01 - IDENTIFICATION OF THE SUBSTANCE/PREPARATION AND THE COMPANY/UNDERTAKING

PRODUCT NAME
HYDROCHLORIC ACID SOLUTION

SDS No.
004

MANUFACTURER
Qatar Vinyl Company Ltd.
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Email : qvc@qvc.com.qa
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02 - COMPOSITION / INFORMATION ON INGREDIENTS

<table>
<thead>
<tr>
<th>Chemical name</th>
<th>Synonyms</th>
<th>EC-No.</th>
<th>CAS No.</th>
<th>Concentration Wt. %</th>
<th>Classification Directive</th>
<th>Classification Regulation (EC) No</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hydrochloric Acid</td>
<td>Hydrochloric Acid</td>
<td>231-595-7</td>
<td>7647-01-0</td>
<td>15% - 32%</td>
<td>C; R34</td>
<td>67/548/EEC Met. Corr. 1; H290</td>
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<td></td>
<td></td>
<td>Xi; R37</td>
<td>Skin Corr. 1B; H314 Eye Dam. 1; H318</td>
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<td>STOT SE 3; H335</td>
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</tbody>
</table>

03 - HAZARDS IDENTIFICATION

SAFETY INFORMATION : PLEASE READ THIS SHEET CAREFULLY

HEALTH EFFECTS
Cause severe skin burn and eye damage C ≥ 25%, 1B; H314
Cause skin and eye irritation; 10% ≤ C ≥ 25%, 1; H318
Inhalation of vapors may cause Respiratory irritation; C ≥ 10%, STOT SE 3; H335
Corrosive to metals, 1; H290,
Forms flammable and explosive hydrogen through corrosion of metals. Thermal decomposition giving toxic products

PHYSICAL AND CHEMICAL HAZARDS

LABEL ELEMENTS (REGULATION (EC) NO 1272/2008) IN ACCORDANCE WITH GHS
Name:
Hazard pictograms:

 Hydrochloric acid ....%
Signal word: Danger

Hazard statement: May be corrosive to metals. Causes severe skin burns and eye damage. May cause respiratory irritation.

Precautionary statements:

Prevention: Do not breathe gas/mist/vapours/spray.

Response:
- IF ON SKIN (or hair): Remove/ Take off immediately all contaminated clothing. Rinse skin with water/ shower.
- IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a POISON CENTER or doctor/ physician. Absorb spillage to prevent material damage.

Storage:
Store in a well-ventilated place. Keep container tightly closed.

OTHER HAZARDS

Potential health effects:
Acute exposure: Corrosive liquid
Inhalation: Severely irritating to respiratory system Risk of pulmonary oedema
Ingestion: Risk of burns to the mouth, oesophagus and stomach

Environmental Effects:
Very toxic to daphnia Very toxic to algae. Harmful to fish.

Physical and chemical hazards:
Forms flammable and explosive hydrogen through corrosion of metals. Thermal decomposition giving toxic products
Decomposition products: See chapter 10
Other:
Results of PBT and vPvB assessment: This substance is not considered to be persistent, bio accumulating, toxic (PBT), nor very persistent, very bio accumulating (vPvB).

EMERGENCY OVERVIEW

Inhalation of vapors or mists causes irritation to the respiratory tract and can cause tracheal and bronchial epithelium necrosis, cough, choking, and ulceration later on. Permanent eye damage may results from splashes. Ingestion is unlikely but if occurs symptoms include grey tongue color, damage of mucus membrane, nausea, and vomiting.

Do not use water on large spills.

04 - FIRST AID MEASURES

GENERAL ADVICE
Under the shower: Take off immediately all contaminated clothing (including shoes)

INHALATION
Move to fresh air, Oxygen or artificial respiration
If needed, hospitalize

SKIN CONTACT
Wash immediately and abundantly with water for at least 15 minutes
Transport to hospital or doctor.

EYE CONTACT
Wash open eyes immediately and abundantly with water for at least 15 minutes
Consult an ophthalmologist immediately.
Removal of contact lenses after an eye injury should only be undertaken by skilled personnel.

INGESTION
Do not induces vomiting, rinse mouth and lips with plenty of water if the subject is conscious, then hospitalize.

