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THE POWER OF THREE<sup>3</sup>

**PHARMCO-AAPER**

AND COMMERCIAL ALCOHOLS

Product Information (203) 740-3471 / Emergency Assistance CHEMTREC 1-800-424-9300

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**MATERIAL SAFETY DATA SHEETS**

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Manufacturer: PHARMCO-AAPER  
58 Vale Road  
Brookfield, Connecticut 06804, USA  
Phone (203) 740-3471  
Fax (203) 740-3481

1101 Isaac Shelby Drive  
Shelbyville, KY 40065  
Phone (502) 633-0650  
Fax (502) 633-0685

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**Phosphoric Acid**

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**1. CHEMICAL PRODUCT IDENTIFICATION**

Product Name: Phosphoric Acid 85%  
Synonym(s): Ortho-Phosphoric Acid; White Phosphoric Acid  
Molecular Formula:  $H_3PO_4$  in  $H_2O$   
Molecular Weight: 98.00

**2. COMPOSITION/INFORMATION ON INGREDIENTS**

Ingredient	CAS No	Percent	Hazardous
Phosphoric Acid	7664-38-2	75 - 95%	Yes
Water	7732-18-5	5 - 25%	No

**3. HAZARDS IDENTIFICATION**

WARNING! CORROSIVE. CAUSES SEVERE IRRITATION AND BURNS TO EVERY AREA OF CONTACT.  
HARMFUL IF SWALLOWED OR INHALED.

NFPA Hazard Ratings: Health - 3, Flammability - 0, Reactivity - 0

NOTE: NFPA ratings involve data and interpretations that may vary from company to company. They are intended only for rapid, general identification of the magnitude of the specific hazard. To deal adequately with the safe handling of this material, all the information contained in this MSDS must be considered.

**Potential Health Effects**

Inhalation: Inhalation is not an expected hazard unless misted or heated to high temperatures. Mist or vapor inhalation can cause irritation to the nose, throat, and upper respiratory tract. Severe exposures can lead to a

chemical pneumonitis.

Ingestion: Corrosive. May cause sore throat, abdominal pain, nausea, and severe burns of the mouth, throat, and stomach. Severe exposures can lead to shock, circulatory collapse, and death.

Skin Contact: Corrosive. May cause redness, pain, and severe skin burns.

Eye Contact: Corrosive. May cause redness, pain, blurred vision, eye burns, and permanent eye damage.

Chronic Exposure: No information found.

Aggravation of Pre-existing Conditions: Persons with pre-existing skin disorders or eye problems, or impaired respiratory function may be more susceptible to the effects of the substance.

#### **4. FIRST AID MEASURES**

Inhalation: Remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Call a physician immediately.

Ingestion: If swallowed, DO NOT INDUCE VOMITING. Give large quantities of water. Never give anything by mouth to an unconscious person. Get medical attention immediately.

Skin Contact: Immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Call a physician, immediately. Wash clothing before reuse.

Eye Contact: Immediately flush eyes with gentle but large stream of water for at least 15 minutes, lifting lower and upper eyelids occasionally. Call a physician immediately.

#### **5. FIRE FIGHTING MEASURES**

Fire: Not considered to be a fire hazard. Contact with most metals causes formation of flammable and explosive hydrogen gas.

Explosion: Not considered to be an explosion hazard.

Fire Extinguishing Media: Use any means suitable for extinguishing surrounding fire. Water spray may be used to keep fire exposed containers cool. If water is used, use in abundance to control heat and acid build-up.

Special Information: In the event of a fire, wear full protective clothing and NIOSH-approved self-contained breathing apparatus with full facepiece operated in the pressure demand or other positive pressure mode.

#### **6. ACCIDENTAL RELEASE MEASURES**

Ventilate area of leak or spill. Wear appropriate personal protective equipment as specified in Section 8. Isolate hazard area. Keep unnecessary and unprotected personnel from entering. Contain and recover liquid when possible. Neutralize with alkaline material (soda ash, lime), then absorb with an inert material (e. g., vermiculite, dry sand, earth), and place in a chemical waste container. Do not use combustible materials, such as saw dust. Do not flush to sewer! US Regulations (CERCLA) require reporting spills and releases to soil, water and air in excess of reportable quantities.

#### **7. HANDLING AND STORAGE**

Keep in a tightly closed container. Protect from physical damage. Store in a cool, dry, ventilated area away from sources of heat, moisture, incompatibilities, and direct sunlight. Corrosive to mild steel. Store in rubber lined or 316 stainless steel designed for phosphoric acid. Do not wash out container and use it for other purposes. When diluting, the acid should always be added slowly to water and in small amounts. Never use hot water and never add water to the acid. Water added to acid can cause uncontrolled boiling and splashing. Protect from freezing. Containers of this material may be hazardous when empty since they retain product residues (vapors, liquid); observe all warnings and precautions listed for the product.

## 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Airborne Exposure Limits:

-OSHA Permissible Exposure Limit (PEL):1 mg/m<sup>3</sup> (TWA)

-ACGIH Threshold Limit Value (TLV):1 mg/m<sup>3</sup> (TWA), 3 mg/m<sup>3</sup> (STEL)

Ventilation System: A system of local and/or general exhaust is recommended to keep employee exposures below the Airborne Exposure Limits. Local exhaust ventilation is generally preferred because it can control the emissions of the contaminant at its source, preventing dispersion of it into the general work area. Please refer to the ACGIH document, *Industrial Ventilation, A Manual of Recommended Practices*, most recent edition, for details.

