



# MATERIAL SAFETY DATA SHEET

## 1. Product and Company Identification

<b>Material name</b>	Hydrochloric Acid
<b>Version #</b>	08
<b>Revision date</b>	04-05-2011
<b>CAS #</b>	Mixture
<b>Product Codes</b>	J.T.Baker: 5367, 5537, 5800, 5814, 5821, 5861, 5862, 6900, 9165, 9529, 9530, 9534, 9535, 9536, 9537, 9538, 9539, 9543, 9544, 9548, 9551, 9555, 9625 Macron: 2062, 20620, 2515, 25496, 2612, 2624, 2626, 3861, 5587, H611, H613, H616, H987, H999, IM2612, V001, V078, V187, V226
<b>Synonym(s)</b>	Muriatic acid * hydrogen chloride, aqueous
<b>Manufacturer</b>	Avantor Performance Materials, Inc.
<b>Address</b>	222 Red School Lane Phillipsburg, NJ 08865 US
<b>Customer Service</b>	800-582-2537
<b>24 Hour Emergency</b>	908-859-2151
<b>Chemtrec</b>	800-424-9300

## 2. Hazards Identification

<b>Emergency overview</b>	DANGER  Corrosive. Causes severe skin and eye burns. Causes digestive tract burns. Mist or vapor extremely irritating to eyes and respiratory tract.
<b>OSHA regulatory status</b>	This product is considered hazardous under 29 CFR 1910.1200 (Hazard Communication).
<b>Potential health effects</b>	
<b>Routes of exposure</b>	Ingestion. Inhalation. Skin contact. Eye contact.
<b>Eyes</b>	Corrosive. Causes severe eye burns. Vapor or spray may cause eye damage, impaired sight or blindness.
<b>Skin</b>	Corrosive. Causes severe skin burns.
<b>Inhalation</b>	Corrosive. May cause damage to mucous membranes in nose, throat, lungs and bronchial system.
<b>Ingestion</b>	Corrosive. Ingestion may produce burns to the lips, oral cavity, upper airway, esophagus and possibly the digestive tract.
<b>Target organs</b>	Eyes. Skin. Lungs. Respiratory system.
<b>Chronic effects</b>	Corrosive. Prolonged contact causes serious tissue damage.
<b>Potential environmental effects</b>	The product may affect the acidity (pH-factor) in water with risk of harmful effects to aquatic organisms.

## 3. Composition / Information on Ingredients

Hazardous components	CAS #	Percent
HYDROCHLORIC ACID	7647-01-0	20 - 40
Non-hazardous components	CAS #	Percent
WATER	7732-18-5	60 - 80

## 4. First Aid Measures

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### First aid procedures

<b>Eye contact</b>	Immediately flush with plenty of water for at least 15 minutes. If easy to do, remove contact lenses. Call a physician or poison control center immediately. In case of irritation from airborne exposure, move to fresh air. Get medical attention immediately.
<b>Skin contact</b>	Immediately flush with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Call a physician or poison control center immediately. Wash clothing separately before reuse. Destroy or thoroughly clean contaminated shoes.
<b>Inhalation</b>	Move to fresh air. If breathing stops, provide artificial respiration. If breathing is difficult, give oxygen. Call a physician or poison control center immediately.
<b>Ingestion</b>	Call a physician or poison control center immediately. Do not induce vomiting. If vomiting occurs, the head should be kept low so that stomach vomit doesn't enter the lungs.

### Notes to physician

Keep victim under observation. Treat symptomatically.

### General advice

In the case of accident or if you feel unwell, seek medical advice immediately (show the label where possible). Show this safety data sheet to the doctor in attendance. Ensure that medical personnel are aware of the material(s) involved, and take precautions to protect themselves.

## 5. Fire Fighting Measures

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### Flammable properties

The product is not flammable. No unusual fire or explosion hazards noted.

### Extinguishing media

<b>Suitable extinguishing media</b>	Water. Carbon dioxide (CO <sub>2</sub> ). Dry chemical powder. Foam.
<b>Unsuitable extinguishing media</b>	None known.

### Protection of firefighters

**Specific hazards arising from the chemical** Fire may produce irritating, corrosive and/or toxic gases.

**Protective equipment and precautions for firefighters** Use water spray to cool unopened containers. Self-contained breathing apparatus and full protective clothing must be worn in case of fire. Cool containers exposed to flames with water until well after the fire is out.

