



# PURITAN PRODUCTS

Effective Date: 05/01/15

Replaces Revision: 01/01/13,10/06/11

NON-EMERGENCY TELEPHONE  
610-866-4225

24-HOUR CHEMTREC EMERGENCY TELEPHONE  
800-424-9300

## SDS – SAFETY DATA SHEET

### 1. Identification

**Product Identifier:** PHOSPHORIC ACID

**Synonyms:** Ortho-phosphoric Acid, White Phosphoric Acid

**Chemical Formula:** H<sub>3</sub>PO<sub>4</sub> in H<sub>2</sub>O

**Recommended Use of the Chemical and Restrictions On Use:** Laboratory Reagent

**Manufacturer / Supplier:** Puritan Products; 2290 Avenue A, Bethlehem, PA 18017 **Phone:** 610-866-4225

**Emergency Phone Number:** 24-Hour Chemtrec Emergency Telephone 800-424-9300

### 2. Hazard(s) Identification

**Classification of the Substance or Mixture:**

Acute toxicity, Oral (Category 4)

Acute toxicity, Inhalation (Category 2)

Acute toxicity, Dermal (Category 5)

Skin corrosion (Category 1B)

Serious eye damage (Category 1)

**Risk Phrases:**

Symbol: C

R34: Causes burns.

**Label Elements:**

**Trade Name:** PHOSPHORIC ACID

**Signal Word:** Danger



**Hazard Statements:**

H302: Harmful if swallowed.

H313: May be harmful in contact with skin.

H314: Causes severe skin burns and eye damage.

**Precautionary Statements:**

P260: Do not breathe dust / fume / gas / mist / vapors / spray.

P280: Wear protective gloves / protective clothing / eye protection / face protection.

P284: Wear respiratory protection.

P305+P351+P338: IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses if present and easy to do – continue rinsing.

P310: Immediately call a POISON CENTER or doctor / physician.

### 3. Composition / Information on Ingredients

**CAS No.:** 7664-38-2

**EC Number:** 231-633-2

**Index Number:** 015-011-00-6

**Molecular Weight:** 98 g/mol

Ingredient	CAS Number	EC Number	Percent	Hazardous	Chemical Characterization
Phosphoric Acid	7664-38-2	231-633-2	55 - 95%	Yes	Substance
Water	7732-18-5	231-791-2	5 - 45%	No	Mixture

### 4. First-aid Measures

In all cases, call a Physician immediately.

**Inhalation:** If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give Oxygen. CALL A PHYSICIAN IMMEDIATELY.

**Ingestion:** DO NOT INDUCE VOMITING. Give large quantities of water. Never give anything by mouth to an unconscious person. CALL A PHYSICIAN 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. CALL A PHYSICIAN IMMEDIATELY.

**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 face piece operated in the pressure demand or other positive pressure mode.

### 6. Accidental Release Measures

**Personal Precautions, Protective Equipment and Emergency Procedures:** 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.

**Environmental Precautions and Methods and Materials for Containment and Cleaning Up:** Contain and recover liquid when possible. Do not let product enter drains. 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. The toll free number for the US Coast Guard National Response Center is (800) 424-8802.

## 7. Handling and Storage

**Precautions for Safe Handling and Conditions for Safe Storage, Including Any Incompatibilities:** 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 face piece 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 face piece 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 full face shield where dusting or splashing of solutions is possible. Maintain eye wash fountain and quick-drench facilities in work area.

## 9. Physical and Chemical Properties

Physical data below refers to concentrated phosphoric acid.

**Appearance:** Clear, colorless, syrupy liquid

**Odor:** Odorless

**Odor Threshold:** Not determined

**pH:** 1.5 (0.1 N aqueous solution)

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

**Melting Point:** 21C (70F) – 85% solution

**Boiling Point / Boiling Range:** 158C (316F)

**Flash Point:** Not applicable

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

**Flammability:** Not applicable

**Upper / Lower Flammability or Explosive Limits:** Not applicable

**Vapor Pressure (mm Hg):** 0.3 kPa (@ 20°C)

**Vapor Density (Air=1):** 3.4 (Air = 1)

**Relative Density:** 1.685 g/cm<sup>3</sup>  
**Solubility:** Miscible in all proportions in water  
**Partition Coefficient: n-octanol / water:** No data available  
**Auto-ignition Temperature:** No data available  
**Decomposition Temperature:** No data available  
**Viscosity:** No data available

## 10. Stability and Reactivity

**Reactivity and / or Chemical Stability:** Stable under ordinary conditions of use and storage. Substance can super-cool without crystallizing.

**Possibility of Hazardous Reactions and Conditions to Avoid:** Incompatibles.

**Incompatible Materials:** 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.

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

## 11. Toxicological Information

**Emergency Overview:** DANGER! CORROSIVE. CAUSES SEVERE IRRITATION AND BURNS TO EVERY AREA OF CONTACT. HARMFUL IF SWALLOWED OR INHALED.

### 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 irritation and serious 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.

**Specific Target Organ Toxicity - Single Exposure (Globally Harmonized System:)** No data available.

**Specific Target Organ Toxicity - Repeated Exposure (Globally Harmonized System:)** No data available.

**Numerical Measures of Toxicity:** Cancer Lists: NTP Carcinogen

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

### Acute Toxicity:

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

## 12. Ecological Information

**Ecotoxicity:** May be harmful to aquatic organisms due to the shift of the pH.

**Persistence and Degradability:** Expected to be readily biodegradable.

**Bioaccumulative Potential:** No data available.

**Mobility in Soil:** When spilled onto soil, phosphoric acid will infiltrate downward, the rate being greater with lower concentration because of reduced viscosity. During transport through the soil, phosphoric acid will dissolve some of the soil material, in particular, carbonate-based materials. The acid will be neutralized to some degree with adsorption of the proton and phosphate ions also possible. However, significant amounts of acid will remain for transport down toward the groundwater table. Upon reaching the groundwater table, the acid will continue to move in the direction of groundwater flow. *Information obtained from US National Library of Medicine.*

**Other adverse effects:** US Regulations (CERCLA) require reporting spills and releases to soil, water and air in excess of reportable quantities. The toll free number for the US Coast Guard National Response Center is (800) 424-8802.

## 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

**UN Number:** UN1805

**UN Proper Shipping Name:** PHOSPHORIC ACID SOLUTION

**Packing Group:** III



DOT

IMDG

IATA

**Land Transport ADR/RID and GGVS/GGVE (Cross Border / Domestic)**

**Transport Hazard Class(es):** 8

**Maritime Transport IMDG/GGVSea**

**Transport Hazard Class(es):** 8

**Marine Pollutant:** No

**Air Transport ICAO-TI and IATA-DGR**

**Transport Hazard Class(es):** 8

**Transport in Bulk (According to Annex II of MARPOL 73/78 and the IBC Code)**

**Special Precautions for User:** No additional information

## 15. Regulatory Information

**US federal Regulations:** This product is a "Hazardous Chemical" as defined by the OSHA Hazard Communication Standard, 29 CFR 1910.1200.

### Chemical Inventory Status – Part 1

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

### Chemical Inventory Status – Part 2

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

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

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

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

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

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

**Australian Hazchem Code:** 2R

**Poison Schedule:** 5S

## 16. Other Information

*Effective Date:* 05/01/15 Removed Hazard Statement No. H330

*Replaces Revision:* 01/01/13, 10/06/11

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