



Safety Data Sheet

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15-November-10

Revision Date
27-September-12

Revision Number
2

1. PRODUCT AND COMPANY IDENTIFICATION

Product Name	Muriatic Acid, 30° & 33° Baume, Technical, Industrial and Commercial Grade
UN-No	UN1789
Recommended use	Raw material in chemical processing.
Manufactured by	National Titanium Dioxide Company, Ltd. P.O. Box 13586 Jeddah 21414, Kingdom of Saudi Arabia Telephone: +966(0)2-652-9966 Fax: +966(0)2-652-9933
Other Information	E-mail contact: cldemille@crystal.com
Emergency Telephone Number	SGS +966-3-362-21-93 (Al-Jubail)

2. HAZARDS IDENTIFICATION

Emergency Overview

A clear, colorless liquid with pungent, irritatin odor. DANGER! Causes severe burns to skin, eyes and digestive tract. Harmful if swallowed or inhaled.

Appearance
Clear, colorless solution

Physical State
Liquid

Odor
Pungent with odor threshold @ 0.3 ppm

Potential Health Effects

Acute Toxicity

Skin	Liquid and vapors are corrosive to skin, resulting in irritation and burns. Frequent contact with aqueous solutions of hydrochloric acid may lead to dermatitis.
Inhalation	Inhalation is a major route of exposure. Hydrogen chloride gas, mist and vapor can cause irritation of respiratory tract, with burning, choking, coughing, headaches and rapid heartbeat. Levels of 10 to 35 ppm can cause irritation of throat and 50-100 ppm is nearly unbearable for 1 hour. Inflammation, destruction of nasal passages and breathing difficulties can occur with higher concentrations and may be delayed in onset. 1000-2000 ppm can be fatal.
Ingestion	Can burn mouth, throat, esophagus and stomach. Nausea, pain and vomiting frequently occur. Depending upon amount swallowed, holes in the intestinal tract, kidney inflammation, shock and death can occur.
Eyes	Liquid or concentrated vapors can cause eye irritation, severe burns and permanent damage including blindness.

Chronic Toxicity

Chronic effects Chronic exposure to corrosive fumes/gases may cause erosion of the teeth.

Aggravated Medical Conditions Asthma, bronchitis, emphysema and other lung diseases, and chronic nose, sinus or throat conditions. Exposure may aggravate existing skin and/or eye conditions on contact.

3. COMPOSITION/INFORMATION ON INGREDIENTS

Formula HCl + water

Chemical Name	CAS-No.	Weight %
Hydrogen chloride	7647-01-0	30 - 33

4. FIRST AID MEASURES

Eye contact Rinse thoroughly with plenty of water, also under the eyelids. Seek immediate medical attention/advice.

Skin contact Remove all contaminated clothing and shoes. Rinse immediately and thoroughly for at least 15 minutes with water. Seek immediate medical attention/advice.

Inhalation Move to fresh air. If not breathing, give artificial respiration. Call a physician immediately.

Ingestion Give large amounts of water. Do not induce vomiting, but if vomiting persists, give water repeatedly. Get medical attention immediately.

Notes to physician Treat for exposure to an acid corrosive. Treat for circulatory failure, shock, pulmonary edema, nervous system depression and pain.

5. FIRE-FIGHTING MEASURES

Flammable Properties Not flammable.

Flash Point Not applicable.

Instructions to Firefighters Approach fire from upwind to avoid hazardous vapors. Use flooding quantities of water as fog or spray to keep fire-exposed containers cool. Extinguish fire using agent suitable for surrounding fire. Firefighters should wear chemical protective suit with self contained positive-pressure breathing apparatus. Refer to Reactivity Data - Section 10.

Suitable Extinguishing Media Use extinguishing agent suitable for surrounding fire.

Hazardous Combustion Products Will not burn but if water is present, it may generate hydrogen chloride gas or mist.

Protective Equipment and Precautions for Firefighters As in any fire, wear self-contained breathing apparatus and full protective gear.

Health Hazard 3
Flammability 0
Stability 1

6. ACCIDENTAL RELEASE MEASURES

Personal Precautions Wear full protective clothing. Instruct others to stay at a safe distance.

