
MATERIAL SAFETY DATA SHEET
EPS 4000 ELECTROPOLISH
MSDS ID: EP4000

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 Revised 9/27/04
 Replaces 8/15/01
 As of 9/27/04

1. Product and Company Identification

PRODUCT NAME : EPS 4000 ELECTROPOLISH
 MSDS ID : EP4000
 CHEMICAL NAME SYNONYMS : N.A.
 CAS NUMBER : MIXTURE
 CHEMICAL FAMILY : Mineral Acid Mixture
 FORMULA : Proprietary Information

DISTRIBUTED BY:
 Electro Polish Systems
 5678 Brown Deer Road
 Brown Deer, WI 53223
 (414) 357-8445
 (800) 959-0868

EMERGENCY RESPONSE NUMBERS:
 CHEMTREC Emergency # -(800) 424-9300

MANUFACTURED BY HYDRITE CHEMICAL CO.

2. Composition / Information on Ingredients

COMPONENT	CAS NUMBER	OSHA HAZARD	% BY WT.
Phosphoric Acid	7664-38-2	YES	< 70 %
Sulfuric Acid	7664-93-9	YES	< 70 %

3. Hazards Identification

PHYSICAL STATE : Liquid

COLOR : Clear. Colorless to pale pink or yellow.

*****EMERGENCY OVERVIEW*****: DANGER! CORROSIVE. Causes severe burns to eyes, skin, and respiratory tract. Harmful if inhaled. Harmful or fatal if swallowed. Aspiration may cause lung damage. Cancer hazard. Water reactive. Not flammable, but reacts with most metals to form explosive/flammable hydrogen gas.

POTENTIAL HEALTH EFFECTS

ROUTES OF EXPOSURE:

Eyes. Ingestion. Inhalation. Skin.

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TARGET ORGANS:

Eyes. Skin. Respiratory System. Gastrointestinal Tract. Circulatory System. Teeth.

EYE CONTACT:

CORROSIVE- Causes severe irritation and burns.

Small amounts may cause: Tissue destruction. Permanent eye damage. Blindness.

May cause: Blurred Vision. Redness. Pain. Ulcerations. Prolonged or repeated contact

may cause: Irritation. Conjunctivitis.

SKIN CONTACT:

CORROSIVE- Causes severe irritation and burns.

Contact may not produce an immediate burning sensation, delaying awareness that contact has occurred. Death may result from burns that extend over large portions of the body. Concentrated solutions may cause: Severe burns. Severe necrosis. Permanent skin damage. Prolonged or repeated exposure may cause: Drying. Redness. Itching. Pain.

Inflammation. Cracking. Possible secondary infection with tissue damage. Prolonged and repeated exposure to dilute solutions may cause irritation, redness, pain, and drying and cracking of the skin.

SKIN ABSORPTION:

No Data Available

INHALATION:

CORROSIVE- Causes severe irritation and burns.

Vapors or mists may damage: Mucous membranes. Respiratory tract. Vapors or mists may cause: Tearing. Coughing. Sneezing. Salivation. Labored breathing. Shortness of breath. Bronchospasms. Chemical pneumonitis. Pulmonary edema. Death. Effects may be delayed. Chronic exposure may cause: Dental erosions. Discoloration of teeth.

Bronchitis. Bronchial emphysema.

INGESTION:

CORROSIVE- Causes severe irritation and burns.

May cause damage to the: Mouth. Throat. Esophagus. Stomach. Gastrointestinal tract.

May cause: Abdominal pain. Nausea. Vomiting. Diarrhea. Bleeding. Chest pain.

Shortness of breath. Labored breathing. Seizures. Circulatory shock. Unconsciousness. Death.

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Burns or perforation of the gastrointestinal tract leading to ulceration and secondary infection. Effects may be delayed. Aspiration into the lungs may cause chemical pneumonia and lung damage.

MEDICAL CONDITIONS AGGRAVATED BY EXPOSURE TO PRODUCT:
Skin disorders. Respiratory system disorders. Eye disorders.

OTHER:

Circulatory collapse with clammy skin, weak and rapid pulse, shallow respirations, and scanty urine may follow skin contact or ingestion. Circulatory shock is often the immediate cause of death.

CANCER INFORMATION:

This product does not contain greater than 0.1% of the known or potential carcinogens listed in NTP, IARC or OSHA. The International Agency for Research on Cancer (IARC) has classified "strong inorganic acid mists containing sulfuric acid" as a known human carcinogen (IARC Category 1). This classification is for inorganic acid mists only and does not apply to sulfuric acid solutions. The National Toxicology Program (NTP) lists "strong inorganic acid mists containing sulfuric acid" as a known human carcinogen. This limits the classification to sulfuric acid aerosols and does not extend to the liquid product, unless the acid is used under conditions that result in the formation of mists or aerosols. The American Conference of Governmental Industry Hygienists (ACGIH) lists "sulfuric acid contained in strong inorganic acid mists" as an A2- Suspected Human Carcinogen.

