

75% Phosphoric Acid Dilution Procedure:

Wear latex gloves and eye protection when handling acid concentrates.

To make one gallon of 10% phosphoric acid stock solution, fill a one gallon container with fresh water and remove 2 cups (1 pint) of water. Add 2 cups of 75% phosphoric acid to container to make one gallon of 10% pH down stock solution.

When making concentrates, always pour acid into water, never water into acid.

Always add 10% stock solution slowly and incrementally to nutrient tank to bring pH down. (Strong quantities of phosphoric acid will affect nutrient ions and precipitate them out of solution.)

On-demand pH dosing is recommended for all recirculating systems. In this way pH is incrementally adjusted continually with virtually no nutrient lockup due to addition of acids.

For further material and safety information, please review 75% Phosphoric MSDS sheet.

Westco Chemicals, Inc.

12551-61 Saticoy Street South - North Hollywood, CA 91605
TEL:323-877-0077 818-255-3655 FAX: 818-255-3650

Data Sheet

Material Safety Data Sheet Phosphoric Acid 75% , Food Grade

Suppliers Name: Westco Chemicals, Inc.
Address: 12551-61 Saticoy Street South
North Hollywood, CA 9160
Telephone: 818-255-3655 or 323-877-0077

EMERGENCY TELEPHONE NUMBER: 800-424-9300 CHEMTREC

1. General Information and Chemical Product Identification

Trade Names: Phosphoric Acid 75%
Chemical Formula: H₃PO₄
Chemical Family: Inorganic Acid
Synonyms: Orthophosphoric Acid
CAS #: 7664-38-2
D.O.T. Ship Name: Phosphoric Acid Solution

2. Composition / Information on Ingredients

CAS #	Common Name	TWA	STEL	PEL	% by Wt.
7664-38-2	Phosphoric Acid	NL 3	NL 3	NE	75.00%

3. Hazard(s) Identification

Routes of Entry: Inhalation of Mist, Ingestion and Dermal

Emergency Overview

CORROSIVE: Causes severe burns. Severely irritating to skin and eye and respiratory tract.

Ingestion: Cause corrosion of the mouth, gullet and digestive tract.

Possible **LOSS OF CONSCIOUSNESS.**

Clear, odorless liquid

Firefighters should wear full-face, self contained breathing apparatus and impervious protective clothing.

Contact with metal produced hydrogen, which may form flammable or explosive mixtures with air.

Potential Health Effects: DANGER! Causes eye and skin burns.

Eyes: Liquid contact will cause severe burns, which may result in blindness. Mist (if formed) can irritate.

Skin: Prolonged contact of acid with skin will cause severe burns. Mist (if formed) can irritate.

Ingestion: Corrosion of mouth, gullet and digestive tract. Nausea, vomiting, possible circulatory shock and loss on consciousness: **CAN BE FATAL.**

Inhalation: Mist, if formed, will irritate mucous membranes and respiratory tract may cause lacrimation, coughing, sneezing, salivation and labored breathing. Severe exposures may cause chemical pneumonitis.

Signs & Symptoms of Exposure

Eyes: Liquid contact will cause severe burns, which may result in blindness. Mist (if formed) can

irritate.

Skin: Prolonged contact of acid with skin will cause severe burns. Mist (if formed) can irritate.

Ingestion: Corrosion of mouth, gullet, and digestive tract. Nausea, vomiting, possible circulatory shock and loss on consciousness: **CAN BE FATAL.**

Inhalation: Mist (if formed), will irritate mucous membranes and respiratory tract may cause lacrimation, coughing, sneezing, salivation and labored breathing. Severe exposures may cause chemical pneumonitis.

4. First Aid Information

Ingestion: If victim is conscious and alert, give 2-3 glasses of water to drink and **DO NOT INDUCE VOMITING.** Never give anything to eat or drink to someone who is unconscious, having convulsions, or unable to swallow.

Seek immediate medical attention. Do not leave victim unattended. To prevent aspiration of swallowed product, lay victim on side with head lower than waist. Vomiting may occur spontaneously. If vomiting occurs and the victim is conscious, give water to further dilute the chemical. See other information.

Eyes: Flush eyes with large quantities of running water for a minimum of 15 minutes. If victim is wearing contact lenses, remove them. Hold eyelids apart during the flushing to ensure rinsing of entire surface of the eye and lids with water. **DO NOT** let victim rub eye's). Do not attempt to neutralize with chemical agents. Oils/ointments should not be used at this time. Get medical attention if eye irritation occurs.

Skin: Remove contaminated clothing including shoes and immediately wash affected area with plenty of soap and water for at least 15 minutes. **Seek immediate medical attention.** Wash contaminated clothing and shoes before reuse.

