

# Material Safety Data Sheet



Date of issue 8 March 2013

Version 2.01

## 1. Product and company identification

**Product name** : Muriatic Acid (7-23 deg. Baume/15-38%)  
**Code** : 0130  
**Synonym** : Hydrochloric Acid; Muriatic Acid; Hydrogen Chloride; HCl  
**Supplier** : Axiall, LLC  
115 Perimeter Center Place  
Suite 460  
Atlanta, GA 30346  
USA

**Emergency telephone number** : +1 304-455-6882

**Technical Phone Number** : 1-800-243-6774 (C/A) 8am-5pm Eastern time

## 2. Hazards identification

**Emergency overview** : DANGER!  
CAUSES SEVERE RESPIRATORY TRACT, EYE AND SKIN BURNS. HARMFUL OR FATAL IF INHALED. HARMFUL OR FATAL IF SWALLOWED. MAY CAUSE TARGET ORGAN DAMAGE, BASED ON ANIMAL DATA. Never add water to this product. Always add the product to large quantities of water. Attacks many metals producing extremely flammable hydrogen gas which can form explosive mixtures with air. Toxic to aquatic life.  
Do not breathe vapor or mist. Do not get in eyes or on skin or clothing. Use only with adequate ventilation. Keep container tightly closed and sealed until ready for use. Wash thoroughly after handling. Keep out of waterways.

See Section 11 for more detailed information on health effects and symptoms.

### Potential acute health effects

**Inhalation** : Harmful or fatal if inhaled. Severely corrosive to the respiratory system.  
**Ingestion** : Harmful or fatal if swallowed. Severely corrosive to the digestive tract. Causes severe burns.  
**Skin** : Severely corrosive to the skin. Causes severe burns.  
**Eyes** : Severely corrosive to the eyes. Causes severe burns.

### Over-exposure signs/symptoms

**Inhalation** : Adverse symptoms may include the following:  
respiratory tract irritation  
coughing  
shortness of breath/breathing difficulty  
pulmonary edema  
**Ingestion** : Adverse symptoms may include the following:  
stomach pains  
nausea or vomiting  
diarrhea  
gastric perforation  
**Skin** : Adverse symptoms may include the following:  
pain or irritation  
redness  
blistering may occur  
**Eyes** :

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## 2. Hazards identification

Adverse symptoms may include the following:

pain  
watering  
redness  
Cornea opacity

Direct contact with the eyes can cause irreversible damage, including blindness.

**Medical conditions aggravated by over-exposure** : Pre-existing disorders involving any target organs mentioned in this MSDS as being at risk may be aggravated by over-exposure to this product.

This Material Safety Data Sheet has been prepared in accordance with Canada's Workplace Hazardous Materials Information System (WHMIS) and the OSHA Hazard Communication Standard (29 CFR 1910.1200).

See toxicological information (Section 11)

## 3. Composition/information on ingredients

<u>Name</u>	<u>CAS number</u>	<u>%</u>
Hydrogen chloride	7647-01-0	15 - 40
(10.15% @ 7, 14.85% @ 10, 18.0% @ 12, 22.92% @ 15, 27.9% @ 18, 31.5% @ 20, 35.2% @ 22, 37.1% @ 23 deg. Baume')		

There are no additional ingredients present which, within the current knowledge of the supplier and in the concentrations applicable, are classified as hazardous to health or the environment and hence require reporting in this section.

## 4. First aid measures

If ingestion, irritation, any type of overexposure or symptoms of overexposure occur during or persists after use of this product, contact a POISON CONTROL CENTER, EMERGENCY ROOM OR PHYSICIAN immediately; have Material Safety Data Sheet information available. Never give anything by mouth to an unconscious or convulsing person.