4. First Aid Measures**EYE CONTACT:**

Immediately flush eyes with plenty of water for at least 15 minutes while holding eyelids open. Tilt head to avoid contaminating unaffected eye. Get immediate medical attention.

SKIN CONTACT:

Immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Get medical attention immediately.

Do not reuse clothing until cleaned.

Do not apply oils or ointments unless ordered by a physician. Discard contaminated leather articles such as shoes and belt.

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INHALATION: Remove to fresh air. If breathing is difficult, administer oxygen. If not breathing, give artificial respiration, preferably mouth-to-mouth. **GET MEDICAL ATTENTION IMMEDIATELY.**

INGESTION:

If fully conscious, drink a quart of water. **DO NOT** induce vomiting. **CALL A PHYSICIAN IMMEDIATELY.** If unconscious or in convulsions, take immediately to a hospital or a physician. **NEVER** induce vomiting or give anything by mouth to an unconscious victim. If vomiting occurs spontaneously, keep head below hips to prevent aspiration of liquid into the lungs.

NOTE TO PHYSICIANS: The use of gastric lavage is controversial. The advantage of removal of acid must be weighted against the risk of perforation or bleeding. If a large amount of acid (>1 ml/kg body weight) has been recently ingested, cautious gastric lavage is generally advised if the patient is alert and there is little risk of convulsions. Consultation with a gastroenterologist and/or surgeon is advised. Serious complications such as perforation or stricture of the esophagus may occur requiring care by specialists. Laryngeal edema may develop requiring intubation or tracheostomy. This product contains materials that may cause severe pneumonitis if aspirated. If ingestion has occurred less than 2 hours earlier, carry out careful gastric lavage; use endotracheal cuff if available, to prevent aspiration. Observe patient for respiratory difficulty from aspiration pneumonitis. Give artificial resuscitation and appropriate chemotherapy if respiration is depressed. Following exposure the patient should be kept under medical review for at least 48 hours as delayed pneumonitis may occur. **DO NOT** attempt to neutralize the acid with weak bases since the reaction will produce heat that may extend the corrosive injury.

5. Fire Fighting Measures

FLASH POINT: N.A.

FLAMMABILITY LIMITS: LEL: N.A. UEL: N.A.

AUTOIGNITION TEMPERATURE: No Data

EXTINGUISHING MEDIA:

For fires in area use appropriate media. For example: Dry chemical. Carbon Dioxide. Foam.

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Evacuate area of unprotected personnel. Wear protective clothing including NIOSH-approved self-contained breathing apparatus. Remain upwind of fire to avoid hazardous vapors and decomposition products. Use water spray to cool fire-exposed containers. Do not get water inside containers. Product generates heat upon addition of water, with possible spattering. Neutralize run-off with Lime, Soda Ash, etc., to prevent corrosion of metals and formation of Hydrogen gas. Run-off from fire control may cause pollution.

FIRE AND EXPLOSION HAZARDS:

Product may react with some metals (ex. Aluminum, Zinc, Tin, etc.) to release flammable hydrogen gas.

This product may react with certain metals to produce flammable Hydrogen Gas. Will react with organic materials with evolution of heat and sulfur dioxide. Concentrated sulfuric acid is a strong oxidizing agent. May cause ignition of combustible materials on contact with generation of sulfur dioxide fumes.

HAZARDOUS COMBUSTION PRODUCTS:

Phosphorous oxides. Sulfur oxides.

6. Accidental Release Measures**SPILL CLEAN-UP PROCEDURES:**

CORRSIVE MATERIAL: Evacuate unprotected personnel from area. Maintain adequate ventilation. Follow personal protective equipment recommendations found in Section 8. Never exceed any occupational exposure limit. Contain spill, place into drums for proper disposal. Flush remaining area with water and neutralize with Soda Ash and dispose of properly. Exercise caution during neutralization as considerable heat may be generated. Avoid direct discharge to sewers and surface waters. Notify authorities if entry occurs.

7. Handling And Storage**STORAGE:**

CORROSIVE MATERIAL: Store in a cool, well-ventilated area, out of direct sunlight. Store in a dry location away from heat. Keep away from incompatible materials. Keep containers tightly closed. Do not store in unlabeled or mislabeled containers. Do not freeze. Highly corrosive to most metals with evolution of hydrogen gas. Explosive/flammable concentrations of hydrogen gas may accumulate inside

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metal containers. Elevated temperatures will increase the corrosion rate of most metals. Store in a vented container.