Inhalation: Remove from further exposure. Keep warm and at rest. If not breathing, give artificial respiration. If breathing is difficult, trained personnel should administer oxygen. **Seek immediate medical attention.**

5. Fire and Explosion Data

N.F.P.A. Hazard Ratings

Health: 3

Fire: 0

Reactivity: 0

Special: NA

0=Minimal

1=Slight

2=Moderate

3=Serious

4=Severe

N/R=Not Rated

Flash Point:Non Combustible

Flammable Limits: NA

Autoignition Temperature: NA

Extinguisher Media: Firefighters should wear full-face, self contained breathing apparatus and impervious protective clothing. If involved in a fire, use water spray. Avoid spraying into containers. If only a small amount of combustibles is present, smother fire with dry chemical. All standard agents are acceptable.

Special Fire Fighting Procedures: Phosphoric Acid does not support combustion, but like most acids it can attack metals with consequent generation of hydrogen, giving

rise to potentially inflammable and explosive mixtures. Use water spray to keep containers cool and to flush any spillage away from metals and fires.

Unusual Fire and Explosion Hazards: Contact with common metal produced hydrogen, which may form flammable or explosive mixtures with air. See Hazardous decomposition products.

Hazardous Combustion Products: Oxides of Phosphorus

Emergency Response Guidebook Information: Guide #154

6. Accidental Release Measures

Steps to be taken in case material is released or spilled: If possible, dike spill and mop or pump into plastic poly-lined or lacquer lined drums, label "Corrosive" and store away from heat and out of direct sunlight. Residual may be neutralized with soda ash.

7. Handling and Storage

Handling and Storage: Use appropriate personal protective equipment as specified in Section 8. Handle in a well ventilated area. Liquid Phosphoric acid will attack some form of plastics. Handle and use in a manner consistent with good industrial/manufacturing techniques and practices. Keep containers tightly closed. Provide sufficient heating to prevent crystallization. Keep separate from strong bases.

8. Exposure Controls / Personal Protection

Skin Protection: Where contact is likely, wear neoprene chemical resistant gloves, a chemical suit, rubber boots, chemical safety goggles and a face shield.

Respiratory Protection: When respirators are required, select NIOSH/MSHA approved equipment based on actual or potential airborne concentrations and in accordance with the latest OSHA standard (29 CFR 1910.134) and/or ANSI Z88.2 recommendations. Always wear NIOSH approved acid gas respirator with full face piece when vapor or mists may exceed applicable concentration limits.

Eye Protection: Eye and face protection requirements will vary dependent upon work environment should be selected for the particular use intended for this material. Wear chemical splash goggles and face shield when eye and face contact is possible due to splashing or spraying of material.

Other Protection: Minimize breathing in of any mist or vapors. Avoid prolonged or repeated exposure. Avoid contact with skin. Remove contaminated clothing; launder before reuse. Cleanse skin thoroughly after contact, before meals and end of work period. Impervious acid resistant clothing should be worn. NIOSH approved dust & mist respirator should be used.

Ventilation Protection: Mechanical exhaust required. Ventilate at floor level. Adequate to meet maximum exposure for acid mist of 1 mg/m³ in 8 hours. Heavy handling, cases of bottles or drums - mechanical (general) ventilation. Specialized handling in workshops - all handling should be done in a closed ventilated system.

Exposure Limits: Exposure limits represent regulated or recommended worker breathing zone concentrations measured by validated sampling and analytical methods, meeting OSHA requirements. The following limits (ACGIH, OSHA and other) apply to this material, where, if indicated, S=Skin and C=Ceiling limit:

ACGH TLV/TWA PARTICULATES NOT OTHERWISE CLASSIFIED: 1mg/cubic meter (inhalables)

ACGH TLV/TWA PARTICULATES NOT OTHERWISE CLASSIFIED: 3 mg/cubic meter (respirable)

Hygienic Practices: All food / smoking materials should be kept in a separate area away from the storage/use location. Eating, drinking and smoking should be prohibited in areas where there is a potential for significant exposure to this material. Before eating, drinking or smoking, hands and face should be thoroughly washed. Facilities storing or using this material should be equipped with eyewash and safety shower.

9. Physical and Chemical Properties

Molecular Weight: 98 g/gmol
Boiling Point: 138 °C
Melting Point: -18°C
Specific Gravity: 1.574 gr/ml @ 25°C
Vapor Pressure (mm/Hg): 5.8 mm @ 25°C
Vapor Density (air=1): Non volatile
pH: <1 in 1% by wt. Solution.

Reaction in Water: NA
Solubility in Water: Soluble
Appearance and Odor: Clear, odorless liquid
Freezing Point: -17.5°C
Decomposition Temp: Changes to pyrophosphoric acid at 200°C
Posses phenomena of super-cooling.