- Eye contact** : Check for and remove any contact lenses. Immediately flush eyes with running water for at least 15 minutes, keeping eyelids open. Get immediate medical attention.
- Skin contact** : Remove contaminated clothing and shoes. Wash skin thoroughly with soap and water or use recognized skin cleanser. Get immediate medical attention.
- Inhalation** : Remove to fresh air. Keep person warm and at rest. If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel. Get immediate medical attention.
- Ingestion** : If swallowed, seek medical advice immediately and show this container or label. Keep person warm and at rest. Do NOT induce vomiting.
- Notes to physician** : No specific treatment. Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.

## 5. Fire-fighting measures

**Flammability of the product** : In a fire or if heated, a pressure increase will occur and the container may burst. Emits toxic fumes under fire conditions. Fire water contaminated with this material must be contained and prevented from being discharged to any waterway, sewer or drain.

### Extinguishing media

- Suitable** : In case of fire, use water spray (fog), foam or dry chemical.
- Not suitable** : None known.
- Special exposure hazards** :

## 5 . Fire-fighting measures

Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. Prevent entry into sewers, water courses, basements or confined areas. No action shall be taken involving any personal risk or without suitable training. Use water spray to keep fire-exposed containers cool. This material is toxic to aquatic organisms. Collect contaminated fire-fighting water separately. It must not enter the sewage system. Fire water contaminated with this material must be contained and prevented from being discharged to any waterway, sewer or drain.

### Hazardous combustion products

- : Decomposition products may include the following materials:  
halogenated compounds  
May release dangerous gases (chlorine).

### Special protective equipment for fire-fighters

- : Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.

### Special remarks on explosion hazards

- : Attacks many metals producing extremely flammable hydrogen gas which can form explosive mixtures with air.

## 6 . Accidental release measures

### Personal precautions

- : No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilled material. Do not breathe vapor or mist. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment.

### Environmental precautions

- : Prevent further leakage or spillage if safe to do so. Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air). Water polluting material. Toxic to aquatic life with long lasting effects. Dike spill area and do not allow product to reach sewage system or surface or ground water. Notify any reportable spill to authorities. (See section 12 for environmental risks and 13 for disposal information.)

### Large spill

- : Stop leak if without risk. Move containers from spill area. Approach release from upwind. Prevent entry into sewers, water courses, basements or confined areas. Contain and collect spillage with non-combustible, absorbent material e.g. sand, earth, vermiculite or diatomaceous earth and place in container for disposal according to local regulations. The spilled material may be neutralized with sodium carbonate, sodium bicarbonate or sodium hydroxide. Add carefully and mix thoroughly with slow-moving stirring device. Dispose of via a licensed waste disposal contractor. Contaminated absorbent material may pose the same hazard as the spilled product.

### Small spill

- : Stop leak if without risk. Move containers from spill area. Absorb spill with inert material (e.g. dry sand or earth) and place in a chemical waste container. Dispose of via a licensed waste disposal contractor.

### Reference to other sections

- : See Section 1 for emergency contact information.  
See Section 8 for information on appropriate personal protective equipment.  
See Section 13 for additional waste treatment information.

## 7 . Handling and storage

### Handling

- : Put on appropriate personal protective equipment (see Section 8). Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking. Remove contaminated clothing and protective equipment before entering eating areas. Do not breathe vapor or mist. Do not swallow. Do not get in eyes or on skin or clothing. Use only with adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Keep in the original container or an approved alternative made from a compatible material, kept tightly closed when not in use. Exercise caution when opening to allow pressure release. Add compound slowly to water, never water to compound. Vapors are heavier than air and may spread along floors. Keep away from alkalis. Empty containers retain product residue and can be hazardous. Do not reuse container.

### Storage

:

## 7. Handling and storage

**GENERAL INFORMATION** Store in accordance with local regulations. Store in original container protected from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see Section 10) and food and drink. Separate from alkalis. Keep container tightly closed and sealed until ready for use. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Do not store in unlabeled containers. Use appropriate containment to avoid environmental contamination. Do not store above the following temperature: 49°C/120°F

**FOR BULK STORAGE CONTAINERS:** Bulk storage tanks should be constructed of corrosion-resistant materials such as rubber- or glass-lined steel, fiberglass, or plastic and should be vented to a scrubber to remove acid fumes. Bulk storage tanks should contain a dike sufficiently large enough to contain entire contents.

