

# MATERIAL SAFETY DATA SHEET

## Chemical Product

Product Name: Hydrochloric acid AR  
 CAS#: Mixture.  
 Synonym: Hydrochloric Acid, 0.1 N Aqueous Solution  
 Chemical Name: Hydrochloric Acid  
 Chemical Formula: Not applicable.

## Composition and Information on Ingredients

Name	S.K.U	% by Weight
HYDROCHLORIC ACID N/10	GCS-1838	100
Hydrogen chloride	7647- 01-0	0.364
Water	7732- 18-5	99.64

## Hazards Identification

### Potential Acute Health Effects:

Hazardous in case of eye contact (irritant). Slightly hazardous in case of skin contact (irritant, permeator), of eye contact (irritant), of ingestion, of inhalation.

### Potential Chronic Health Effects:

CARCINOGENIC EFFECTS: Classified 3 (Not classifiable for human.) by IARC [Hydrogen chloride]. MUTAGENIC EFFECTS: Not available. TERATOGENIC EFFECTS: Not available. DEVELOPMENTAL

TOXICITY: Not available. The substance may be toxic to kidneys, liver, mucous membranes, upper respiratory tract, skin, eyes, , teeth. Repeated or prolonged exposure to the substance can produce target organs damage.

## First Aid Measures

### Eye Contact:

Check for and remove any contact lenses. In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Cold water may be used. Get medical attention immediately.

### Serious Skin Contact:

Wash with a disinfectant soap and cover the contaminated skin with an anti-bacterial cream. Seek medical attention.

**Skin Contact:**

In case of contact, immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Cover the irritated skin with an emollient. Cold water may be used. Wash clothing before reuse. Thoroughly clean shoes before reuse. Get medical attention immediately.

**Inhalation:**

If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention immediately.

**Serious Inhalation:**

Not available.

**Ingestion:**

Do NOT induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. If large quantities of this material are swallowed, call a physician immediately. Loosen tight clothing such as a collar, tie, belt or waistband.

Serious Ingestion: Not available.

**Fire and Explosion Data**

Flammability of the Product: Non-flammable.

Auto-Ignition Temperature: Not applicable.

Flash Points:  
Not applicable.

Flammable Limits:  
Not applicable.

Products of  
Combustion:  
Not available.

Fire Hazards in Presence of Various Substances: Not applicable.

Explosion Hazards in Presence of Various Substances: Non-explosive in presence of open flames and sparks, of shocks.

Fire Fighting Media and Instructions: Not applicable.

Special Remarks on Fire Hazards: Not available.

Special Remarks on Explosion Hazards: Not available.

**Accidental Release Measures**

**Small Spill:**

Use appropriate tools to put the spilled solid in a convenient waste disposal container. Finish cleaning by spreading water on the contaminated surface and dispose of according to local and regional authority requirements.

**Large Spill:**

Use a shovel to put the material into a convenient waste disposal container. Finish

cleaning by spreading water on the contaminated surface and allow to evacuate through the sanitary system. Be careful that the product is not present at a concentration level above TLV. Check TLV on the MSDS and with local authorities.

## Handling and Storage

### Precautions:

Do not breathe gas/fumes/ vapour/spray. Never add water to this product. If you feel unwell, seek medical attention and show the label when possible. Avoid contact with skin and eyes.

### Storage:

Keep container tightly closed. Keep container in a cool, well-ventilated area.

## Exposure Controls/Personal Protection

### Engineering Controls:

Provide exhaust ventilation or other engineering controls to keep the airborne concentrations of vapours below their respective threshold limit value.

### Personal Protection:

Splash goggles. Lab coat. Gloves.

### Personal Protection in Case of a Large Spill:

Splash goggles. Full suit. Boots. Gloves. Suggested protective clothing might not be sufficient; consult a specialist BEFORE handling this product.

### Exposure Limits:

Hydrogen chloride STEL: 7.5 (mg/m<sup>3</sup>) from ACGIH (TLV) [United States] STEL: 5 (ppm) from ACGIH (TLV) [United States] CEIL: 5 (ppm) from NIOSH CEIL: 7.5 (mg/m<sup>3</sup>) from NIOSH CEIL: 5 (ppm) from OSHA (PEL) [United States] CEIL: 7 (mg/m<sup>3</sup>) from OSHA (PEL) [United States] Consult local authorities for acceptable exposure limits.

## Physical and Chemical Properties

### Physical state and appearance

: **Liquid.**

Odour

: Not available.

Taste

: Not available.

Molecular Weight

: Not applicable.

Color

: Clear Colourless.

pH (1% soln/water)

: Acidic.

Boiling Point

: The lowest known value is 100°C (212°F)

(Water).

Melting Point

: Not available.

Critical Temperature

: Not available.

Specific Gravity

: The only known value is 1 (Water = 1)

(Water).	
Vapour Pressure	: The highest known value is 2.3 kPa (@ 20°C)
(Water).	
Vapour Density	: The highest known value is 0.62 (Air = 1)
(Water).	
Volatility	: Not available.
Odour Threshold	: Not available.
Water/Oil Dist. Coeff.	: Not available.
Iconicity (in Water)	: Not available.
Dispersion Properties	: See solubility in water, diethyl ether.
Solubility water, diethyl ether.	: Easily soluble in cold water. Soluble in hot

## Stability and Reactivity Data

The product is stable.

### Instability Temperature:

Not available.

### Conditions of Instability:

Incompatible materials

### Incompatibility with various substances:

Slightly reactive to reactive with alkalis.

### Corrosivity:

Slightly corrosive in presence of glass.