### Special protective equipment for fire-fighters

Wear full protective clothing, including helmet, self-contained positive pressure or pressure demand breathing apparatus, protective clothing and face mask. Wear self-contained breathing apparatus with a full facepiece operated in the positive pressure demand mode when fighting fires.

### Specific methods

In the event of fire and/or explosion do not breathe fumes.

## 6. Accidental Release Measures

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### Personal precautions

Wear appropriate protective equipment and clothing during clean-up. Keep upwind. Keep out of low areas. Ventilate closed spaces before entering them. Local authorities should be advised if significant spillages cannot be contained.

### Environmental precautions

Prevent further leakage or spillage if safe to do so. Avoid discharge into drains, water courses or onto the ground.

### Methods for containment

Stop the flow of material, if this is without risk. Dike the spilled material, where this is possible. Prevent entry into waterways, sewer, basements or confined areas.

## Methods for cleaning up

Large Spills: Dike far ahead of spill for later disposal. Use a non-combustible material like vermiculite, sand or earth to soak up the product and place into a container for later disposal.

Small Spills: Wipe up with absorbent material (e.g. cloth, fleece). Clean surface thoroughly to remove residual contamination.

Never return spills in original containers for re-use. Clean up in accordance with all applicable regulations. Neutralize spill area and washings with soda ash or lime. Collect in a non-combustible container for prompt disposal.

J. T. Baker NEUTRASORB® acid neutralizers are recommended for spills of this product.

## 7. Handling and Storage

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### Handling

Do not get in eyes, on skin, on clothing. Do not taste or swallow. Wash thoroughly after handling. Do not eat, drink or smoke when using the product. Use caution when combining with water; DO NOT add water to acid, ALWAYS add acid to water while stirring to prevent release of heat, steam and fumes.

### Storage

Do not store in metal containers. Keep tightly closed in a dry, cool and well-ventilated place.

## 8. Exposure Controls / Personal Protection

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### Occupational exposure limits

#### ACGIH

##### Components

##### Type

##### Value

HYDROCHLORIC ACID (7647-01-0)

Ceiling

2.0000 ppm

#### U.S. - OSHA

##### Components

##### Type

##### Value

HYDROCHLORIC ACID (7647-01-0)

Ceiling

5.0000 ppm  
7.0000 mg/m3

### Engineering controls

Good general ventilation (typically 10 air changes per hour) should be used. Ventilation rates should be matched to conditions. If applicable, use process enclosures, local exhaust ventilation, or other engineering controls to maintain airborne levels below recommended exposure limits. If exposure limits have not been established, maintain airborne levels to an acceptable level.

### Personal protective equipment

#### Eye / face protection

Wear safety glasses with side shields (or goggles) and a face shield.

#### Skin protection

Wear appropriate chemical resistant clothing. Wear appropriate chemical resistant gloves.

#### Respiratory protection

If engineering controls do not maintain airborne concentrations below recommended exposure limits (where applicable) or to an acceptable level (in countries where exposure limits have not been established), an approved respirator must be worn. Respirator type: Chemical respirator with acid gas cartridge.

#### General hygiene considerations

Provide eyewash station and safety shower. Always observe good personal hygiene measures, such as washing after handling the material and before eating, drinking, and/or smoking. Routinely wash work clothing and protective equipment to remove contaminants.

#### General

Wear chemical protective equipment that is specifically recommended by the manufacturer. Launder contaminated clothing before reuse.

## 9. Physical & Chemical Properties

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### Appearance

Clear.

### Color

Colorless.

### Odor

Pungent.

### Odor threshold

Not available.

### Physical state

Liquid.

### Form

Liquid.

<b>pH</b>	0.1 (1.0 N sol)
<b>Melting point</b>	-14.8 - -61.6 °F (-26 - -52 °C)
<b>Freezing point</b>	-14.8 - -61.6 °F (-26 - -52 °C)
<b>Boiling point</b>	118.4 - 194 °F (48 - 90 °C)
<b>Flash point</b>	Not available.
<b>Evaporation rate</b>	Not available.
<b>Flammability limits in air, upper, % by volume</b>	Not available.
<b>Flammability limits in air, lower, % by volume</b>	Not available.
<b>Vapor pressure</b>	2.13 - 28.3 kPa
<b>Vapor density</b>	Not available.
<b>Specific gravity</b>	1.149 - 1.189
<b>Relative density</b>	Not available.
<b>Solubility (water)</b>	Not available.
<b>Partition coefficient (n-octanol/water)</b>	Not available
<b>Auto-ignition temperature</b>	Not available.
<b>Decomposition temperature</b>	Not available.
<b>Molecular formula</b>	HCl

