

Hydrofluoric Acid, 48%, GR

Material Safety Data Sheet

Section 1. Product and Company Identification

Product Name Hydrofluoric Acid, 48%, GR

Product Code HX0621

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 3/3/2003

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 Analytical reagent.

Chemical Family Inorganic acid.

Section 2. Composition and Information on Ingredients

Component	CAS #	% by Weight
WATER	7732-18-5	60-40
HYDROFLUORIC ACID	7664-39-3	40-60

Section 3. Hazards Identification

Physical State and Appearance Liquid.

Emergency Overview DANGER!

POISON!
MAY BE FATAL IF INHALED OR SWALLOWED.
CAUSES SEVERE EYE AND SKIN BURNS.
BURNS MAY NOT BE IMMEDIATELY PAINFUL OR VISIBLE.
CAUSES RESPIRATORY TRACT BURNS.
HARMFUL IF ABSORBED THROUGH SKIN.
CONTAINS MATERIAL WHICH CAUSES DAMAGE TO THE
FOLLOWING ORGANS: RESPIRATORY TRACT, SKIN, BONES,
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. Hazardous in case of skin contact (permeator).

Inhalation Extremely hazardous in case of inhalation. May be fatal if inhaled.

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Hazardous in case of inhalation (lung corrosive).

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.

Medical Conditions Aggravated by Overexposure: Additional information See Toxicological Information (section 11)
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. Apply calcium gluconate gel or soak in or apply cold solution of benzalkonium chloride or magnesium sulfate.

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 Not available.

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 Not available.

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Special Remarks on Containers may rupture from pressure build-up.
Explosion Hazards

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. Cover with DRY earth, DRY sand or other non-combustible material followed with plastic sheet to minimize spreading or contact with rain. 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. Finish cleaning by spreading water on the contaminated surface and allow to evacuate through the sanitary system. 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	Avoid contact with eyes, skin and clothing. Do not ingest. Do not breathe vapor or mist. Keep container closed.
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 threshold limit value. Ensure that eyewash stations and safety showers are proximal to the work-station location.
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	Exposure Limits
WATER	Not available.
HYDROFLUORIC ACID	BAUA (Germany, 1997). Skin PEAK: 2.5 mg/m ³ PEAK: 3 ppm MAK: 2.5 mg/m ³ MAK: 3 ppm DK-Arbejdstylsinet (Denmark, 1996).

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GV: 1.6 mg/m³

GV: 2 ppm

Tyterveyslaitos (Finland, 1998). Skin

CEIL: 2.5 mg/m³

CEIL: 3 ppm

TWA: 2.5 mg/m³

TWA: 3 ppm

INRS (France, 1996).

VLE: 2.5 mg/m³

VLE: 3 ppm

National Authority for Occupational Safety/Health (Ireland, 1999).

STEL: 2.5 mg/m³

STEL: 3 ppm

Arbeidsinspectie (Netherlands, 1999).

TGG 15 min: 2.5 mg/m³

TGG 15 min: 3.3 ppm

N–Arbeidstilsynet (Norway, 1996).

AN: 0.6 mg/m³

AN: 0.8 ppm

AFS (Sweden, 1996).

KTV: 1.7 mg/m³

KTV: 2 ppm

EH40–OES (United Kingdom (UK), 1997).

STEL: 2.5 mg/m³

STEL: 3 ppm

ACGIH (United States, 1994).

CEIL: 2.6 mg/m³

CEIL: 3 ppm

NIOSH REL (United States, 1994).

CEIL: 5 mg/m³ Period: 15 minute(s).

CEIL: 6 ppm Period: 15 minute(s).

TWA: 2.5 mg/m³ Period: 10 hour(s).

TWA: 3 ppm Period: 10 hour(s).

OSHA Final Rule (United States, 1989).

STEL: 6 ppm

TWA: 3 ppm

OSHA Transitional Rule (United States, 1993).