- Methods for Containment** Prevent further leakage or spillage if safe to do so. Use dyking or absorbant to prevent run-off from entering waterways.

- Methods for Cleaning Up** Neutralize the spill with soda ash, sodium bicarbonate, or lime. Absorb neutralized liquid with sand, soil or other inert material and shovel into container for disposal.

- Other information** Evacuate immediate area where concentrated fumes are present. Cleanup personnel must wear proper protective equipment (see Section 8). If spill occurs indoors, turn off heating and/or air conditioning systems, to prevent vapors form contaminating entire building.

7. HANDLING AND STORAGE

- Handling** Avoid contact with skin and avoid breathing vapors. Do not eat, drink, or smoke in work area. Wash hands prior to eating, drinking, or using restroom. Any protective clothing, or shoes which become contaminated with hydrochloric acid should be removed immediately, and laundered before wearing again. Follow protective controls set forth in Section 8 when handling this product.

- Storage** Store in closed, properly labeled, rubber-lined steel, acid-resistant plastic, or glass containers. Do not store near strong alkalis or reactive materials. Do not remove or deface label or tag. Hydrogen chloride can react with cyanide, forming lethal concentrations of hydrocyanic acid. Do not enter confined spaces such as tanks or pits without following proper entry procedures (e.g. 29 CFR 1910.146).

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Exposure Guidelines To determine the exposure level(s), monitoring should be performed regularly.

Chemical Name	ACGIH TLV	OSHA PEL
Hydrogen chloride 7647-01-0	Ceiling: 2 ppm	= 5 ppm Ceiling = 7 mg/m ³ Ceiling = 5 ppm Ceiling

NIOSH IDLH: 50 ppm

Engineering measures Local exhaust ventilation should be provided at all points of potential acid mist and vapor escape. Use ventilation to maintain air concentration below 5 ppm at all times. An eye wash fountain and safety shower should be readily accessible where there is potential exposure to hydrochloric acid.

Personal Protective Equipment

- Eye/Face Protection** Chemical splash goggles or full length faceshield and safety glasses with sideshields.

- Skin and Body Protection** Wear acid proof protective clothing, including boots, gloves, lab coat, apron or coveralls, as appropriate, to prevent skin contact.

- Respiratory Protection** Where vapor concentration exceeds or is likely to exceed 0.5 ppm, a NIOSH approved full face chlorine type respirator with acid gas canister is acceptable. A NIOSH approved self-contained breathing apparatus, with full facepiece, is required for vapor concentrations above 10 ppm and for leaks and/or emergencies. Follow any applicable respirator use standards and regulations.

- Hygiene Measures** Immediately remove contaminated clothing. Wash thoroughly after handling.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance	Clear, colorless solution	Odor	Pungent with odor threshold @ 0.3 ppm
Physical State	Liquid	pH	< 1 (Product as is)
Flash Point	Not applicable	Autoignition Temperature	Not applicable
Boiling Point/Range	65 - 110 °C 150-230 °F	Melting Point/Range	Not applicable
Explosion Limits	Not applicable	Flammability Limits in Air	Not flammable
Specific Gravity	20° Be: 1.1600 at 15.6° C; 22° Be: 1.1789 at 15.6° C	Molecular Weight	36.46
Water Solubility	Completely soluble	Evaporation Rate	<1 (Butyl Acetate =1)
Vapor Pressure	78mm Hg @ 20°C	Vapor Density	1.27 (air = 1)
VOC Content(%)	None	Viscosity	Not available

10. STABILITY AND REACTIVITY

Stability	Stable under recommended storage conditions.
Incompatible Products	Bases, metals, mercuric sulfate, perchloric acid, carbides of calcium, cesium, rubidium, acetylides of cesium and rubidium, phosphides of calcium and uranium and lithium silicide.
Conditions to avoid	Contact with strong bases can cause violent reaction generating large amounts of heat. Reactions with metals can release flammable hydrogen gas.
Hazardous decomposition products	Chlorine fumes.
Hazardous Reactions	Reacts vigorously with alkalis and many organic materials with liberation of heat and chlorine fumes.
Hazardous Polymerization	Hazardous polymerization does not occur.