## 10. Chemical Stability & Reactivity Information

<b>Chemical stability</b>	Material is stable under normal conditions.
<b>Conditions to avoid</b>	Reacts violently with strong alkaline substances. This product may react with reducing agents. Do not mix with other chemicals. This product may react with oxidizing agents. Unsuitable containers: metals.
<b>Incompatible materials</b>	Incompatible with bases. Metals. Oxidizing agents. Acids. Amines. Reducing agents.
<b>Hazardous decomposition products</b>	Hydrogen chloride. Chlorine. May decompose upon heating to produce corrosive and/or toxic fumes.
<b>Possibility of hazardous reactions</b>	Hazardous polymerization does not occur.

## 11. Toxicological Information

### Toxicological data

<b>Product</b>	<b>Test Results</b>
Hydrochloric Acid (Mixture)	Acute Inhalation LC50 Rat: 9188 mg/l estimated Acute Oral LD50 Rat: 581 mg/kg
<b>Components</b>	<b>Test Results</b>
HYDROCHLORIC ACID (7647-01-0)	Acute Inhalation LC50 Rat: 3124 mg/l 1.00 Hours Acute Oral LD50 Rat: 238 - 277 mg/kg
<b>Sensitization</b>	Not a skin sensitizer.
<b>Local effects</b>	Causes severe burns.
<b>Chronic effects</b>	Corrosive. Prolonged contact causes serious tissue damage.
<b>Carcinogenicity</b>	This product is not considered to be a carcinogen by IARC, ACGIH, NTP, or OSHA.
<b>ACGIH Carcinogens</b>	
HYDROCHLORIC ACID (CAS 7647-01-0)	A4 Not classifiable as a human carcinogen.
<b>IARC Monographs. Overall Evaluation of Carcinogenicity</b>	
HYDROCHLORIC ACID (CAS 7647-01-0)	3 Not classifiable as to carcinogenicity to humans.

<b>Skin corrosion/irritation</b>	Corrosive to skin and eyes.
<b>Epidemiology</b>	No epidemiological data is available for this product.
<b>Mutagenicity</b>	No data available to indicate product or any components present at greater than 0.1% are mutagenic or genotoxic.
<b>Neurological effects</b>	No data available for this product.
<b>Reproductive effects</b>	Contains no ingredient listed as toxic to reproduction
<b>Teratogenicity</b>	No data available to indicate product or any components present at greater than 0.1% may cause birth defects.
<b>Symptoms and target organs</b>	Corrosive effects.
<b>Further information</b>	Danger of very serious irreversible effects. Symptoms may be delayed.

## 12. Ecological Information

### Ecotoxicological data

Product	Test Results
Hydrochloric Acid (Mixture)	LC50 Fish: 829 mg/l 96.00 hours estimated
Components	Test Results
HYDROCHLORIC ACID (7647-01-0)	LC50 Western mosquitofish (Gambusia affinis): 282 mg/l 96.00 hours

<b>Ecotoxicity</b>	The product may affect the acidity (pH-factor) in water with risk of harmful effects to aquatic organisms.
<b>Persistence and degradability</b>	Expected to be readily biodegradable.
<b>Partition coefficient (n-octanol/water)</b>	Not available

## 13. Disposal Considerations

<b>Waste codes</b>	D002: Waste Corrosive material [pH <=2 or =>12.5, or corrosive to steel]
<b>Disposal instructions</b>	Dispose of this material and its container to hazardous or special waste collection point. Incinerate the material under controlled conditions in an approved incinerator. All wastes must be handled in accordance with local, state and federal regulations.
<b>Contaminated packaging</b>	Since emptied containers retain product residue, follow label warnings even after container is emptied. Offer rinsed packaging material to local recycling facilities.

## 14. Transport Information

### DOT

#### Basic shipping requirements:

<b>UN number</b>	UN1789
<b>Proper shipping name</b>	Hydrochloric acid
<b>Hazard class</b>	8
<b>Packing group</b>	II

#### Additional information:

**Special provisions** A3, A6, B3, B15, IB2, N41, T8, TP2, TP12

#### Basic shipping requirements:

**Labels required** 8

#### Additional information:

<b>Packaging exceptions</b>	154
<b>Packaging non bulk</b>	202
<b>Packaging bulk</b>	242
<b>ERG number</b>	157

## IATA

### Basic shipping requirements:

UN number 1789  
Proper shipping name Hydrochloric acid  
Hazard class 8  
Packing group II  
Additional information:  
ERG code 8L

## IMDG

### Basic shipping requirements:

UN number 1789  
Proper shipping name HYDROCHLORIC ACID  
Hazard class 8  
Packing group II



DOT



IATA



IMDG

## 15. Regulatory Information

### US federal regulations

This product is a "Hazardous Chemical" as defined by the OSHA Hazard Communication Standard, 29 CFR 1910.1200.  
All components are on the U.S. EPA TSCA Inventory List.

