



Material Safety Data Sheet

Section 1. Product and Company Identification

Product Name	Hydrochloric Acid, GR	Product Code	HX0603
Manufacturer	EMD Chemicals Inc. P.O. Box 70 480 Democrat Road Gibbstown, NJ 08027 Prior to January 1, 2003 EMD Chemicals Inc. was EM Industries, Inc. or EM Science, Division of EM Industries, Inc.	Effective Date	6/2/2004
		Print Date	6/2/2004

For More Information Call

856-423-6300 Technical Service
Monday-Friday: 8:00 AM - 5:00 PM

In Case of Emergency Call

800-424-9300 CHEMTREC (USA)
613-996-6666 CANUTEC (Canada)
24 Hours/Day: 7 Days/Week

Synonym MURIATIC ACID

Material Uses Analytical reagent.

Chemical Family Inorganic Acid.

+ Section 2. Composition and Information on Ingredients

Component	CAS #	% by Weight
Hydrochloric Acid	7647-01-0	100
The 100% indicates this product is a concentrated acid. Assay (HCl) value is approximately 36-38%.		

Section 3. Hazards Identification

Physical State and Appearance Liquid. (Colorless.)

Emergency Overview DANGER! POISON!
MAY BE FATAL IF INHALED OR SWALLOWED.
CAUSES SEVERE EYE AND SKIN BURNS.
CAUSES SEVERE RESPIRATORY TRACT IRRITATION.
CAUSES DAMAGE TO THE FOLLOWING ORGANS: LUNGS, RESPIRATORY TRACT, SKIN, EYE, LENS OR CORNEA.

Routes of Entry Absorbed through skin. Dermal contact. Eye contact. Inhalation. Ingestion.

Potential Acute Health Effects

Eyes Extremely hazardous in case of eye contact (corrosive). Causes severe eye burns.

Skin Extremely hazardous in case of skin contact (corrosive). Skin contact produces severe burns.

Inhalation Extremely hazardous in case of inhalation (lung irritant). May be fatal if inhaled.

Ingestion Extremely hazardous in case of ingestion. May be fatal if swallowed.

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Potential Chronic Health Effects

Carcinogenic Effects This material is not known to cause cancer in animals or humans.

Additional information See Toxicological Information (section 11)

Medical Conditions**Aggravated by****Overexposure:**

Repeated or prolonged contact with spray mist may produce chronic eye irritation and severe skin irritation. Repeated or prolonged exposure to spray mist may produce respiratory tract irritation leading to frequent attacks of bronchial infection. Repeated exposure to a highly toxic material may produce general deterioration of health by an accumulation in one or many human organs.

Section 4. 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.

Skin Contact

In case of contact, immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. 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.

Ingestion

DO NOT induce vomiting. If affected person is conscious give plenty of water to drink. Get medical attention immediately.

Section 5. Fire Fighting Measures**Flammability of the Product**

May be combustible at high temperature.

Auto-ignition Temperature

Not available.

Flash Points

Not available.

Flammable Limits

Not available.

Products of Combustion

These products are carbon oxides (CO, CO₂), halogenated compounds.

Fire Hazards in Presence of Various Substances

Not available.

Explosion Hazards in Presence of Various Substances

Risks of explosion of the product in presence of static discharge: No.

Risks of explosion of the product in presence of mechanical impact: No.

Fire Fighting Media and Instructions

Use water spray or fog.

Protective Clothing (Fire)

Wear MSHA/NIOSH approved self-contained breathing apparatus or equivalent and full protective gear.

Special Remarks on Fire Hazards

Flammable hydrogen gas may be produced on prolonged contact with metals such as aluminum, tin, lead and zinc.

Special Remarks on Explosion Hazards

Not available.

Section 6. Accidental Release Measures

Small Spill and Leak	Dilute with water and mop up, or absorb with an inert dry material and place in an appropriate waste disposal container.
Large Spill and Leak	Stop leak if without risk. Absorb with DRY earth, sand or other non-combustible material. Do not get water inside container. Do not touch spilled material. Use water spray curtain to divert vapor drift. Use water spray to reduce vapors. Prevent entry into sewers, basements or confined areas; dike if needed. Eliminate all ignition sources. Call for assistance on disposal. Be careful that the product is not present at a concentration level above TLV. Check TLV on the MSDS and with local authorities.
Spill Kit Information	The following EMD Chemicals Inc. SpillSolv® absorbent is recommended for this product: SX1310 Acid Treatment Kit

Section 7. Handling and Storage

Handling	Do not ingest. Do not breathe vapor or mist. Keep container closed. Use only with adequate ventilation. Do not get in eyes, on skin, or on clothing.
Storage	Keep container in a cool, well-ventilated area.