HANDLING:

Avoid contact with eyes, skin and clothing. Use with adequate ventilation. Do not swallow. Avoid breathing vapors, mists, or dust. Do not eat, drink, or smoke in work area. Wash thoroughly after handling. Empty containers retain product residue (vapor, dust or liquid) and can be dangerous. **DO NOT PRESSURIZE, CUT, WELD, BRAZE, SOLDER, DRILL, GRIND, OR EXPOSE SUCH CONTAINERS TO HEAT, FLAME, SPARKS, STATIC ELECTRICITY, OR OTHER SOURCE OF IGNITION. THEY MAY EXPLODE AND CAUSE INJURY OR DEATH.**

Ground lines and equipment used during transfer to reduce the possibility of static spark-initiated fire and explosion. Use non-sparking tools.

8. Exposure Controls / Personal Protection**ENGINEERING CONTROLS:**

Local exhaust ventilation, process enclosures, or other engineering controls are imperative when handling or using this product to avoid overexposure. Avoid creating dust or mist. Do not use in closed or confined spaces. Keep levels below exposure limits. To determine exposure levels, monitoring should be performed regularly. Maintain adequate ventilation.

RESPIRATORY PROTECTION:

Respiratory protection must be worn when handling this product. If exposure limits are exceeded, wear, NIOSH-Approved air-purifying respirator with: Acid gas cartridge and Dust/mist filter. NIOSH-Approved positive pressure supplied air respirator. NIOSH-Approved self-contained breathing apparatus. **DO NOT** exceed limits established by the respirator manufacturer. All respiratory protection programs must comply with OSHA 29 CFR 1910.134 and ANSI Z88.2 requirements and must be followed whenever workplace conditions require a respirator's use.

EYE / FACE PROTECTION:

Wear chemical safety goggles and a full face shield while handling this product. **DO NOT WEAR CONTACT LENSES.**

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SKIN PROTECTION: Prevent contact with this product. Wear gloves and protective clothing depending on condition of use.

Protective gloves: Acid-proof. Gauntlet-type. Neoprene.

OTHER PROTECTIVE EQUIPMENT:

Eyewash Station. Safety Shower. Rubber Apron. Chemical Safety Shoes. Rubber Boots. Protective Clothing. Full-rubber Acid Suit.

GENERAL HYGENE CONSIDERATIONS:

Wash with soap and water before meal times and at the end of each work shift. Good manufacturing practices require gross amounts of any chemical be removed from skin as soon as practical, especially before eating or smoking.

EXPOSURE GUIDELINES	-----OSHA-----		-----ACGIH-----	
COMPONENT	PEL	STEL/C	TWA	STEL/C
Phosphoric Acid	1 mg/m ³	Not Estab.	1 mg/m ³	3 mg/m ³
	1 mg/m ³ +	3 mg/m ³ +		
Sulfuric Acid	1 mg/m ³	Not Estab.	0.2 mg/m ³ *	Not Estab

NOTE: + Vacated 1989 OSHA PEL(s). * Thoracic fraction

9. Physical And Chemical Properties

Boiling Point (DEG. F):	N.D.	Specific Gravity:	1.750 @ 25C
Freezing Point (DEG. F) :	N.D.	% Volatile (WT%) :	N.D.
Melting Point (DEG. F) :	N.D.	Evaporation Rate :	N.D.
Vapor Pressure (MM HG) :	N.D.	(nBuAc=1)	
Vapor Density (AIR=1) :	N.D.	VOC (WT%) :	0
Solubility In Water :	Complete	VOC (LBS/GAL) :	0
PH :	1 (as is)		

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Stable under normal conditions.

CONDITIONS TO AVOID:

Contact with water may cause violent reaction with the evolution of heat. To dilute: add product slowly to lukewarm water; not water to product. Avoid contact with heat, sparks, electric arcs, other hot surfaces, and open flames. Contact with organic materials may cause fire and explosions.

INCOMPATIBILITY:

Metals. Strong oxidizing agents. Reducing agents. Sulfides. Carbides. Sulfites. Bases. Fluorine. Sulfur trioxide Phosphorous pentoxide. Sodium tetrahydroborate. Aldehydes. Amines. Amides. Alcohols. Azo-compounds. Carbamates. Esters. Caustics. Phenols. Cresols. Keytones. Organophosphates. Epoxides. Explosives. Combustible materials. Unsaturated halides. Organic peroxides. Mercaptans. Cyanides. Nitromethane. Glycols. Water. Alkalies. Carbonates. Chlorates. Fulminates, Nitrates. Powdered metals. Organic materials. Nitrogen compounds. Picrates. Halogens. Alkali metals. And many other reactive substances.

