chronic Exposures	May result in areas of destruction of skin tissue or primary dermatitis. Similarly, inhalation of vapors or mists may cause varying degrees of damage to the affected tissues and also increasing susceptibility to respiratory illness.
Sensitization	no data available
Developmental Toxicity (Teratogenicity)	No data available concerning teratogenic effects. The chemical structure does not suggest such an effect.
Fertility	The results of animal studies gave no indication of a fertility impairing effect. The product has not been tested. The statement has been derived from products of a similar structure or composition. The chemical structure does not suggest such an effect.

11.7 STOT-single/repeated exposures:

STOT-single exposure	The substance or mixture is classified as specific target organ toxicant, single exposure, category 3 with respiratory tract irritation. (Hydrochloric acid)
STOT-repeated exposure	No data available

11.8 Symptoms related to the physical, chemical and toxicological characteristics:

In case of inhalation	Acute exposure to 100 ppm of hydrogen chloride is immediately dangerous to life and health. Exposure to the gas or fumes may cause immediate coughing, burning of the throat or nose, choking, dizziness, weakness and difficulty swallowing. Exposure to above 5 ppm of HCl may be followed by inflammation and occasional ulceration of the nose, throat or larynx; laryngitis, bronchitis, pneumonia, headaches, palpitations, dental erosion, or nasal septum perforations. Chronic exposure may cause erosion of teeth, skin tenderness and gastrointestinal disturbances.
In case of skin contact	Acute direct exposure to concentrated acid may cause pain and

Safety Data Sheet

According To Regulation (EC) No 1907/2006 (REACH)

HYDROCHLORIC ACID SOLUTION

Version:	1.0	Preparation Date :	11/11/2013
Form No:	193239	Revision Date:	11/11/2013

	brown to yellow stains which heal slowly with possible scar tissue formation. Repeated or prolonged exposure to low levels may cause dermatitis
In case of eye contact	Acute exposure to vapors which escape from the aqueous 32 % solution are immediately irritating to the eyes. Severity of damage depends on the quantity, concentration and duration of contact. Hydrochloric acid is injurious to rabbit corneas at pH values less than 3. Solutions of 0.9 to 3.6 percent have caused scarring of rabbit corneas.
In case of ingestion	May cause burns of the mouth, esophagus, and stomach. Pain, nausea, salivation, vomiting, chills, shock and thirst

11.9 Additional Toxicological Information:

- Toxicological classifications are based on available knowledge and information
- EEC classification: Corrosive.
- The special effects to health are considered by taking into account the information in section 3.
- Signs and Symptoms of Exposure
- burning sensation, Cough, wheezing, laryngitis, Shortness of breath, spasm, inflammation and edema of the larynx, spasm, inflammation and edema of the bronchi, pneumonitis, pulmonary edema, Material is extremely destructive to tissue of the mucous membranes and upper respiratory tract, eyes, and skin. burning sensation, Cough, wheezing, laryngitis, Shortness of breath, spasm, inflammation and edema of the larynx, spasm, inflammation and edema of the bronchi, pneumonitis, pulmonary edema, Material is extremely destructive to tissue of the mucous membranes and upper respiratory tract, eyes, and skin.
- RTECS: MW4025000

12. ECOLOGICAL INFORMATION

12.1 Ecotoxicity:

- Acute Fish Tox. (LC50 96 hour): 282 mg/l - Gambusia affinis (Mosquito fish)
- Acute Daphnia Toxicity (EC50 48 hour): No data available
- Acute Algea Toxicity (EC50 48 hour): No data available
- Acute Crustaceans Toxicity (EC50 48hour): 250 mg/l
- Acute Microorganisms Toxicity (EC10 17hour): No data available

12.2 Photo degradation

No data available.

12.3 Effects on Waste Water Treatment Plants

Not determined.

12.4 Mobility

Gas, Solubility in water: Very soluble
Refer to ecotoxicity.

Water threat class	WGK 1 - low hazard to waters
Clean Water Impact	No data available
Known or predicted environmental distribution	No data available

Akkim

Safety Data Sheet

According To Regulation (EC) No 1907/2006 (REACH)

HYDROCHLORIC ACID SOLUTION

Version:	1.0	Preparation Date :	11/11/2013
Form No:	193239	Revision Date:	11/11/2013

12.5 Results of PBT and vPvB assessment

Biotic	
Ready biodegradability:	No data available
Abiotic:	
Hydrolysis as a function of pH:	No data available
Photolysis:	No data available
Atmospheric oxidation:	No data available

· **Persistence and degradability:**

Decomposition Potential of the products	No data available
The half-life of degradation	No data available
Potential degradation of product content in the evaluation of wastewater treatment plants	No data available

· **Bioaccumulation Potential :**

Biological environment (biota) accumulation potential	No data available
Potential - nutrients pass through	No data available
Reference Values - Log Kow , Sw and BCF	No data available

12.6 Additional information

- See the sections 6, 7, 13, 14 and 15.

13. DISPOSAL CONSIDERATIONS

13.1 Product / Packaging disposal

- This material may be recycled if unused, or if it has not been contaminated so as to make it unsuitable for its intended use.
- If it has been contaminated, it may be possible to reclaim the product by filtration, distillation or some other means.
- Shelf life considerations should also be applied in making decisions of this type.
- Note that properties of a material may change in use, and recycling or reuse may not always be appropriate
- When recycling of the product is not possible, disposal to landfill or incineration in accordance with all applicable government laws and regulations is recommended.
- Disposal according to local authority regulations. Contact waste disposal services

13.2 Contaminated packaging

- If there is product residue in the emptied container, follow directions for handling on the container's label.
- Contaminated packaging must be emptied of all residues and can be recycled following appropriate cleaning.

