MONSANTO PRODUCT NAME

PHOSPHORIC ACID

MONSANTO COMPANY
800 N. LINDBERGH BLVD.
ST. LOUIS, MO 63167

Emergency Phone No.
(Call Collect)
314-694-1000

PRODUCT IDENTIFICATION

Synonym(s):	Phos acid; Orthophosphoric acid
Chemical Name:	Phosphoric acid
Chemical Formula:	H_3PO_4
Chemical Family:	Mineral acid
CAS No.:	7664-38-2
TSCA Inventory:	Phosphoric acid appears on the Inventory of Chemical Substances published by the U. S. Environmental Protection Agency (EPA) under authority of the Toxic Substances Control Act (TSCA).
Dot Proper Shipping Name:	Phosphoric Acid
Dot Hazard Class/ I.D. No.:	Corrosive material/UN1805
DOT Label(s):	Corrosive
U.S. Surface Freight Classification:	Phosphoric Acid
Reportable Quantity (RQ) Under U.S. EPA CERCLA Regulations:	5,000 lbs.
Hazardous Chemical(s) Under OSHA Hazard Communication Standard:	The substance listed below is identified as a hazardous chemical under the criteria of the OSHA Hazard Communication Standard (29 CFR 1910.1200): Phosphoric acid, CAS Reg. No. 7664-38-2

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WARNING STATEMENTS

DANGER!
CAUSES BURNS TO EYES AND SKIN

PRECAUTIONARY MEASURES

Do not get in eyes, on skin, on clothing.
Avoid breathing mist.
Keep container closed.
Use with adequate ventilation.
Wash thoroughly after handling.

Emptied container retains vapor and product residue. Observe all labeled safeguards until container is cleaned, reconditioned or destroyed.

CORROSIVE TO MILD STEEL

EMERGENCY AND FIRST AID PROCEDURES

FIRST AID: IF IN EYES OR ON SKIN, immediately flush with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Call a physician. Wash clothing before reuse.

IN CASE OF: SPILL OR LEAK, contain spills and leaks to prevent discharge to the environment.

OCCUPATIONAL CONTROL PROCEDURES

Eye Protection: Wear chemical safety goggles to prevent eye contact. Have eye baths immediately available where eye contact can occur.

Skin Protection: Wear appropriate impervious gloves and protective clothing to prevent skin contact. Wear face shields and impervious aprons when splashing is likely. Remove contaminated clothing promptly and launder before reuse. Provide safety shower at any location where skin contact can occur. Wash contaminated skin promptly.

Respiratory Protection: Use NIOSH approved equipment with full facepiece when airborne exposure limits are exceeded. Consult respirator manufacturer to determine appropriate type equipment for given application.

Ventilation: Provide ventilation to minimize exposure. Local exhaust ventilation preferred.

Airborne Exposure Limits:

Typical Product Composition: Phosphoric acid in water

OSHA PEL/TWA: 1 mg/m^3
ACGIH TLV®/TWA: 1 mg/m^3
TLV®/STEL: 3 mg/m^3

FIRE PROTECTION INFORMATION

Extinguishing Media: Although phosphoric acid is not combustible, it can react with metals to liberate hydrogen, a flammable gas.

REACTIVITY DATA

Materials To Avoid: Avoid contact with materials such as sulfides and sulfites which could release toxic gases, and be cautious in mixing with strong bases because high heat of reaction can generate steam.

Hazardous Decomposition Products: None.

Hazardous Polymerization: Does not occur.

HEALTH EFFECTS SUMMARY

The following information presents both human experience and the results of scientific experiments used by qualified experts to assess the effects of phosphoric acid on the health of industrially exposed individuals and to support the Precautionary Statements and Occupational Control Procedures recommended in this document. To avoid misunderstanding, the data provided in this section should be interpreted by individuals trained in evaluation of this type of information.