PROTECTION OF FIRST-AIDERS
In case of insufficient ventilation, wear suitable respiratory equipment
Acid gloves, chemical goggles or face shield, gum boots and acid suits.
QVC MSDS CODE : H3.0.2-15
MATERIAL SAFETY DATA SHEET - MSDS

Product: HYDROCHLORIC ACID SOLUTION
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INFORMATION FOR DOCTORS
Airway problems may arise from laryngeal edema and inhalation exposure. Treat with 100% Oxygen initially.

05 - FIRE-FIGHTING MEASURES
EXPLOSIVE LIMITS (vol. % in air)
LEL: Not applicable ; UEL: Not applicable
FLASH POINT Nonflammable
AUTO - IGNITION TEMPERATURE Not applicable
SUITE EXTINGUISHING MEDIA Foam; Dry powder ; Carbon dioxide (CO2)
SPECIAL HAZARDS Thermal decomposition giving toxic and corrosive products:
Hydrogen chloride gas ; Chlorine gas
Reacts with metal producing flammable/explosive hydrogen gas
ADVICE FOR FIREFIGHTERS
Specific Methods:
Cool fire exposed containers/tanks with water spray
Prevent spillage from entering drains or waterways.
Special protective actions for fire-fighters:
In the event of fire or leakage, wear self-contained breathing apparatus. Acid resistant clothing.

06 - ACCIDENTAL RELEASE MEASURES
PERSONAL PROTECTION Restirct access to the spill area.
Prohibit contact with skin and eyes and inhalation of vapors
Isolate and ventilate area, stay upwind. Use chemical suits, gloves, gum boots, with appropriate face and respiratory protection.
ENVIRONMENTAL PROTECTION
Do not allow to enter sewerage system, drains and waterways.
Restrict evaporation of the product by using foam.
Contain by damming, control spread of gases, fumes and /or dust with water curtains.
METHODS FOR CLEANING UP
Neutralize with diluted sodium hydroxide or by lime sand or sodium carbonate and flush with plenty of water.
Recovery Pump into an inert labeled emergency container (if possible)

07 - HANDLING AND STORAGE
PRECAUTIONS FOR SAFE HANDLING
Storage and handling precautions applicable to products; Liquid. With suffocating vapors. Corrosive. Provide sufficient air exchange and/or exhaust in work rooms.
Provide self-contained breathing apparatus nearby (for emergency intervention).
Provide showers, eye-baths. Provide water supplies near the point of use. Provide self-contained breathing apparatus nearby.

Safe handling advice
Avoid splashing when handling.
Use goggles or face shields, acid gloves, aprons and gum boots while handling containers. For personal protection see also section 8.
Use product only in closed system.

Hygiene measures
Prohibit contact with skin and eyes and inhalation of vapors. When using, do not eat, drink or smoke. Wash hands after handling. Remove contaminated clothing and protective equipment before entering eating areas.

STORAGE
Keep container tightly closed in a cool, well-ventilated place
Protect from moisture. Provide anti-corrosion protected electrical equipment in a dyke area.
Store at ambient temperature
Provide a catch-tank and an impermeable corrosion-resistant floor with drainage to a neutralization tank within a dyke area.

Incompatible products: Oxidizing agents, Anhydrous strong bases or concentrated solutions, Finely divided metals.

PACKAGING MATERIALS
Recommended: Vulcanized or rubber coated steel, Plastic drum, Reinforced polyester.
To be avoided: Light metals and alloys (corrosion).

08 - EXPOSURE CONTROLS / PERSONAL PROTECTION

CONTROL PARAMETERS
Exposure limits Values
US OSHA PEL Ceiling: 5ppm
US ACGIH TLV (2007)-Ceiling: 2ppm
NIOSH IDLH: 50ppm
EU ELV (2009) TWA: 5ppm (8mg/m³)
EH40 WEL (2007) TWA: 1ppm (2mg/m³); STEL: 5ppm (8mg/m³)

EXPOSURE CONTROLS
General protective provisions
Ensure sufficient air exchange and/or exhaust in work areas

Personal protection equipment

Respiratory protection
High concentrations or prolonged activity: Self-contained closed-circuit breathing apparatus compressed (EN 145).