Personal Respirators (NIOSH Approved): If the exposure limit is exceeded, a full facepiece respirator with high efficiency dust/mist filter may be worn up to 50 times the exposure limit or the maximum use concentration specified by the appropriate regulatory agency or respirator supplier, whichever is lowest. For emergencies or instances where the exposure levels are not known, use a full-facepiece positive-pressure, air-supplied respirator. WARNING: Air purifying respirators do not protect workers in oxygen-deficient atmospheres.

Skin Protection: Wear impervious protective clothing, including boots, gloves, lab coat, apron or coveralls, as appropriate, to prevent skin contact.

Eye Protection: Use chemical safety goggles and/or a full face shield where splashing is possible. Maintain eye wash fountain and quick-drench facilities in work area.

## 9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance: Clear, colorless syrupy liquid.

Odor: Odorless.

Solubility: Miscible in all proportions in water.

Specific Gravity: 1.69 @ 25C

pH: 1.5 (0.1 N aqueous solution)

% Volatiles by volume @ 21C (70F): 100

Boiling Point: 158C (316F)

Melting Point: 21C (70F)

Vapor Density (Air=1): 3.4

Vapor Pressure (mm Hg): 0.03 @ 20C (68F)

Evaporation Rate (BuAc=1): No information found.

## 10. STABILITY AND REACTIVITY

Stability: Stable under ordinary conditions of use and storage. Substance can supercool without crystallizing.

Hazardous Decomposition Products: Phosphorus oxides may form when heated to decomposition.

Hazardous Polymerization: Will not occur.

Incompatibilities: Liberates explosive hydrogen gas when reacting with chlorides and stainless steel. Can react violently with sodium tetrahydroborate. Exothermic reactions with aldehydes, amines, amides, alcohols and glycols, azo-compounds, carbamates, esters, caustics, phenols and cresols, ketones, organophosphates, epoxides, explosives, combustible materials, unsaturated halides, and organic peroxides. phosphoric acid forms flammable gases with sulfides, mercaptans, cyanides and aldehydes. It also forms toxic fumes with cyanides, sulfide, fluorides, organic peroxides, and halogenated organics. Mixtures with nitromethane are explosive.

Conditions to Avoid: Incompatibles.

## 11. TOXICOLOGICAL INFORMATION

Oral rat LD50: 1530 mg/kg; investigated as a mutagen.

-----\Cancer Lists\-----

Ingredient	---NTP Carcinogen---		
	Known	Anticipated	IARC Category
Phosphoric Acid (7664-38-2)	No	No	None
Water (7732-18-5)	No	No	None

## 12. ECOLOGICAL INFORMATION

Environmental Fate: When released into the soil, this material may leach into groundwater. When released to water, acidity may be readily reduced by natural water hardness minerals. The phosphate, however, may persist indefinitely.

Environmental Toxicity: No information found.

## 13. DISPOSAL CONSIDERATIONS

Whatever cannot be saved for recovery or recycling should be handled as hazardous waste and sent to a RCRA approved incinerator or disposed in a RCRA approved waste facility. Processing, use or contamination of this product may change the waste management options. State and local disposal regulations may differ from federal disposal regulations. Dispose of container and unused contents in accordance with federal, state and local requirements.

## 14. TRANSPORT INFORMATION

Domestic (Land, D.O.T.)

Proper Shipping Name: PHOSPHORIC ACID

Hazard Class: 8

UN/NA: UN1805

Packing Group: III

International (Water, I.M.O.)

Proper Shipping Name: PHOSPHORIC ACID, LIQUID

Hazard Class: 8

UN/NA: UN1805

Packing Group: III

## 15. REGULATORY INFORMATION

-----\Chemical Inventory Status - Part I\-----

Ingredient	TSCA	EC	Japan	Australia
Phosphoric Acid (7664-38-2)		Yes	Yes	Yes
Water (7732-18-5)		Yes	Yes	Yes

-----\Chemical Inventory Status - Part 2\-----

		--Canada--			
Ingredient	Korea	DSL	NDSL	Phil.	
Phosphoric Acid (7664-38-2)		Yes	Yes	No	Yes
Water (7732-18-5)		Yes	Yes	No	Yes

-----\Federal, State & International Regulations - Part 1\-----

		-SARA 302-		-----SARA 313-----	
Ingredient		RQ	TPQ	List	Chemical Catg.
Phosphoric Acid (7664-38-2)		No	No	Yes	No
Water (7732-18-5)	No	No	No	No	

-----\Federal, State & International Regulations - Part 2\-----

		-RCRA-		-TSCA-	
Ingredient		CERCLA		261.33	8(d)
Phosphoric Acid (7664-38-2)		5000		No	No
Water (7732-18-5)	No	No	No		

Chemical Weapons Convention: No TSCA 12(b): No CDTA: No  
 SARA 311/312: Acute: Yes Chronic: No Fire: No Pressure: No  
 Reactivity: No (Pure / Liquid)

Australian Hazchem Code: 2R  
 Poison Schedule: S5

Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA) requires notification of the National Response Center of release of quantities of Hazardous Substances equal or greater than the reportable quantities (RQs) in 40 CFR 302.4. Components present in this product at a level which could require reporting under the statute are:

Chemical Name	CAS Number	RQ
Phosphoric acid	7664-38-2	5,000lb

**16. OTHER INFORMATION**

The information contained herein is based on current knowledge and experience; no responsibility is accepted that the information is sufficient or correct in all cases. 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 and disposal of these materials and the safety and health of employees and customers and the protection of the environment.