Human Experience

Dermal contact is expected to be the primary route of occupational exposure to phosphoric acid. Phosphoric acid is considered to be corrosive to the eyes and skin. Phosphoric acid may not produce an immediate burning sensation upon skin contact, delaying the awareness of the worker that contact has occurred. Occupational exposure to this material has not been reported to cause significant adverse health effects when recommended safety precautions are followed.

Toxicological Data

Data from Monsanto studies indicate the following:

	Acute Oral LD_{50} (Rat)	Acute Dermal LD_{50} (Rabbit)	Eye Irritation FHSA	Skin Irritation 24-hr Rabbit	Skin Irritation 4-hr DOT Rabbit
Phosphoric acid 75%	4,400 mg/kg, Slightly Toxic	Greater than 3,160 mg/kg, Slightly Toxic	Corrosive	Corrosive	Noncorrosive
Phosphoric acid 80%	4,200 mg/kg, Slightly Toxic	Greater than 3,160 mg/kg, Slightly Toxic	Corrosive	Corrosive	Noncorrosive
Phosphoric acid 85%	3,500 mg/kg, Slightly Toxic	Greater than 1,260 mg/kg, Slightly Toxic	Corrosive	Corrosive	Corrosive

The results of the acute oral and dermal tests indicate that these concentrations of phosphoric acid are slightly toxic by ingestion in single oral doses and by single dermal applications. Following a 24-hour exposure, irreversible eye and skin damage occurred at all tested concentrations of phosphoric acid.

Additional Information

Phosphoric acid has a low vapor pressure at room temperature and is not expected to present a significant inhalation hazard under ambient conditions. Phosphoric acid, however, can be irritating to the respiratory tract if inhaled as a mist or if the material is vaporized.

PHYSICAL DATA

Appearance and Odor:	Clear, colorless, syrupy liquid; no foreign odor		
Vapor Pressure @ 20°C (mm Hg):	0.0285 (100% acid)		
Solubility in Water:	Complete		
	75%	80%	85%
Boiling Point (760 mm Hg):	135°C	144°C	154°C
Freezing Point:	−17.5°C	+4.6°C	+21.1°C
Viscosity @ 25°C (centistokes):	12	17	23
Specific Gravity @ 25°C/15.5°C:	1.575	1.633	1.692
% Equivalent H_3PO_4:	75.1	80.35	85.5
Lbs./gallon @ 25°C:	13.17	13.66	14.15

Note: These physical data are typical values based on material tested but may vary from sample to sample. Typical values should not be construed as a guaranteed analysis of any specific lot or as specification items.

SPILL, LEAK & DISPOSAL INFORMATION

Emergency Spill and Leak Information: Contain spills and leaks to prevent discharge to the environment. Neutralize cautiously with a base such as soda ash.

Phosphoric acid, as currently defined, is a *hazardous substance* under the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA). If 5,000 pounds or more are released into the environment, it must be reported to the National Response Center (800-424-8802 or 202-426-2675). Since local, state and federal laws may vary, consult your attorney or appropriate regulatory officials for information relating to spill reporting.

Keep product out of sewers, watersheds and water systems.

Disposal Information: Dispose of in accordance with all applicable federal, state and local regulations.

As currently defined in the federal Resource Conservation and Recovery Act (RCRA), unneutralized phosphoric acid, when discarded, is a *hazardous waste* exhibiting the characteristics of corrosivity (D-002). See 40 CFR 261.22. Its disposal, therefore, is regulated by federal RCRA regulations. Consult your attorney or appropriate regulatory officials for information regarding additional state and local waste disposal requirements.

ADDITIONAL COMMENTS

Store in rubber-lined or 316 stainless steel tanks designed for H_3PO_4. Store drums away from heat and out of direct sunlight.

DATE: 10/1/85 **SUPERSEDES:** 5/1/83

MSDS NO.: 007664382

FOR ADDITIONAL NON-EMERGENCY INFORMATION, CONTACT:

Product Acceptability Coordinator
Detergent Materials
Monsanto Industrial Chemicals Co.
314-694-2096
(A Unit of Monsanto Company)

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