TWA: 3 ppm

Section 9. Physical and Chemical Properties

Odor	Pungent.
Color	Colorless.
Physical State and Appearance	Liquid.
Molecular Weight	Not applicable.
Molecular Formula	Not applicable.
pH	Not available.
Boiling/Condensation Point	108°C (226.4°F)

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Melting/Freezing Point	May start to solidify at -0.1°C (31.8°F) based on data for: WATER. Weighted average: -41.69°C (-43°F)
Specific Gravity	0.98 (Water = 1)
Vapor Pressure	1.3 kPa (10 mmHg) (@ 20°C)
Vapor Density	0.7 (Air = 1)
Odor Threshold	Not available.
Evaporation Rate	0.36 (WATER) compared to (n-BUTYL ACETATE=1)
LogKow	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, acids, alkalis.
Rem/Incompatibility	On contact with metals, liberates hydrogen gas. Attacks glass and other silicon containing compounds. (HYDROFLUORIC ACID)
Hazardous Decomposition Products	Fluoride fumes
Hazardous Polymerization	Will not occur.

Section 11. Toxicological Information

RTECS Number:	Water Hydrofluoric Acid	ZC0110000 MW7875000
Toxicity	Chronic toxicity of the vapor (LC50): 342 ppm 4 hours (Mouse) (Calculated value for the mixture).	
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. Hazardous in case of skin contact (permeator). Extremely hazardous in case of inhalation. May be fatal if inhaled. Hazardous in case of inhalation (lung corrosive). Extremely hazardous in case of ingestion. May be fatal if swallowed.	
Synergetic Products (Toxicologically)	Not available.	
Irritancy	Draize Test: Not available.	
Sensitization	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 less toxic than the product itself.

Section 13. Disposal Considerations

EPA Waste Number	U134 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: HYDROFLUORIC ACID Hazard Class: 8 UN number: UN1790 Packing Group: II RQ: 100 lbs. (45.36 kg)
TDG Classification	Not available.
IMO/IMDG Classification	Proper Shipping Name: HYDROFLUORIC ACID Hazard Class: 8 UN number: UN1790 Packing Group: II RQ: 100
ICAO/IATA Classification	Not available.

Section 15. Regulatory Information

U.S. Federal Regulations	TSCA 8(b) inventory: WATER; HYDROFLUORIC ACID TSCA precursor chemical list: HYDROFLUORIC ACID SARA 302/304/311/312 extremely hazardous substances: HYDROFLUORIC ACID SARA 302/304 emergency planning and notification: HYDROFLUORIC ACID SARA 302/304/311/312 hazardous chemicals: HYDROFLUORIC ACID SARA 311/312 MSDS distribution – chemical inventory – hazard identification: HYDROFLUORIC ACID: Immediate (Acute) Health Hazard, Delayed (Chronic) Health Hazard SARA 313 toxic chemical notification and release reporting: HYDROFLUORIC ACID 50% Clean Water Act (CWA) 307: No products were found. Clean Water Act (CWA) 311: HYDROFLUORIC ACID Clean air act (CAA) 112 accidental release prevention: HYDROFLUORIC ACID
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Clean air act (CAA) 112 regulated flammable substances: No products were found.

Clean air act (CAA) 112 regulated toxic substances: HYDROFLUORIC ACID

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

CLASS E: Corrosive liquid.

CEPA DSL: WATER; HYDROFLUORIC 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

EINECS WATER 231-791-2
HYDROFLUORIC ACID 231-634-8

DSCL (EEC) R26/27/28- Very toxic by inhalation, in contact with skin and if swallowed.

R35- Causes severe burns.

International Lists Australia (NICNAS): WATER; HYDROFLUORIC ACID

Japan (MITI): WATER; HYDROFLUORIC ACID

Korea (TCCL): WATER; HYDROFLUORIC ACID

Philippines (RA6969): WATER; HYDROFLUORIC ACID

China: No products were found.

State Regulations Pennsylvania RTK: HYDROFLUORIC ACID: (environmental hazard, generic environmental hazard)

Massachusetts RTK: HYDROFLUORIC ACID

New Jersey: HYDROFLUORIC ACID

California prop. 65: No products were found.

Section 16. Other Information

National Fire Protection Association (U.S.A.)	0	Fire Hazard
	40	Health
		Reactivity
		Specific Hazard

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

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