11. TOXICOLOGICAL INFORMATION

Acute Toxicity

Product information	<p>HUMAN studies: Exposure to hydrochloric acid can produce burns on the skin and mucous membranes, the severity of which is related to the concentration of the solution; subsequently, ulceration may occur. Contact with the eyes may produce reduced vision or blindness. Vapors of hydrogen chloride are irritating or corrosive to the respiratory tract. Excessive vapor exposure may cause laryngitis, bronchitis, and/or pulmonary edema.</p> <p>Human, male volunteers exposed to hydrogen chloride gas found concentrations of 50 to 100 ppm barely tolerable for 1 hr., 35 ppm caused irritation of the throat on brief exposures, and 10 ppm was considered the maximal concentration acceptable for prolonged exposures. Although immediately irritating to nose and throat at 5 ppm or above, concentrations below 5 ppm resulted in no lasting effects.</p> <p>ANIMAL studies: Hydrochloric Acid: The 1-hour lethal concentration-50 (LC50) in rats has been reported as 3124 ppm; the 1-hour lethal concentration-50 (LC50) in mice has been reported as 1108 ppm. The intraperitoneal lethal dose-50 (LD50) in mice has been reported as 1449 mg/kg.</p>
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Chemical Name	LD50 Oral	LD50 Dermal	LC50 Inhalation
Hydrogen chloride	700 mg/kg (Rat)	5010 mg/kg (Rabbit)	3124 ppm (Rat) 1 h

Chronic Toxicity

Exposures of 100 ppm for 6 hours a day for 50 days caused only slight unrest and irritation to the eyes and nose of rabbits, guinea pigs and pigeons. The hemoglobin content of the blood was also slightly diminished. Monkeys receiving twenty exposures of 33 ppm for 6 hours did not display any adverse effects. Higher exposures (unspecified) have caused weight loss which paralleled the severity of exposure. Baboons exposed to 500, 5000, or 10,000 ppm for 15 minutes did not have significant alterations in any pulmonary function parameters 3 days or 3 months after exposure. In humans, long term overexposures have been associated with erosion of the teeth.

Chronic effects

Chronic exposure to corrosive fumes/gases may cause erosion of the teeth.

Carcinogenicity

No standard carcinogenicity studies for hydrogen chloride were identified. Two studies on rats were conducted to determine if hydrogen chloride increased the formation of nasal tumors or increased the carcinogenic potential of formaldehyde. In both studies the rats were exposed to 10 ppm hydrogen chloride, 6 hours per day, 5 days a week. One study lasted 84 weeks while the other lasted the animals' lifetime. Hydrogen chloride did not cause an increase in nasal tumors and did not increase the carcinogenicity of formaldehyde. Hydrogen chloride is not listed on the IARC, NTP or OSHA carcinogen lists.

Target organ effects

Respiratory system. Eyes. Skin. Teeth.

12. ECOLOGICAL INFORMATION

Ecotoxicity

Acute LC50 (48 Hours, static) for Bluegill: 3.6 mg/l
Acute LC50 (96 Hours, static) for Mosquito Fish: 282 ppm

Ecotoxicity effects

Discharge in the sewers can be harmful for the installations of water treatment because of the acidification.

Chemical Name	Toxicity to Algae	Toxicity to Fish	Microtox	Daphnia Magna (Water Flea)
Hydrogen chloride		LC50= 282 mg/L Gambusia affinis 96 h		

Persistence and degradability

Not persistent. Degradable.

Bioaccumulation/Accumulation

Does not bioaccumulate.

Mobility

WATER: Disassociates in water and will be neutralized by natural alkalinity and carbon dioxide.

SOIL: Acid will sink into the soil. It will dissolve some soil (in particular, soil with carbonate base) and be somewhat neutralized. The remaining portion is thought to transport toward water table.

13. DISPOSAL CONSIDERATIONS

Waste Disposal Methods

All disposals of this material must be done in accordance with local, state and Federal regulations. Waste characterization and compliance with disposal regulations are the responsibilities of the waste generator.

Contaminated packaging

Clean with water. Dispose of in accordance with local regulations.

US EPA Waste Number

D002.

