



Material Safety Data Sheet

Section 1. Product and Company Identification

Product Name	Hydrochloric Acid 6N	Product Code	VW3204
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	1/27/2004
		Print Date	5/3/2004

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 None.

Material Uses Laboratory Reagent

Chemical Family Inorganic acid.

Section 2. Composition and Information on Ingredients

Component	CAS #	% by Weight
Hydrochloric acid	7647-01-0	18.5
Water	7732-18-5	81.5

Section 3. Hazards Identification

Physical State and Appearance Liquid. (Fuming liquid.)

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

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

Potential Acute Health Effects

Eyes Extremely hazardous in case of eye contact (corrosive). Causes severe eye burns. Hazardous in case of eye contact (irritant). Inflammation of the eye is characterized by redness, watering, and itching.

Skin Hazardous in case of skin contact (corrosive, irritant). Skin contact produces burns. Skin inflammation is characterized by itching, scaling, reddening, or, occasionally, blistering. May be hazardous in case of skin contact (sensitizer).

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

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

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. Cover the irritated skin with an emollient. Cold water may be used. Wash clothing before reuse. Thoroughly clean shoes before reuse. Get medical attention.

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

Ingestion If swallowed, do not induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. Loosen tight clothing such as a collar, tie, belt or waistband. 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, hydrogen chloride.

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
SMALL FIRE: Use DRY chemical powder.
LARGE FIRE: Use water spray, fog or foam. Do not use water jet.

Protective Clothing (Fire) Be sure to use an approved/certified respirator or equivalent.

Special Remarks on Fire Hazards Flammable hydrogen gas may be produced on prolonged contact with metals such as aluminum, tin, lead and zinc. (Hydrochloric acid)

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 (TM) 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. Avoid prolonged or repeated contact with skin. Keep container closed. Use only with adequate ventilation. Wash thoroughly after handling.
Storage	Keep container tightly closed. 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

Exposure Limits**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).

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

Kurzzeitgrenzwerte: 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).

BAUA (Germany, 1997).

Spitzenbegrenzung: 8 mg/m³

TWA: 8 mg/m³ 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).

DK-Arbejdstilsynet (Denmark, 1996).

Loftværdi: 7 mg/m³

Loftværdi: 5 ppm

GV: 7 mg/m³ 8 hour(s).

GV: 5 ppm 8 hour(s).

INSHT (Spain, 2002).

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).

80/1107/EEC (Europe, 1996).

STEL: 10 mg/m³ 15 minute(s).

STEL: 15 ppm 15 minute(s).

TWA: 5 mg/m³ 8 hour(s).

TWA: 8 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).

EH40-OES (United Kingdom (UK), 2002).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).

ACGIH (United States, 2003).

CEIL: 2 ppm

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

CEIL: 5 ppm

OSHA Final Rule (United States, 1989).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

Water

Not available.

Section 9. Physical and Chemical Properties

Odor	Pungent.
Color	Clear. Colorless to slight yellow
Physical State and Appearance	Liquid. (Fuming liquid.)
Molecular Weight	Not applicable.
Molecular Formula	HCL in Aqueous solution
pH	Not available.
Boiling/Condensation Point	The lowest known value is 99.9°C (211.8°F) (Water). Weighted average: 101.77°C (215.2°F)
Melting/Freezing Point	May start to solidify at -0.1°C (31.8°F) based on data for: Water. Weighted average: -13.77°C (7.2°F)
Critical Temperature	The lowest known value is 51.5°C (124.7°F) (Hydrochloric acid).

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Specific Gravity	The only known value is 1.2 (Water = 1) (Hydrochloric acid).
Vapor Pressure	The highest known value is 21.3 kPa (160 mmHg) (@ 20°C) (Hydrochloric acid).
Vapor Density	The highest known value is >1 (Air = 1) (Hydrochloric acid).
Odor Threshold	Not available.
Evaporation Rate	0.36 (Water) compared to(n-Butyl Acetate =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 oxidizing agents, combustible materials, organic materials, metals, acids, alkalis.
Rem/Incompatibility	Not available.
Hazardous Decomposition Products	These products are halogenated compounds, . Hydrogen Chloride (HCl)
Hazardous Polymerization	Will not occur.

Section 11. Toxicological Information

RTECS Number:	Hydrochloric Acid Water	MW4025000 ZC0110000
Toxicity	Acute oral toxicity (LD ₅₀): 4865 mg/kg (Rabbit) (Calculated value for the mixture). Acute toxicity of the vapor (LC ₅₀): 2995 ppm 4 hours (Mouse) (Calculated value for the mixture).	
Chronic Effects on Humans	Contains material which may cause damage to the following organs: lungs, upper respiratory tract, skin, eye, lens or cornea.	
Acute Effects on Humans	Extremely hazardous in case of eye contact (corrosive). Causes severe eye burns. Hazardous in case of eye contact (irritant). Inflammation of the eye is characterized by redness, watering, and itching. Hazardous in case of skin contact (corrosive, irritant). Skin contact produces burns. Skin inflammation is characterized by itching, scaling, reddening, or, occasionally, blistering. May be hazardous in case of skin contact (sensitizer). Extremely hazardous in case of inhalation. May be fatal if inhaled. May be hazardous in case of inhalation (lung irritant). Extremely hazardous in case of ingestion. May be fatal if swallowed.	
Synergetic Products (Toxicologically)	Not available.	
Irritancy	<u>Draize Test</u> : Not available.	
Sensitization	Hazardous in case of skin contact (sensitizer). Slightly hazardous in case of inhalation (lung sensitizer).	
Carcinogenic Effects	This material is not known to cause cancer in animals or humans.	
Toxicity to Reproductive System	Not available.	
Teratogenic Effects	Not available.	
Mutagenic Effects	Not available.	

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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 treatments sites.
ALWAYS CONTACT PERMITTED WASTE DISPOSER (TSD) TO ASSURE COMPLIANCE WITH ALL CURRENT LOCAL, STATE AND FEDERAL REGULATIONS.

Section 14. Transport Information

DOT Classification Proper Shipping Name: HYDROCHLORIC ACID SOLUTION
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 SOLUTION
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; Water
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 18.5%
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 D-2A: Material causing other toxic effects (VERY TOXIC).
CLASS E: Corrosive liquid.

CEPA DSL: Hydrochloric acid; Water

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
Water 231-791-2

DSCL (EEC) R35- Causes severe burns.

International Lists Australia (NICNAS): Hydrochloric acid; Water

Japan (MITI): Hydrochloric acid; Water

Korea (TCCL): Hydrochloric acid; Water

Philippines (RA6969): Hydrochloric acid; Water

China: No products were found.

State Regulations

Pennsylvania RTK: Hydrochloric acid: (environmental hazard, generic environmental hazard)

Massachusetts RTK: Hydrochloric acid

New Jersey: Hydrochloric Acid 6N

California prop. 65: No products were found.

Section 16. Other Information

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



**Changed Since Last
Revision**

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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.