### US EPCRA (SARA Title III) Section 302 - Extremely Hazardous Spill: Reportable quantity

HYDROCHLORIC ACID (CAS 7647-01-0) 5000 LBS

### US EPCRA (SARA Title III) Section 302 - Extremely Hazardous Substance: Threshold Planning Quantity

HYDROCHLORIC ACID (CAS 7647-01-0) 500 LBS

### US EPCRA (SARA Title III) Section 313 - Toxic Chemical: De minimis concentration

HYDROCHLORIC ACID (CAS 7647-01-0) 1.0 %

### US EPCRA (SARA Title III) Section 313 - Toxic Chemical: Listed substance

HYDROCHLORIC ACID (CAS 7647-01-0) Listed.

### CERCLA (Superfund) reportable quantity

HYDROCHLORIC ACID: 5000.0000

### Superfund Amendments and Reauthorization Act of 1986 (SARA)

**Hazard categories**  
Immediate Hazard - Yes  
Delayed Hazard - No  
Fire Hazard - No  
Pressure Hazard - No  
Reactivity Hazard - No

**Section 311 hazardous chemical**  
Yes

### Inventory status

Country(s) or region	Inventory name	On inventory (yes/no)*
Australia	Australian Inventory of Chemical Substances (AICS)	Yes
Canada	Domestic Substances List (DSL)	Yes
Canada	Non-Domestic Substances List (NDSL)	No
China	Inventory of Existing Chemical Substances in China (IECSC)	Yes

Country(s) or region	Inventory name	On inventory (yes/no)*
Europe	European Inventory of Existing Commercial Chemical Substances (EINECS)	Yes
Europe	European List of Notified Chemical Substances (ELINCS)	No
Japan	Inventory of Existing and New Chemical Substances (ENCS)	Yes
Korea	Existing Chemicals List (ECL)	Yes
New Zealand	New Zealand Inventory	Yes
Philippines	Philippine Inventory of Chemicals and Chemical Substances (PICCS)	Yes
United States & Puerto Rico	Toxic Substances Control Act (TSCA) Inventory	Yes

\*A "Yes" indicates that all components of this product comply with the inventory requirements administered by the governing country(s)

**State regulations** This product does not contain a chemical known to the State of California to cause cancer, birth defects or other reproductive harm.

**US - New Jersey Community RTK (EHS Survey): Reportable threshold**

HYDROCHLORIC ACID (CAS 7647-01-0) 500 LBS

**US - Pennsylvania RTK - Hazardous Substances: Listed substance**

HYDROCHLORIC ACID (CAS 7647-01-0) Listed.

**Saf-T-Data**  
 Health: 3 - Severe (Poison)  
 Flammability: 0 - None  
 Reactivity: 1 - Slight  
 Contact: 4 - Extreme (Corrosive)  
 Lab Protective Equip: D - GOGGLES & SHIELD; LAB COAT & APRON; VENT HOOD; PROPER GLOVES  
 Storage Color Code: W - White (Corrosive)

**16. Labeling Info**

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**Label Hazard Warning** DANGER  
 Corrosive. Causes severe skin and eye burns. Causes digestive tract burns. Mist or vapor extremely irritating to eyes and respiratory tract.

**Label Precautions** Do not breathe mist or vapor. Do not get in eyes, on skin, or on clothing. Use only with adequate ventilation. Keep container closed. Wash thoroughly after handling.

**Label First Aid** Immediately flush eyes with plenty of water for at least 15 minutes. Immediately flush skin with plenty of water. If gas/fume/vapor/dust/mist from the material is inhaled, remove the affected person immediately to fresh air. Get medical attention immediately. IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician. Do not induce vomiting without advice from poison control center. If vomiting occurs, keep head low so that stomach content doesn't get into the lungs. Do not use mouth-to-mouth method if victim ingested the substance.

**17. Other Information**

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**NFPA ratings**  
 Health: 3  
 Flammability: 0  
 Instability: 1

**Disclaimer**

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**Issue date**

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**This data sheet contains changes from the previous version in section(s):**

This document has undergone significant changes and should be reviewed in its entirety.