## 8. Exposure controls/personal protection

Name	Result	ACGIH	OSHA	Ontario	Mexico	IPEL
Hydrogen chloride	STEL	2 ppm C	5 ppm C	2 ppm C	5 ppm C	Not established

### Key to abbreviations

A	= Acceptable Maximum Peak	S	= Potential skin absorption
ACGIH	= American Conference of Governmental Industrial Hygienists.	SR	= Respiratory sensitization
C	= Ceiling Limit	SS	= Skin sensitization
F	= Fume	STEL	= Short term Exposure limit values
IPEL	= Internal Permissible Exposure Limit	TD	= Total dust
OSHA	= Occupational Safety and Health Administration.	TLV	= Threshold Limit Value
R	= Respirable	TWA	= Time Weighted Average
Z	= OSHA 29CFR 1910.1200 Subpart Z - Toxic and Hazardous Substances		

### Consult local authorities for acceptable exposure limits.

- Recommended monitoring procedures** : If this product contains ingredients with exposure limits, personal, workplace atmosphere or biological monitoring may be required to determine the effectiveness of the ventilation or other control measures and/or the necessity to use respiratory protective equipment. Reference should be made to appropriate monitoring standards. Reference to national guidance documents for methods for the determination of hazardous substances will also be required.
- Engineering measures** : Use only with adequate ventilation. If user operations generate dust, fumes, gas, vapor or mist, use process enclosures, local exhaust ventilation or other engineering controls to keep worker exposure to airborne contaminants below any recommended or statutory limits.
- Hygiene measures** : Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using the lavatory and at the end of the working period. Appropriate techniques should be used to remove potentially contaminated clothing. Wash contaminated clothing before reusing. Ensure that eyewash stations and safety showers are close to the workstation location.

### Personal protection

- Eyes** : Chemical splash goggles and face shield.
- Hands** : Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary. Considering the parameters specified by the glove manufacturer, check during use that the gloves are still retaining their protective properties. It should be noted that the time to breakthrough for any glove material may be different for different glove manufacturers. In the case of mixtures, consisting of several substances, the protection time of the gloves cannot be accurately estimated.
- Gloves** : Impervious gloves. Nitrile gloves. Neoprene gloves.
- Respiratory** :

## 8 . Exposure controls/personal protection

If workers are exposed to concentrations above the exposure limit, they must use appropriate, certified respirators. Use a properly fitted, air-purifying or air-fed respirator complying with an approved standard if a risk assessment indicates this is necessary. Respirator selection must be based on known or anticipated exposure levels, the hazards of the product and the safe working limits of the selected respirator.

- Skin** : Personal protective equipment for the body should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.
- Environmental exposure controls** : Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation. In some cases, fume scrubbers, filters or engineering modifications to the process equipment will be necessary to reduce emissions to acceptable levels.

## 9 . Physical and chemical properties

- Physical state** : Liquid.
- Flash point** : Not applicable. [Product does not sustain combustion.]
- Color** : Colorless to light yellow.
- Odor** : Pungent.
- pH** : 1 [Conc. (% w/w) 0.36%]
- Boiling/condensation point** : 108°C (226.4°F) (Azeotrope @ 20.2%)
- Melting/freezing point** : Not available.
- Specific gravity** : 1.051 to 1.189
- Vapor pressure** : 2 to 20 kPa (15 to 150 mm Hg) [20°C]
- Vapor density** : 1.267 [Air = 1]
- Volatility** : 100% (v/v), 100% (w/w)
- Evaporation rate** : Not available.
- Viscosity** : Not available.
- Solubility** : Soluble in the following materials: cold water.
- Partition coefficient: n-octanol/water** : Not available.
- % Solid. (w/w)** : 0

## 10 . Stability and reactivity

- Stability** : Stable under recommended storage and handling conditions (see Section 7).
- Conditions to avoid** : When exposed to high temperatures may produce hazardous decomposition products. Avoid increased storage temperature. Pressure hazard
- Materials to avoid** : Attacks many metals producing extremely flammable hydrogen gas which can form explosive mixtures with air. Reactive or incompatible with the following materials: alkalis.
- Hazardous decomposition products** : Under normal conditions of storage and use, hazardous decomposition products should not be produced.
- Possibility of hazardous reactions** : Under normal conditions of storage and use, hazardous polymerization will not occur.

