01 - IDENTIFICATION OF THE SUBSTANCE/PREPARATION AND THE COMPANY/UNDERTAKING
PRODUCT NAME: HYDROCHLORIC ACID SOLUTION
SDS No.: 004
SUPPLIER: Qatar Vinyl Company Ltd.
P. O. Box 24440, Doha, State of Qatar
Tel: +974 44765888; Fax: +974 44765777
Email: qvc@qvc.com.qa
Emergency contact number: +974 44765800

02 - COMPOSITION / INFORMATION ON INGREDIENTS

<table>
<thead>
<tr>
<th></th>
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<th></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, Xi; R37</td>
<td>Met. Corr. 1; H290, Skin Corr. 1B; H314, Eye Dam. 1; H318, STOT SE 3; H335</td>
</tr>
</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

PHYSICAL AND CHEMICAL HAZARDS
- Corrosive to metals, 1; H290,
- Forms flammable and explosive hydrogen through corrosion of metals. Thermal decomposition giving toxic products

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.
QVC MSDS CODE : H3.0.2-15

MATERIAL SAFETY DATA SHEET - MSDS

HYDROCHLORIC ACID SOLUTION

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, bioaccumulating, toxic (PBT), nor very persistent, very bioaccumulating (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 result 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.

**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

**SUITABLE EXTINGUISHING MEDIA**
Foam; Dry powder ; Carbon dioxide (CO2)

**EXTINGUISHING MEDIA WHICH ARE NOT SUITABLE**
Water

**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**
Restrict 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**

**Technical measures/Precautions**

**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**

**Technical measures/Storage conditions**
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

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### 09 - PHYSICAL AND CHEMICAL PROPERTIES

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>PHYSICAL STATE (20°C)</strong></td>
<td>Liquid</td>
</tr>
<tr>
<td><strong>COLOUR</strong></td>
<td>Slightly, yellow to green, or colorless</td>
</tr>
<tr>
<td><strong>ODOUR</strong></td>
<td>Pungent; irritant</td>
</tr>
<tr>
<td><strong>OLFACTORY THRESHOLD</strong></td>
<td>1 – 5 ppm</td>
</tr>
<tr>
<td><strong>MOLECULAR WEIGHT</strong></td>
<td>36.5 g/mol</td>
</tr>
<tr>
<td><strong>pH value</strong></td>
<td>&lt; 1 (at 20°C), strong acid</td>
</tr>
<tr>
<td><strong>BOILING POINT/RANGE</strong></td>
<td>80 °C (Concentration: 32%); 45 °C (Concentration: 37%)</td>
</tr>
<tr>
<td><strong>MELTING POINT/RANGE</strong></td>
<td>-42 °C (Concentration: 32%); -29 °C (Concentration: 37%)</td>
</tr>
<tr>
<td><strong>FLASH POINT</strong></td>
<td>Not applicable</td>
</tr>
<tr>
<td><strong>AUTOIGNITION TEMPERATURE</strong></td>
<td>Not applicable</td>
</tr>
<tr>
<td><strong>EXPLOSIVE LIMITS</strong></td>
<td></td>
</tr>
<tr>
<td>Lower</td>
<td>Not applicable</td>
</tr>
<tr>
<td>Higher</td>
<td>Not applicable</td>
</tr>
<tr>
<td><strong>EVAPORATION RATE</strong></td>
<td>No data available</td>
</tr>
<tr>
<td><strong>VAPOUR PRESSURE</strong></td>
<td>30 hPa, at 20 °C (Concentration: 32%)</td>
</tr>
<tr>
<td></td>
<td>200 hPa, at 20 °C (Concentration: 37%)</td>
</tr>
<tr>
<td><strong>VAPOUR DENSITY (Air = 1)</strong></td>
<td>1.53 kg/m3</td>
</tr>
<tr>
<td><strong>LIQUID DENSITY</strong></td>
<td>1.160 - 1.190 kg/m3, at 20 °C</td>
</tr>
<tr>
<td><strong>WATER SOLUBILITY</strong></td>
<td>completely soluble at 20 °C</td>
</tr>
<tr>
<td><strong>PARTITION COEFFICIENT:</strong></td>
<td>N-OCTANOL/WATER: Not relevant</td>
</tr>
<tr>
<td><strong>VISCOSITY, KINEMATIC</strong></td>
<td>1.7 mm²/s at 20°C</td>
</tr>
<tr>
<td><strong>SOLUBILITY IN OTHER SOLVENTS</strong></td>
<td>Water soluble solvents</td>
</tr>
</tbody>
</table>

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### 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**

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 reprotoxic potential.

#### SPECIFI 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.
QVC MSDS CODE : H3.0.2-15

MATERIAL SAFETY DATA SHEET - MSDS

HYDROCHLORIC ACID SOLUTION

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

RESULTS OF PBT AND vPvB ASSESSMENT

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

ADR
Class : 8; Label 8; Packing Group II; Environmentally hazardous: no;

ADNR
Class : 8; Label 8; Packing Group II; Environmentally hazardous: no;

RID
Class : 8; Label 8; Packing Group II; Environmentally hazardous: no;

IMDG
Class : 8; Label 8; Packing Group II; Environmentally hazardous: no; EmS Number: F-A, S-B

IATA Cargo
Class : 8; Label 8; Packing Group II; Environmentally hazardous: no;

IATA Passenger
Class : 8; Label 8; Packing Group II; Environmentally hazardous: no;

15 - REGULATORY INFORMATION

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

EC CLASSIFICATION / LABELLING
(EC) No 1272/2008 (GHS)
QVC MSDS CODE : H3.0.2-15

Material Safety Data Sheet - MSDS

Product: HYDROCHLORIC ACID SOLUTION

SDS No.: 004 Version : 01 Date : 05.10.2011

ADDITIONAL REGULATIONS

Hazardous Waste Regulations 2005
Young workers 94/33/EC: Banned and/or restricted
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)

THESAURUS

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.