Chemical Name	California Hazardous Waste Status

Hydrogen chloride	Toxic; Corrosive; Reactive
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Additional Notes: Keep material out of water sources, and sewers. For small quantities, neutralize with soda ash or other available mild alkali and flush with water to drain. Manage large quantity spills in accord with appropriate state industrial waste disposal regulations.

14. TRANSPORT INFORMATION

DOT

Proper Shipping Name Hydrochloric acid (Mixture)
Hazard Class 8
UN-No UN1789
Packing Group II
Reportable Quantity (RQ) Hydrogen chloride, RQ kg= 11350

IMDG/IMO

Proper Shipping Name Hydrochloric acid (Mixture)
Hazard Class 8
UN-No UN1789
Packing Group II
EmS No. 8-03 MFAG Table No 700, IMDG Code Page: 8183

15. REGULATORY INFORMATION

International Inventories

USA (TSCA) Complies
Canada (DSL) Complies
European Union (EINECS) Complies
Japan (ENCS) Complies
China (IECSC) Complies
Korea (KECL) Complies
Philippines (PICCS) Complies
Australia (AICS) Complies
New Zealand (NZIoC) Complies

Federal Regulations

SARA 313

Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 (SARA). This product contains a chemical or chemicals which are subject to the reporting requirements of the Act and Title 40 of the Code of Federal Regulations, Part 372.

Chemical Name	CAS-No.	Weight %	SARA 313 - Threshold Values %
Hydrogen chloride	7647-01-0	30 - 33	1.0

SARA 311/312 Hazard Categories

Acute Health Hazard Yes
Chronic Health Hazard Yes

Fire Hazard	No
Sudden Release of Pressure Hazard	No
Reactivity Hazard	Yes

Clean Water Act

This product contains the following substances which are regulated pollutants pursuant to the Clean Water Act (40 CFR 122.21 and 40 CFR 122.42).

Component	CWA - Reportable Quantities	CWA - Toxic Pollutants	CWA - Priority Pollutants	CWA - Hazardous Substances
Hydrogen chloride 7647-01-0 (30 - 33)	5000 lb			X

Clean Air Act, Section 112 Hazardous Air Pollutants (HAPS) (see 40 CFR 61)

This product contains the following substances which are listed hazardous air pollutants (HAPS) under Section 112 of the Clean Air Act

Chemical Name	CAS-No.	Weight %	HAPS data	VOC Chemicals	Class 1 Ozone Depletors	Class 2 Ozone Depletors
Hydrogen chloride	7647-01-0	30 - 33				

CERCLA

This material, as supplied, contains one or more substances regulated as a hazardous substance under the Comprehensive Environmental Response Compensation and Liability Act (CERCLA) (40 CFR 302).

Chemical Name	Hazardous Substances RQs	Extremely Hazardous Substances RQs
Hydrogen chloride	5000 lb	5000 lb

U.S. State Regulations

U.S. State Right-to-Know Regulations

This product contains one or more substances regulated by state right-to-know regulations.

Chemical Name	Massachusetts	New Jersey	Pennsylvania	Illinois	Rhode Island
Hydrogen chloride	X	X	X	X	X

Other International Regulations

Chemical Name	Carcinogen Status	Exposure Limits
Hydrogen chloride		Mexico: Ceiling= 7 mg/m ³ Mexico: Ceiling= 5 ppm

Canada

This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations (CPR) and the MSDS contains all the information required by the CPR.

WHMIS Hazard Class

E Corrosive material



Chemical Name	NPRI
Hydrogen chloride	X

Legend

X - Listed

NPRI - National Pollutant Release Inventory

16. OTHER INFORMATION

HMIS Rating

Health Hazard	3
Flammability Hazard	0
Physical Hazard	1
Personal Protection	J

Note

This Personal Protection rating will generally suffice for normal operating conditions. Please note, however, that the type of personal protection utilized may change based on specific use conditions. Consult the Exposure Controls/Personal Protection section of this SDS.

Revision Date 27-September-12

Reason for revision Company Logo.

Disclaimer

The information provided on this SDS is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guide for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered as a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other material or in any process, unless specified in the text.

End of SDS