### Special Remarks on Reactivity:

Reacts violently (moderate reaction with heat of evolution) with water especially when water is added to the product. Isolate hydrogen chloride from heat, direct, alkalis (reacts vigorously), organic materials, and oxidizers (especially nitric acid and chlorates), amines, copper and alloys (e.g. brass), hydroxides, zinc (galvanized materials). Hydrogen chloride causes aldehydes and epoxides to violently polymerize. It reacts with oxidizers releasing chlorine gas. (Hydrogen chloride)  
Special Remarks on Corrosivity: Not available.

Polymerization: Will not occur.

## Toxicological Information

### Routes of Entry:

Absorbed through skin. Eye contact.

### Toxicity to Animals:

Hydrochloric Acid: Acute oral toxicity (LD50): 900 mg/kg [Rabbit]. Acute toxicity of the vapour (LC50): 1108 ppm, 1 hours [Mouse]. Acute toxicity of the vapour (LC50): 3124 ppm, 1 hours [Rat].

### Chronic Effects on Humans:

CARCINOGENIC EFFECTS: Classified 3 (Not classifiable for human.) by IARC [Hydrogen chloride]. Contains material which may cause damage to the following organs: kidneys, liver, mucous membranes, upper respiratory tract, skin, eyes, ,

teeth.

**Other Toxic Effects on Humans:**

Slightly hazardous in case of skin contact (irritant, permeator), of eye contact (irritant), of ingestion, of inhalation.

**Special Remarks on Toxicity to Animals:**

Hydrochloric Acid Lowest Published Lethal Doses (LDL/LCL) LDL [Man] -Route: Oral; 2857 ug/kg LCL [Human] - Route: Inhalation; Dose: 1300 ppm/30M LCL [Rabbit] - Route: Inhalation; Dose: 4413 ppm/30M

**Special Remarks on Chronic Effects on Humans:**

May cause adverse reproductive effects (fetotoxicity). May affect genetic material. (Hydrochloric Acid)

**Special Remarks on other Toxic Effects on Humans:**

Acute Potential Health Effects: Skin: May cause slight skin irritation. Eyes: Causes eye irritation. Inhalation: May cause respiratory tract irritation. It is expected to be a low hazard for usual industrial handling.

Ingestion: Ingestion of large doses may cause gastrointestinal tract disturbances with nausea, vomiting and diarrhea. May affect behaviour, the cardiovascular system, and urinary system (kidneys). Chronic Potential Health Effects: Prolonged or repeated inhalation or ingestion may affect liver, respiratory tract (chronic bronchitis), teeth (yellowing of teeth and erosion of tooth enamel), kidneys, and behaviour, Prolonged or repeated skin contact may cause dermatitis.

Toxicological Data on Ingredients: Hydrogen chloride: GAS (LC50): Acute: 4701 ppm 0.5 hours [Rat].

## Ecological Information

Ecotoxicity: Not available.

BOD5 and COD: Not available.

**Products of Biodegradation:**

Possibly hazardous short term degradation products are not likely. However, long term degradation products may arise.

**Toxicity of the Products of Biodegradation:**

The product itself and its products of degradation are not toxic.

Special Remarks on the Products of Biodegradation: Not available.

## Disposal Considerations

Waste Disposal:

Waste must be disposed of in accordance with federal, state and local environmental control regulations.

## Transformation Information

### Land transport (ADR-RID)

Proper shipping name	: HYDROCHLORIC ACID
UN N°	1789
<b>H.I. nr</b>	<b>80</b>
<b>ADR – Class</b>	<b>8</b>
Labelling – Transport	: 8 : Corrosive substance.
<b>ADR – Group</b>	<b>III</b>

### Sea transport (IMDG)

Proper shipping name	: HYDROCHLORIC ACID
UN N°	1789
IMO-IMDG - Class or division	: 8 : Corrosive substance.
<b>IMO-IMDG - Packing group</b>	<b>III</b>

### Air transport (ICAO-IATA)

Proper shipping name	: HYDROCHLORIC ACID
UN N°	1789
IATA - Class or division	: 8 : Corrosive substance.
<b>IATA - Packing group</b>	<b>III</b>

## Other Regulatory Information

### Federal and State Regulations:

Connecticut hazardous material survey.: Hydrochloric acid Illinois toxic substances disclosure to employee act: Hydrochloric acid Illinois chemical safety act: Hydrochloric acid New York release reporting list: Hydrochloric acid Rhode Island RTK hazardous substances: Hydrochloric acid Pennsylvania RTK: Hydrochloric acid Minnesota: Hydrochloric acid Massachusetts RTK: Hydrochloric acid Massachusetts spill list: Hydrochloric acid New Jersey: Hydrochloric acid New Jersey spill list: Hydrochloric acid Louisiana RTK reporting list: Hydrochloric acid Louisiana spill reporting: Hydrochloric acid TSCA 8(b) inventory: Hydrochloric acid; Water TSCA 4(a) proposed test rules: Hydrochloric acid SARA 302/304/311/312 extremely hazardous substances: Hydrochloric acid CERCLA: Hazardous substances.: Hydrochloric acid: 5000 lbs. (2268 kg); Other Regulations: OSHA: Hazardous by definition of Hazard Communication Standard (29 CFR 1910.1200).

### Other Classifications:

#### HMIS (U.S.A.):

Health Hazard: 2

**Fire Hazard: 1**

Reactivity: 0

**Personal Protection: E**

National Fire Protection Association (U.S.A.):

**Health: 2**

Flammability: 1

**Reactivity: 0**

Specific hazard:

**Protective Equipment:**

Gloves. Lab coat. Dust respirator. Be sure to use an approved/certified respirator or equivalent. Wear appropriate respirator when ventilation is inadequate. Splash goggles.

**Additional Information**



References: Not available.

Other Special Considerations: Not available.

## ***Disclaimer:***

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