HAZARDOUS DECOMPOSITION PRODUCTS:

Phosphorous oxides. Phosphine. Sulfur oxides. Sulfuric acid vapors. Hydrogen gas. May react with certain metals to produce flammable hydrogen gas. Mixing with strong bases can cause high heat of reaction and generate steam. Reacts with chlorides + stainless steel to form explosive hydrogen gas. Phosphoric acid forms flammable gases with sulfides, mercaptans, cyanides and aldehydes. Hazardous gases are evolved on contact with chemicals such as cyanides, sulfides, and carbides, etc.

HAZARDOUS POLYMERIZATION:

Will not occur under normal conditions.

11. Toxicological InformationLD50 ORAL : No Data
LD50 SKIN : No Data
LC50 Inhalation : No Data

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For detailed toxicological information on individual chemical components contained in this product, contact the address in Section 1 of this MSDS.

The International Agency for Research on Cancer (IARC) has concluded that occupational exposure to strong inorganic acid mists containing sulfuric acid is carcinogenic to man, causing cancer of the larynx (the voice box) and, to a lesser extent, the lung. Although no direct link has been established between exposure to sulfuric acid itself, and cancer in man, exposure to any mist or aerosol during use of this product should be avoided and, in any case, keep exposures below the occupational exposure limit for sulfuric acid.

12. Ecological Information

ECOTOXICOLOGICAL INFORMATION:

No Data Available.

CHEMICAL FATE INFORMATION:

No Data Available.

13. Disposal Considerations

HAZARDOUS WASTE NUMBER: D002; D003

DISPOSAL METHOD:

Dispose of in a permitted hazardous waste management facility following all local, state and federal regulations.

Since emptied containers contain product residue, follow label warnings even after container is emptied. DO NOT pressurize, cut, weld, solder, drill, grind, or expose empty containers to heat, flame, sparks or other sources of ignition.

14. Transport Information (not meant to be all inclusive)

DOT (Department of Transportation):

Proper Shipping Name : CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S.
(CONTAINS PHOSPHORIC ACID, SULFURIC ACID)

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HAZARD CLASS :8
 IDENTIFICATION NUMBER :UN3264
 PACKING GROUP :PGII
 LABEL REQUIRED :CORROSIVE
 REPORTABLE QUANTITY (RQ) : 5000# (Phosphoric Acid); 1000# (Sulfuric Acid)

15. Regulatory Information

FEDERAL REGULATIONS:

TSCA INVENTORY STATUS:

All components of this product are on the TSCA Inventory or are exempt from TSCA Inventory requirements.

SARA TITLE III SECTION 311/312 CATEGORY:

IMMEDIATE (ACUTE) HEALTH HAZARD : YES
 DELAYED (CHRONIC) HEALTH HAZARD : YES
 FIRE HAZARD : NO
 SUDDEN RELEASE OF PRESSURE HAZARD : NO
 REACTIVE HAZARD : YES

SARA SECTION 302/304/313/HAP:

COMPONENT	RQ (LBS) (*1)	RQ (LBS) (*2)	TPQ (LBS) (*3)	SEC 313 (*4)	HAP (*5)
Phosphoric Acid	5000	N.A.	N.A.	NO	NO
Sulfuric Acid	1000	1000	1000	YES*	NO

Note: * Sulfuric acid appears on the Section 313 List. However, the listing only applies to the aerosol forms of sulfuric acid.

*1 = CERCLA Reportable Quantity *3 = SARA EHS Threshold Planning Quantity
 *2 = SARA Reportable Quantity *4 = SARA 313 Toxic Chemical / Category
 *5 = U.S. EPA Hazardous Air Pollutant

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STATE REGULATIONS:

CALIFORNIA: The following components are listed under Prop. 65:
 This product may contain a detectable level of (a) chemical(s) subject to California's Proposition 65.

WISCONSIN: The following components are listed as a Wisconsin HAP:
 Phosphoric Acid. Sulfuric Acid.

16. Other Information

HMIS RATING SYSTEM

Health : 3*
 Flammability : 0
 Reactivity : 2
 * = Chronic Health Hazard

NFPA RATING SYSTEM

Health : 3
 Flammability : 0
 Reactivity : 2
 Special Hazard : W

MSDS ABBREVIATIONS:

N.A. = Not Applicable
 N.D. = Not Determined
 HAP = Hazardous Air Pollutant
 VOC = Volatile Air Pollutant
 C = Ceiling Limit
 N.E./Not Estab. = Not Established

MSDS PREPARED BY: NAO

REASON FOR REVISION: Changes made throughout the MSDS.

** ** ** ** **

The data in this Material Safety Data Sheet relates only to the specific material designated and does not relate to its use in combination with any other material or process. The data contained is believed to be correct. However, since conditions of use are outside our control it should not be taken as warranty or representation for which ELECTRO POLISH SYSTEMS assumes legal responsibility. This information is provided solely for your consideration, investigation, and verification.