+ Section 8. Exposure Controls/Personal Protection

Engineering Controls	Provide exhaust ventilation or other engineering controls to keep the airborne concentrations of vapors below their respective occupational exposure limits. Ensure that eyewash stations and safety showers are proximal to the work-station location.
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Personal Protection

Eyes Face shield.

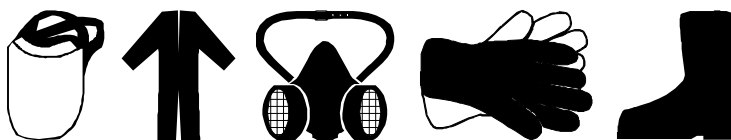
Body Full suit.

Respiratory Vapor respirator. Be sure to use an approved/certified respirator or equivalent. Wear appropriate respirator when ventilation is inadequate.

Hands Gloves.

Feet Boots.

Protective Clothing (Pictograms)



Personal Protection in Case of a Large Spill

Splash goggles. Full suit. Vapor respirator. Boots. Gloves. A self-contained breathing apparatus should be used to avoid inhalation of the product. Suggested protective clothing might not be sufficient; consult a specialist BEFORE handling this product.

Product Name

Hydrochloric Acid

The 100% indicates this product is a concentrated acid. Assay (HCl) value is approximately 36-38%.

Exposure Limits

EH40-OES (United Kingdom (UK), 1997).

STEL: 8 mg/m³ 15 minute(s).

STEL: 5 ppm 15 minute(s).

TWA: 2 mg/m³ 8 hour(s).

TWA: 1 ppm 8 hour(s).

BMWA MAK (Austria, 2001).

Spitzenbegrenzung: 16 mg/m³ 8 times per shift, 5 minute(s).

Spitzenbegrenzung: 10 ppm 8 times per shift, 5 minute(s).

TWA: 8 mg/m³ 8 hour(s).

TWA: 5 ppm 8 hour(s).

NOHSC (Australia, 2002). Notes: Documentation for the substances with this footnote can be found in the 5th Edition of the ACGIH

documentation of the threshold limit values and biological exposure indices.¹ For all other substances with 'H' in Column 7 the documentation can be found in the 6th Edition of the ACGIH documentation of the threshold limit values and biological exposure indices.²

AMP: 7.5 mg/m³ 15 minute(s).

AMP: 5 ppm 15 minute(s).

Lijst Grenswaarden (Belgium, 2002).

VCD: 15 mg/m³ 15 minute(s).

VCD: 10 ppm 15 minute(s).

VL: 8 mg/m³ 8 hour(s).

VL: 5 ppm 8 hour(s).

SUVA (Switzerland, 2001).

Kurzzeitsgrenzwerte: 7.5 mg/m³ 15 minute(s).

Kurzzeitsgrenzwerte: 5 ppm 15 minute(s).

MAK: 7.5 mg/m³ 8 hour(s).

MAK: 5 ppm 8 hour(s).

178/2001 (CZ, 2001).

STEL: 15 mg/m³ 10 minute(s).

STEL: 10.185 ppm 10 minute(s).

TWA: 8 mg/m³ 8 hour(s).

TWA: 5.432 ppm 8 hour(s).

MAK-Werte Liste (Germany, 2000).

Spitzenbegrenzung: 7.6 mg/m³ 15 minute(s).

Spitzenbegrenzung: 5 ML/M3 15 minute(s).

TWA: 7.6 mg/m³ 8 hour(s).

TWA: 5 ML/M3 8 hour(s).

TRGS900 MAK (Germany, 2002).

Spitzenbegrenzung: 8 mg/m³

TWA: 8 mg/m³ 8 hour(s).

Arbejdstilsynet (Denmark, 2000).

Loftværdi: 7 mg/m³

Loftværdi: 5 ppm

GV: 7 mg/m³ 8 hour(s).

GV: 5 ppm 8 hour(s).

INSHT (Spain, 2001).

STEL: 15 mg/m³ 15 minute(s).

STEL: 10 ppm 15 minute(s).

TWA: 7.6 mg/m³ 8 hour(s).