## 11 . Toxicological information

### Acute toxicity

Product/ingredient name	Result	Species	Dose	Exposure
hydrochloric acid solution	LD50 Oral	Rat	700 mg/kg	-
	LD50 Dermal	Rabbit	>5010 mg/kg	-
	LC50 Inhalation	Rat	3124 ppm	1 hours

**Conclusion/Summary** : Harmful or fatal if inhaled. Harmful or fatal if swallowed.

## 11 . Toxicological information

### Chronic toxicity

**Conclusion/Summary** : Safe handling of this material on a long-term basis should emphasize the prevention of all contact with this material to avoid any effects from repetitive acute exposures.

### Irritation/Corrosion

**Skin** : Severely corrosive to the skin. Causes severe burns.  
**Eyes** : Severely corrosive to the eyes. Causes severe burns.  
**Respiratory** : Severely corrosive to the respiratory system.

### Sensitization

**Skin** : Not available.  
**Respiratory** : Not available.

### Target organs

: Contains material which may cause damage to the following organs: upper respiratory tract, teeth.

### Carcinogenicity

#### Classification

Product/ingredient name	ACGIH	IARC	NTP	OSHA
Hydrogen chloride	A4	3	-	-

Carcinogen Classification code: ACGIH: A1, A2, A3, A4, A5  
 IARC: 1, 2A, 2B, 3, 4  
 NTP: Proven, Possible  
 OSHA: +  
 Not listed or regulated as a carcinogen: -

### Mutagenicity

Product/ingredient name	Test	Experiment	Result
hydrochloric acid solution	OECD 471 Bacterial Reverse Mutation Test -	Experiment: In vitro Subject: Bacteria Experiment: In vitro Subject: Mammalian-Animal Cell: Somatic	Negative  Equivocal

**Conclusion/Summary** : Equivocal evidence.

### Teratogenicity

**Conclusion/Summary** : May cause developmental abnormalities, based on animal data. Maternal toxicity: Positive.

### Reproductive toxicity

Product/ingredient name	Maternal toxicity	Fertility	Development toxin	Species	Dose	Exposure
hydrochloric acid solution	Positive	-	Positive	Rat - Female	Inhalation: 450 mg/ m <sup>3</sup> Single dose	1 hours

## 12 . Ecological information

**Environmental effects** : Toxic to aquatic organisms.

## 13 . Disposal considerations

**Waste disposal** : The generation of waste should be avoided or minimized wherever possible. Waste product residues should not be disposed of via the sewer but processed in a suitable effluent treatment plant. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. Disposal of this product, solutions and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements. Waste packaging should be recycled. Incineration or landfill should only be considered when recycling is not feasible. This material and its container must be disposed of in a safe way. Care should be taken when handling emptied containers that have not been cleaned or rinsed out. Empty containers or liners may retain some product residues. Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers.

Disposal should be in accordance with applicable regional, national and local laws and regulations.

Refer to Section 7: HANDLING AND STORAGE and Section 8: EXPOSURE CONTROLS/PERSONAL PROTECTION for additional handling information and protection of employees. Section 6. Accidental release measures

## 14 . Transport information

Regulation	UN number	Proper shipping name	Classes	PG*	Additional information
UN	1789	hydrochloric acid solution	8	II	-
IMDG	1789	HYDROCHLORIC ACID solution	8	II	-
DOT	1789	hydrochloric acid solution	8	II	<b>Reportable quantity</b> 18181.8 lbs / 8254.5 kg [1833.2 gal / 6939.5 L] Package sizes shipped in quantities less than the product reportable quantity are not subject to the RQ (reportable quantity) transportation requirements.