Hand protection
Splash contact, intermittent and prolonged PVC gloves. Glove thickness: 1,2 mm According to permeation index EN 374: 6 (time elapsed > 480 mins)

Eye/face protection

Skin and body Protection
At the workplace: anti-acid suit, Boots
Intervention at incident: anti-acid diving suit

Others
Acid resistant coveralls; Impervious full protective suits.
Operators should be trained for safe use of this material.

Specific hygiene measures
Prohibit contact with skin and eyes and inhalation of vapors.

09 - PHYSICAL AND CHEMICAL PROPERTIES

PHYSICAL STATE (20°C)
Liquid

COLOUR
Slightly, yellow to green, or , colorless

ODOUR
Pungent; irritant

OLFACTORY THRESHOLD
1 – 5 ppm

MOLECULAR WEIGHT
36.5 g/mol

pH value
< 1 (at 20°C), strong acid

BOILING POINT/RANGE
80 °C (Concentration: 32%); 45 °C (Concentration: 37%)

MELTING POINT/RANGE
-42 °C (Concentration: 32%); -29 °C (Concentration: 37%)

FLASH POINT
Not applicable

AUTOIGNITION TEMPERATURE
Not applicable

EXPLOSIVE LIMITS
Lower: Not applicable
Higher: Not applicable
HYDROCHLORIC ACID SOLUTION

10 - STABILITY AND REACTIVITY

REACTIVITY & CHEMICAL STABILITY
The product is stable under normal handling and storage conditions.

HAZARDOUS REACTIONS
Forms flammable and explosive hydrogen through corrosion of metals.

CONDITIONS TO AVOID
Store protected from moisture and heat. Exposure to light.

MATERIALS TO AVOID
Metallic oxides, Strong oxidizing agents, perchlorates, nitrates, peroxides, Metals, Strong bases (Exothermic reaction.), Sulphides

HAZARDOUS DECOMPOSITION PRODUCTS
Thermal decomposition giving toxic and corrosive products:
Toxic chlorinated products like Hydrogen chloride gas, Chlorine gas

11 - TOXICOLOGICAL INFORMATION

ACUTE TOXICITY

Inhalation
Severely irritating to respiratory system, Risk of pulmonary edema
In animals: aerosol LC50/5 min/rat: 45.6 mg/l

Ingestion
Risk of burns in the mouth, the throat and in the stomach.
Concentrated solutions State of shock, Severe burns in digestive system.
In animals: LD50/rat: 700 mg/kg
(as aqueous solution) (31.5 %)

Dermal
In animals: LD50/rabbit: > 5.010 mg/kg
(as aqueous solution) (31.5 %)

LOCAL EFFECTS
(Corrosion/Irritation/Serious Eye damage)
Skin contact
Corrosive to skin
Causes severe burns.

Eye contact
Corrosive to eyes
Serious lesions with possible after-effects if not washed immediately

RESPIRATORY OR SKIN SENSITIZATION

Inhalation
No data available

Skin contact
Not a skin sensitizer
No effect is reported. (Method : Guinea pig maximization test, guinea pig)

CMR EFFECTS
Mutagenicity
Available experimental data indicates no particular problems for man

In vitro
Ames test in vitro: negative
In vitro test for chromosomal abnormalities on CHO cells: Inconclusive results
In vitro gene mutations test on mammalian cells: positive

In vivo
There is no data available for this product.

Carcinogenicity
Based on the available data, the substance is not suspected of having carcinogenic potential
In animals: Absence of carcinogenic effects (rat, lifetime, By inhalation)10ppm

Reproductive toxicity
Fertility: Based on the available data, the substance is not suspected of having nephrotoxic potential.

SPECIFIC TARGET ORGAN TOXICITY
SINGLE EXPOSURE
Inhalation: Severely irritating to respiratory system
Olfactory threshold: 1 - 5 ppm

REPEATED EXPOSURE
The substance or mixture is not classified as specific target organ toxicant, repeated exposure.
In animals:
Inhalation: Local effects due to an irritant effect, NOAEL= 20ppm (rat, 3 months)

ASPIRATION HAZARDS
No data available.