TWA: 5 ppm 8 hour(s).

EU OEL (Europe, 2000). Notes: Indicative

STEL: 15 mg/m³ 15 minute(s).

STEL: 10 ppm 15 minute(s).

TWA: 8 mg/m³ 8 hour(s).

TWA: 5 ppm 8 hour(s).

Työterveyslaitos (Finland, 2002).

STEL: 7.6 mg/m³ 15 minute(s).

STEL: 5 ppm 15 minute(s).

INRS (France, 1999). Notes: Advisory

VLE: 7.5 mg/m³ 15 minute(s).

VLE: 5 ppm 15 minute(s).

NAOSH (Ireland, 2002).

STEL: 14 mg/m³ 15 minute(s).

STEL: 10 ppm 15 minute(s).

OEL: 7 mg/m³ 8 hour(s).

OEL: 5 ppm 8 hour(s).

JSOH (Japan, 1996).

CEIL: 7.5 mg/m³

CEIL: 5 ppm

Ministry of Labor (KR, 1997).CEIL: 7 mg/m³

CEIL: 5 ppm

Nationale MAC-lijst (Netherlands, 2003). Notes: AdministrativeTGG 15 min: 15 mg/m³ 15 minute(s).

TGG 15 min: 10 ppm 15 minute(s).

TGG 8 uur: 8 mg/m³ 8 hour(s).

TGG 8 uur: 5 ppm 8 hour(s).

Arbeidstilsynet (Norway, 2001).Takverdi: 7 mg/m³

Takverdi: 5 ppm

AN: 7 mg/m³ 8 hour(s).

AN: 5 ppm 8 hour(s).

NZ OSH (NZ, 1994).CEIL: 7.5 mg/m³

CEIL: 5 ppm

AFS (Sweden, 2000).TGV: 8 mg/m³

TGV: 5 ppm

KTV: 8 mg/m³ 15 minute(s).

KTV: 5 ppm 15 minute(s).

ACGIH TLV (United States, 2003).

CEIL: 2 ppm

NIOSH REL (United States, 2001).CEIL: 7 mg/m³

CEIL: 5 ppm

OSHA PEL (United States, 1974).CEIL: 7 mg/m³

CEIL: 5 ppm

OSHA PEL 1989 (United States, 1989).CEIL: 7 mg/m³

CEIL: 5 ppm

Section 9. Physical and Chemical Properties

Odor	Pungent.
Color	Clear. Colorless.
Physical State and Appearance	Liquid. (Colorless.)
Molecular Weight	36.46 g/mole
Molecular Formula	Cl-H
pH	Not available.
Boiling/Condensation Point	110°C (230°F)
Melting/Freezing Point	-74°C (-101.2°F)
Critical Temperature	51.5°C (124.7°F)
Specific Gravity	1.2 (Water = 1)
Vapor Pressure	21.3 kPa (160 mmHg) (@ 20°C)
Vapor Density	>1 (Air = 1)
Odor Threshold	Not available.

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Evaporation Rate	>1
LogK _{ow}	Not available.
Solubility	Soluble in water.

Section 10. Stability and Reactivity

Stability and Reactivity	The product is stable.
Conditions of Instability	Not available.
Incompatibility with Various Substances	Reactive with metals, alkalis.
Rem/Incompatibility	Not available.
Hazardous Decomposition Products	These products are halogenated compounds.
Hazardous Polymerization	Will not occur.

Section 11. Toxicological Information

RTECS Number:	Hydrochloric Acid	MW4025000
Toxicity	Acute oral toxicity (LD ₅₀): 900 mg/kg [Rabbit]. Acute toxicity of the vapor (LC ₅₀): 1108 ppm 1 hour(s) [Mouse].	
Chronic Effects on Humans	Not available.	
Acute Effects on Humans	Extremely hazardous in case of eye contact (corrosive). Causes severe eye burns. Extremely hazardous in case of skin contact (corrosive). Skin contact produces severe burns. Extremely hazardous in case of inhalation (lung irritant). May be fatal if inhaled. Extremely hazardous in case of ingestion. May be fatal if swallowed.	
Synergetic Products (Toxicologically)	Not available.	
Irritancy	<u>Draize Test</u> (Rabbit): Eyes: 5mg/30s. Reaction: Mild. Eye: 100 mg/24h moderate	
Sensitization	Not available.	
Carcinogenic Effects	This material is not known to cause cancer in animals or humans.	
Toxicity to Reproductive System	Tests on laboratory animals for reproductive effects are cited in Registry of Toxic Effects on Chemical Substances (RTECS).	
Teratogenic Effects	Not available.	
Mutagenic Effects	Tests on laboratory animals for mutagenic effects are cited in Registry of Toxic Effects of Chemical Substances (RTECS).	