10. Stability and Reactivity

Stability: This product is stable under normal ambient conditions of temperature and pressure.

Conditions to Avoid: Heat

Incompatible Materials: Fluorine, Strong oxidizing agents, strong reducing agents, bases, metals, sulfur, trioxide phosphorus pentoxide.

Hazardous Decomposition Products: Evaporation residue first formed is the ortho phosphoric acid, further heating forms the pyro and later the metaphosphoric acids, which are also corrosive but to a lesser degree. Oxides of Phosphorus, Phosphone.

Polymerization Conditions to Avoid: Will not occur.

11. Toxicological Information

Eye Effects: This material is corrosive to the eyes
119 mg Rabbit

Skin Effects: This material is corrosive to the skin
595 mg/kg/24 hr Rabbit

Dermal Toxicity:
LD50: Dermal (Rabbit)=2740 mg/kg

Inhalation Effects: NA

Sensitization: NA

Ingestion Effects:
LD50 on rats: 1530 mg/kg

Carcinogenicity / Mutagenicity: This product does not contain any substances that are considered by OSHA, NTP, IARC or ACGIH to be "probable" or "suspected" human carcinogens.

No data available for mutagenicity

Reproductive Effects: NA

Neurotoxicity: NA

Target Organs: Can cause gastrointestinal tract, respiratory tract and circulatory system damage.

Additional Toxicological Information: None

12. Ecological Information

Biodegradability: Anaerobic

Ecotoxicity: NA

Biological Oxygen Demand (BOD5): NA

Chemical Oxygen Demand: NA

Activated Sludge Respiration Inhibition Test: NA

Additional Ecological Information: High concentration in receiving waters, will injure aquatic life by the effect on pH. In the water the acid is hydrolyzed to orthophosphate, which may act as plant nutrient (causing eutrofication) or precipitate heavy metals.

13. Disposal Considerations

Waste Disposal methods: In case of spill, contain material and call local authorities for emergency assistance. Neutralize the spilled acid with soda ash or lime. Collect in appropriate containers. Dispose of waste at an appropriate waste disposal facility according to current applicable laws and regulations, and product characteristics at time of disposal. Chemical additions, processing or otherwise altering this material may make the waste management information presented incomplete, inaccurate or otherwise inappropriate.

Container Disposal Information: Be advised that state/local requirements for container disposal may be more restrictive or otherwise different from federal laws and regulations. Consult state/local regulations regarding proper disposal of container.

14. Transport Information

Proper Shipping Name: Phosphoric Acid Solution

DOT Hazard Class: 8

Label Requirement: Corrosive

Placard: Corrosive

Packing Group: III

UN: 1805

RQ: 5000 lbs

CAS: 7664-38-2

15. Regulatory Information

State Right To Know Laws

The following ingredients are disclosed for compliance with State Right to Know Laws:

CAS #: 7664-38-2

Chemical Name: Phosphoric Acid 75%

States: AL, SK, AZ, AR, CA, CO, CT, DE, FL, GA, HI, IA, IN, KS, KY, LA, ME, MD, MI, MN, MS, MO, MT, NE, NV, NC, ND, OH, OK

SARA Title III Hazard Classes Sections 311/312: Immediate (acute) health hazard

OSHA Status: This product is hazardous under the criteria of the Federal OSHA Hazard Communication Standard 29 CFR 1910.1200.

SARA Title III Hazard Classes Section 302 - Extremely Hazardous Substances: This

product does NOT contain ingredients listed in Appendix A and B as Extremely Hazardous Substances.

TSCA Status: Listed / Non-reportable

SARA Section 313:

This product contains the following toxic chemical subject to the reporting requirements of Section 313 of the Emergency Planning and Community Right to Know Act:

CAS #: 7664-38-2

Chemical Name: Phosphoric Acid, 75%

CERCLA, 40 CFR 117, 302: This product contains ingredients specified in the List of Extremely Hazardous Substances. These ingredients are listed below.

CERCLA listed substances are:

Phosphoric Acid

CAS #: 7664-38-2

RQ: 5000 lbs

SARA Superfund Section 110: This product does not contain ingredients listed as hazardous substances on the Priority List of CERCLA Hazardous substances.

California Proposition 65: This product contains a chemical (or chemicals) known to the State of California to cause cancer and birth defects or other reproductive harm.

Michigan Critical Materials: This product does contain ingredients which are listed on the Michigan Critical Materials Register. They are:

CAA: None Known

CWA: None Known

RCRA: Not considered a hazardous waste.

Canada CEPA: All intentional ingredients are listed on the DSL

Canada WHMIS: This product is WHMIS controlled

Creation Date: January 30, 2002

Review Date: March 21, 2007