MATERIAL SAFETY DATA SHEET - MSDS

HYDROCHLORIC ACID SOLUTION

QVC MSDS CODE : H3.0.2-15

Product:
SDS No. : 004
MANUFACTURER
Qatar Vinyl Company Ltd.
P. O. Box 24440, Doha, State of Qatar

EMERGENCY TELEPHONE No.
For Spill, Leak, Fire, Exposure or Accident
Call CHEMTRAC Day or Night
Within USA and Canada: 1-800-424-9300
Outside USA and Canada: +1-703-741-5970 and +1-703-527-3887
(collect calls accepted)

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

PRODUCT NAME HYDROCHLORIC ACID SOLUTION
SDS No. 004
MANUFACTURER Qatar Vinyl Company Ltd.
P. O. Box 24440, Doha, State of Qatar

02 - COMPOSITION / INFORMATION ON INGREDIENTS

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<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
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: Skin Corr. 1B; H314, Eye Dam. 1; H318, STOT SE 3; H335

Hazard pictograms:

---

*Image of hazard rating table*
QVC MSDS CODE : H3.0.2-15

MATERIAL SAFETY DATA SHEET - MSDS

HYDROCHLORIC ACID SOLUTION

Signal word
Hazard statement

Precautionary statements:
Prevention:
Response:

Storage:

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.
### 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**
- 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
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
EVAPORATION RATE  No data available
VAPOUR PRESSURE  30 hPa , at 20 °C (Concentration: 32%)
200 hPa , at 20 °C (Concentration: 37%)
VAPOUR DENSITY (Air = 1)  1.53 kg/m³
LIQUID DENSITY  1.160 - 1.190 kg/m³ , at 20 °C
WATER SOLUBILITY  completely soluble at 20 °C
PARTITION COEFFICIENT:  N-OCTANOL/WATER: Not relevant
VISCOSITY, KINEMATIC  1.7 mm²/s at 20°C
SOLUBILITY IN OTHER SOLVENTS  Water soluble solvents

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
In animals: LD50/rabbit: > 5.010 mg/kg
LOCAL EFFECTS  Corrosive to skin
                Causes severe burns.
                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.

ECr50, 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).

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

MATERIAL SAFETY DATA SHEET - MSDS

Product:
HYDROCHLORIC ACID SOLUTION

SDS No. : 004  Version : 03  Date : 12-10-2017

15 - REGULATORY INFORMATION

SAFETY DATA SHEETS

EC CLASSIFICATION / LABELLING

ADDITIONAL REGULATIONS
Young workers 94/33/EC: Banned and/or restricted

IMDG Number: F-A, S-B

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 HANDLE 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 purpose.

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.