Section 12. Ecological Information

Ecotoxicity Not available.

BOD5 and COD Not available.

Toxicity of the Products of Biodegradation The products of degradation are as toxic as the product itself.

Section 13. Disposal Considerations

EPA Waste Number D002

Treatment Specified Technology - Neutralize to pH 6-9. Contact your local permitted waste disposal site (TSD) for permissible treatment sites. Always contact a permitted waste disposal (TSD) to assure compliance with all current local, state, and Federal Regulations.

Section 14. Transport Information

DOT Classification Proper Shipping Name: HYDROCHLORIC ACID
Hazard Class: 8
UN number: UN1789
Packing Group: II
RQ: 5000 lbs. (2268 kg)

TDG Classification Not available.

IMO/IMDG Classification Proper Shipping Name: HYDROCHLORIC ACID
Hazard Class: 8
UN number: UN1789
Packing Group: II
RQ: 5000

ICAO/IATA Classification Not available.

Section 15. Regulatory Information

U.S. Federal Regulations TSCA 8(b) inventory: HYDROCHLORIC ACID
SARA 302/304/311/312 extremely hazardous substances: HYDROCHLORIC ACID
SARA 302/304 emergency planning and notification: HYDROCHLORIC ACID
SARA 302/304/311/312 hazardous chemicals: HYDROCHLORIC ACID
SARA 311/312 MSDS distribution - chemical inventory - hazard identification: HYDROCHLORIC ACID: Sudden Release of Pressure, Immediate (Acute) Health Hazard, Delayed (Chronic) Health Hazard
SARA 313 toxic chemical notification and release reporting: HYDROCHLORIC ACID
Clean Water Act (CWA) 307: No products were found.
Clean Water Act (CWA) 311: HYDROCHLORIC ACID
Clean air act (CAA) 112 accidental release prevention: HYDROCHLORIC ACID
Clean air act (CAA) 112 regulated flammable substances: No products were found.
Clean air act (CAA) 112 regulated toxic substances: HYDROCHLORIC ACID

WHMIS (Canada) Class D-1A: Material causing immediate and serious toxic effects (VERY TOXIC).
CLASS E: Corrosive liquid.

CEPA DSL: HYDROCHLORIC ACID

This product has been classified in accordance with the hazard criteria of the Controlled Product Regulations and the MSDS contains all required information.

International Regulations

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EINECS HYDROCHLORIC ACID 231-595-7

DSCL (EEC) R35- Causes severe burns.

International Lists Australia (NICNAS): Hydrochloric Acid

China: Hydrochloric Acid

Germany water class: Hydrochloric Acid

Japan (MITI): Hydrochloric Acid

Korea (TCCL): Hydrochloric Acid

Philippines (RA6969): Hydrochloric Acid

China: Hydrochloric Acid

State Regulations Pennsylvania RTK: HYDROCHLORIC ACID: (environmental hazard, generic environmental hazard)
Massachusetts RTK: HYDROCHLORIC ACID
New Jersey: HYDROCHLORIC ACID
California prop. 65: No products were found.

Section 16. Other Information

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



Other Special Considerations Section 2 lists this product as 100% which indicates that it is a concentrated acid.

Changed Since Last Revision +

Notice to Reader

The statements contained herein are based upon technical data that EMD Chemicals Inc. believes to be reliable, are offered for information purposes only and as a guide to the appropriate precautionary and emergency handling of the material by a properly trained person having the necessary technical skills. Users should consider these data only as a supplement to other information gathered by them and must make independent determinations of suitability and completeness of information from all sources to assure proper use, storage and disposal of these materials and the safety and health of employees and customers and the protection of the environment. EMD CHEMICALS INC. MAKES NO REPRESENTATION OR WARRANTY OF ANY KIND, EXPRESS OR IMPLIED, INCLUDING MERCHANTABILITY OR FITNESS FOR A PARTICULAR USE, WITH RESPECT TO THE INFORMATION HEREIN OR THE PRODUCT TO WHICH THE INFORMATION REFERS.