13.3 Disposal Methods

- Dispose of chemicals waste or in accordance with local regulations.
- Follow all applicable local laws, rules and regulations regarding the proper disposal of this material.
- If this product has been altered or contaminated with other hazardous materials, appropriate waste analysis may be necessary to determine proper method for disposal

13.4 European Waste Catalogue

Safety Data Sheet

According To Regulation (EC) No 1907/2006 (REACH)

HYDROCHLORIC ACID SOLUTION

Version:	1.0	Preparation Date :	11/11/2013
Form No:	193239	Revision Date:	11/11/2013

- The final classification has to be done together with the local waste disposal company / authority.

14. TRANSPORT INFORMATION

UN 1789 HYDROCHLORIC ACID SOLUTION

	ADR[7]/RID[8]	ADNR	IMDG[9]	ICAO[10]/IATA[11]
TRANSPORTATION	Road	River	Marine	Airways
PROPER SHIPPING NAME	HYDROCHLORIC ACID SOLUTION			
UN/ID No.	1789	1789	1789	1789
SYMBOL				
CLASS	8	8	8	8
PACKAGING GROUP	II	II	II	II
LABELLING NO	8	8	8	8
CLASSIFICATION CODE	C1			
HAZARD NO (HIN NO)	80			
EmS			F-A;S-B	
MARINE Pollutant			NO	
Tunnel restrictions: Passage forbidden through tunnels of category E.				
Road Transport Notes: This product is regulated as a hazardous material.				

15. REGULATORY INFORMATION

15.1 Safety, Health And Environmental Regulations / Legislation Specific For The Substance

Substance is found on the following regulatory lists;;

- "European Union - European Inventory of Existing Commercial Chemical Substances (EINECS) (English)"
- The substance in On SVHC list

15.2 Chemical Safety Assessment

No data available

15.2.1 HAZARD

CLP classification according to Annex VI of CLP (Regulation (EC) No 1272/2008)

- May be corrosive to metals
- Causes severe skin burns and eye damage
- May cause respiratory irritation

15.2.2 RISK

- Causes burns.
- Irritating to respiratory system

15.3 INTERNATIONAL REGULATIONS

- This safety datasheet complies with the requirements of Regulation (EC) No. 1907/2006 and ISO 11014:2009. This product is classified according to EU Directive 67/548/EC and GHS/CLP.

Safety Data Sheet

According To Regulation (EC) No 1907/2006 (REACH)

HYDROCHLORIC ACID SOLUTION

Version:	*1.0*	*Preparation Date :*	*11/11/2013*
Form No:	*193239*	*Revision Date:*	*11/11/2013*

16. OTHER INFORMATION

16.1 Other information

- *For additional information regarding **AK-KIM KIMYA SAN. VE TIC. ŞTİ.**products please contact the **AK-KIM KIMYA SAN. VE TIC. A.S** Vedat Ateşoğlu - vatesoglu@akkim.com.tr*
- *The above information complies with the 199/45/EC and 1907/2006 Directives and their amendments.*
- *In all cases of potential poisoning supportive therapy is of the utmost importance.*

16.2 Related Person

- *Vedat Ateşoğlu - vatesoglu@akkim.com.tr Ak-Kim Kimya San. Ve Tic. A.Ş*
- *Prepared by : Ali Haydar KETİR - Ak-Kim Kimya San. Ve Tic. A.Ş ali.ketir@akkim.com.tr*
- ***Competent Person Accreditation no : TSE GBF-0855 28.07.2011***

16.3 Revision Date, Version and SDS no

- *Date : November 11, 2013*
- *Version : 1.0*
- *MSDS No : 193239*

16.4 Reason of re-issue

- *Compiling according to Regulation (EC) No 1272/2008*

16.5 Relevant R-, H- and EUH-phrases (number and full text):

H290	*May be corrosive to metals*
H314	*Causes severe skin burns and eye damage*
H335	*May cause respiratory irritation*

16.6 Legal disclaimer

- *The purpose of the above information is to describe the products only in terms of health and safety requirements.*
- *The information given should not, therefore, be construed as guaranteeing specific properties or as specification.*
- *Customers should satisfy themselves as to the suitability and completeness of such information for their own particular use.*
- *The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication.*
- *The above information relates only to the specific material(s) designated herein and may not be valid for such material(s) used in combination with any other materials or in any process or if the material is altered or processed, unless specified in the text.*
- *The information given is designed only as guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. Due to the many factors outside our control when using this product, we cannot accept liability for any injury, accident, loss or damage caused through its use.*

[1] SDS: Safety Data Sheet
[2] CAS: Chemical Abstract Service

Safety Data Sheet

According To Regulation (EC) No 1907/2006 (REACH)

HYDROCHLORIC ACID SOLUTION

Version:	*1.0*	*Preparation Date :*	*11/11/2013*
Form No:	*193239*	*Revision Date:*	*11/11/2013*

[3] EINECS: European INventory of Existing Commercial
[4] CLP:Classification Laballing and Packaging
[5] GHS:Global Harmonised System
[6] NIOSH-National Institute of Occupational Safety and Health(Ulusal İş Sağlığı ve Güvenliği Enstitüsü)
[7] ADR: European Agreement concerning the International Carriage of Dangerous Goods by Road
[8] RID: Regulations Concerning the International Transport of Dangerous Goods by Rail
[9] IMDG: International Maritime Code for Dangerous Goods
[10] ICAO: International Civil Aviation Organization
[11] IATA: International Air Transport Association