PG\* : Packing group

Reportable quantity RQ : CERCLA: Hazardous substances.: Hydrogen chloride: 5000 lbs. (2270 kg);

## 15 . Regulatory information

**United States inventory (TSCA 8b)** : All components are listed or exempted.

**Australia inventory (AICS)** : All components are listed or exempted.

**Canada inventory (DSL)** : All components are listed or exempted.

**China inventory (IECSC)** : All components are listed or exempted.

**Europe inventory (REACH)** : Please contact your supplier for information on the inventory status of this material.

**Japan inventory (ENCS)** : All components are listed or exempted.

**Korea inventory (KECI)** : All components are listed or exempted.

**New Zealand (NZIoC)** : All components are listed or exempted.

**Philippines inventory (PICCS)** : All components are listed or exempted.

### United States

**U.S. Federal regulations** :

**SARA 302/304/311/312 extremely hazardous substances:** Liquid not listed as an Extremely Hazardous substance, but hydrogen chloride gas is listed.

CERCLA: Hazardous substances.: Hydrogen chloride: 5000 lbs. (2270 kg);

**SARA 311/312 SDS Distribution - Chemical Inventory - Hazard Identification:**

<u>Chemical name</u>	<u>CAS #</u>	<u>Acute</u>	<u>Chronic</u>	<u>Fire</u>	<u>Reactive</u>	<u>Pressure</u>
Hydrogen chloride	7647-01-0	Y	N	N	Y	Y

## 15 . Regulatory information

Product as-supplied :            Y            N            N            Y            N

<u>SARA 313</u>	<u>Chemical name</u>	<u>CAS number</u>	<u>Concentration</u>
Supplier notification	: Hydrogen chloride	7647-01-0	15 - 40

### California Prop. 65

**WARNING:** This product contains a chemical known to the State of California to cause cancer and birth defects or other reproductive harm.

### Canada

**WHMIS (Canada)** :  Class E: Corrosive liquid. Class D-1A: Material causing immediate and serious toxic effects (Very toxic). Class D-1B: Material causing immediate and serious toxic effects (Toxic). Class D-2A: Material causing other toxic effects (Very toxic). Class D-2B: Material causing other toxic effects (Toxic).

### Mexico

#### Classification

Flammability : 0    Health : 3    Reactivity : 1

## 16 . Other information

### Hazardous Material Information System (U.S.A.)

Health : 3    \*    Flammability : 0    Physical hazards : 1

(\* ) - Chronic effects

**Caution:** HMIS® ratings are based on a 0-4 rating scale, with 0 representing minimal hazards or risks, and 4 representing significant hazards or risks. Although HMIS® ratings are not required on MSDSs under 29 CFR 1910.1200, the preparer may choose to provide them. HMIS® ratings are to be used with a fully implemented HMIS® program. HMIS® is a registered mark of the National Paint & Coatings Association (NPCA). HMIS® materials may be purchased exclusively from J. J. Keller (800) 327-6868.

The customer is responsible for determining the PPE code for this material.

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

Health : 3    Flammability : 0    Instability : 1

**Other special considerations** : NSF Drinking Water Treatment Chemicals Listing - hydrochloric acid from Lake Charles, Louisiana; New Martinsville, West Virginia; Longview, Washington; or Beauharnois, Quebec, Canada, is certified for maximum use at 40 mg/l under NSF/ANSI Standard 60.

Date of previous issue : 3/4/2013.

Organization that prepared the MSDS : EHS

Indicates information that has changed from previously issued version.

### Disclaimer

*The information contained in this data sheet is based on present scientific and technical knowledge. The purpose of this information is to draw attention to the health and safety aspects concerning the products supplied by Axiall, LLC; and to recommend precautionary measures for the storage and handling of the products. No warranty or guarantee is given in respect of the properties of the products. No liability can be accepted for any failure to observe the precautionary measures described in this data sheet or for any misuse of the products.*