12 - ECOLOGICAL INFORMATION
ACUTE TOXICITY
Fish
Harmful to fish.
LC50, 24 h : 20,5 mg/l (pH: 3,2 - 3,5)

Aquatic invertebrates
Very toxic to daphnia
LC50, 48 h (Daphnia magna (Water flea)) : 0,45 mg/l (Method: OECD Test Guideline 202, pH: 4,9)

Aquatic plants
Very toxic to algae.
EC r50, 72 h (Chlorella vulgaris (Fresh water algae)) : 0,73 mg/l (Method: OECD Test Guideline 201, pH: 4,7, Growth inhibition)

Microorganisms
EC50, 3 h (Activated sludge) : 0,23 mg/l (Method: OECD Guideline 209, pH: 5,2, Respiration inhibition)

PERSISTENCE AND DEGRADABILITY
Biodegradation (In water): Not relevant
BIOACCUMULATIVE POTENTIAL Not relevant
MOBILITY IN SOIL
Absorption / desorption (Substance): soluble

Distribution among environmental compartments
This substance is not considered to be persistent, bioaccumulating, toxic (PBT), nor very persistent, very bioaccumulating (vPvB).

13 - DISPOSAL CONSIDERATIONS
DISPOSAL OF PRODUCT Dilute with water. Neutralize with sodium carbonate.
DISPOSAL OF PACKAGE Clean container with water. Recover waste water for processing later.

14 - TRANSPORT INFORMATION
UN Proper Shipping name HYDROCHLORIC ACID
UN Number 1789
LABEL

\[\text{Image of a symbol}^{8}\]
QVC MSDS CODE: H3.0.2-15

MATERIAL SAFETY DATA SHEET - MSDS

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15 - REGULATORY INFORMATION

SAFETY DATA SHEETS
Safety data sheets: according to Regulation (EC) No. 1907/2006

EC CLASSIFICATION / LABELLING
(EC) No 1272/2008 (GHS)

ADDITIONAL REGULATIONS
Hazardous Waste Regulations 2005
UK REGULATION Chip3: Chemical (Hazard Information and Packaging for Supply) Regulations 2002

INVENTORIES
EINECS: Conforms to
TSCA: Conforms to
AICS: Conforms to
DSL: All components of this product are on the Canadian DSL list.
ENCS (JP): Conforms to
KECI (KR): Conforms to
PICCS (PH): Conforms to
IECSC (CN): Conforms to

16 - OTHER INFORMATION

Full text of R, H, EUH-phrases referred to under sections 2 and 3

R34 Causes burns.
R37 Irritating to respiratory system.
H290 May be corrosive to metals.
H314 Causes severe skin burns and eye damage.
H318 Causes serious eye damage.
H335 May cause respiratory irritation.

RECOMMENDED USES
Reagent for analysis; neutralization; food products

BIBLIOGRAPHY REFERENCES
Fiche toxicologique INRS : N°13 (ACIDE CHLORHYDRIQUE)
NOAEL : No Observed Adverse Effect Level (NOAEL)
LOAEL : Lowest Observed Adverse Effect Level (LOAEL)
bw : Body weight
food : oral feed
dw : Dry weight

FURTHER INFORMATION
THIS PRODUCT MUST BE HANDLED ONLY BY PERSONNEL WELL INFORMED OF SAFETY CONDITIONS WHEN USED IN FORMULATIONS, CONTACT US FOR LABELLING.

This information applies to the PRODUCT AS SUCH and conforming to specifications of QVC. In case of formulations or mixtures, it is necessary to ascertain that a new danger will not appear. The information contained is based on our knowledge of the product, at the date of publishing and it is given quite sincerely. However the revision of some data is in progress. Users are advised of possible additional hazards when the product is used in applications for which it was not intended. This sheet shall only be used and reproduced for prevention and security purposes. The references to legislative, regulatory and codes of practice documents cannot be considered as exhaustive.
It is the responsibility of the person receiving the product to refer to the totality of the official documents concerning the use, the possession and the handling of the product.

It is also the responsibility of the handlers of the product to pass on to any subsequent persons who will come into contact with the product (usage, storage, cleaning of containers, other processes) the totality of the information contained within this safety data sheet and necessary for safety at work, the protection of health and the protection of environment.