



Safety Data Sheet

1. Product Identifier and Company Identification

Product name	: Phosphoric Acid	
HBCC SDS number	: CP10000	
Synonym	: O-Phosphoric Acid, White Phosphoric Acid, M-Phosphoric Acid	
Product use and Restrictions	: Refer to label or call	
Manufacturer	: Corporate Headquarters	Corporate Safety & Compliance
Contact Address	Hill Brothers Chemical Company 1675 North Main Street Orange, California 92867 714-998-8800 800-821-7234	Hill Brothers Chemical Company 7121 West Bell Road, Suite 250 Glendale, Arizona 85308 623-535-9955 - Office 623-535-9944 - Fax
Emergency Telephone Number (Chemtrec) Website	: 800-424-9300 : http://hillbrothers.com	

2. Hazard Identification

Classification : Acute Toxicity; Oral: Category 4
Acute Toxicity; Inhalation: Category 2
Skin Corrosion/Irritation: Category 1
Serious Eye Damage/Eye Irritation: Category 1
Specific Target Organ Toxicity (Single Exposure): Category 3

Signal Word : DANGER

Pictogram(s) :



Hazard Statements : H302: Harmful if swallowed.
H330: Fatal if inhaled.
H314: Causes severe skin burns and eye damage.
H335: May cause respiratory irritation.
H336: May cause drowsiness or dizziness.

Precautionary Statements

Response : P301+P330+P331+P312: IF SWALLOWED: Rinse mouth. Do NOT induce vomiting. Call a POISON CENTER or doctor if you feel unwell.
P304+P340+P310: IF INHALED: Remove person to fresh air and keep comfortable for breathing. Immediately call a POISON CENTER or doctor.
P320: Specific treatment is urgent.
P303+P361+P353+P363: IF ON SKIN (or hair): Take off immediately all

contaminated clothing. Rinse skin with water/shower. Wash contaminated clothing before reuse.

P305+P351+P338+P310: IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a POISON CENTER or doctor.

Prevention

- : P260: Do not breathe fumes, gas, mist, vapors, or spray.
- P264: Wash hands thoroughly after handling.
- P270: Do not eat, drink, or smoke when using this product.
- P271: Use only outdoors or in a well-ventilated area.
- P280: Wear protective gloves, protective clothing, and eye and face protection.
- P284: In case of inadequate ventilation, wear respiratory protection.

Storage

- : P403+P233: Store in a well-ventilated place. Keep container tightly closed.
- P405: Store locked up.

Disposal

- : P501: Dispose of contents/container in accordance with local, regional, national, and international regulations.

3. Composition/Information on Ingredients

CAS Number	Ingredient Name	Weight %
7664-38-2	Phosphoric Acid	75-85

4. First Aid Measures

Summary of First Aid Measures

Ingestion

- : If the victim is conscious, give the person 2 glasses of water immediately. Do NOT Induce Vomiting. Do NOT make an unconscious person vomit. GET MEDICAL ATTENTION IMMEDIATELY. If vomiting occurs, the head should be kept low so that stomach vomit doesn't enter the lungs.

Inhalation

- : If symptoms develop, immediately move individual away from exposure and into fresh air. SEEK IMMEDIATE MEDICAL ATTENTION; keep person warm and quiet. If person is not breathing, begin artificial respiration. If breathing is difficult; administer oxygen.

Skin

- : Immediately flush skin with water for at least 15 minutes while removing contaminated clothing and shoes. SEEK IMMEDIATE MEDICAL ATTENTION. Wash clothing before reuse and decontaminate or discard contaminated shoes.

Eyes

- : If material gets into the eyes, immediately flush eyes gently with water for at least 15 minutes while holding eyelids apart. If symptoms develop as a result of vapor exposure, immediately move individual away from exposure and into fresh air before flushing as recommended above. SEEK IMMEDIATE MEDICAL ATTENTION.

- Medical Conditions** : In persons with impaired pulmonary function, especially those with obstructive airway diseases, the breathing of phosphoric acid dust or mist might cause exacerbation of symptoms due to its irritant properties. Phosphoric acid mist or solutions may cause dermatitis.
- Effects of Overexposure** : Long-term exposure may cause upper respiratory disease and irritation of the skin.
- Summary of Acute Health Hazards** : N/A
- Ingestion** : Can produce burns on the mouth and lips, severe gastrointestinal irritation, nausea, bloody diarrhea, difficult swallowing, severe abdominal pains, thirst, acidemia, difficult breathing, convulsions, collapse, shock, and death.
- Inhalation** : Breathing of vapor or mist is possible. Breathing this material may be harmful or fatal. Symptoms may include severe irritation and burns to the nose, throat, and respiratory tract.
- Skin** : May cause permanent skin burns. Phosphoric acid may not produce an immediate burning sensation upon contact, delaying the awareness of the worker that contact has occurred. Symptoms may include redness, burning, and swelling of skin, burns, and other skin damage.
- Eyes** : Can cause permanent eye injury. Symptoms include stinging, tearing, redness, and swelling of eyes. Can injure the cornea and cause blindness. Vapor or spray may cause eye damage, impaired sight or blindness.
- Note to Physicians** : Preexisting disorders of the following organs (or organ systems) may be aggravated by exposure to this material: skin, lung (for example, asthma like conditions).
- Summary of Chronic Health** : There is no evidence that phosphorus poisoning can result from contact with phosphoric acid. The risk of pulmonary edema resulting from the inhalation of mist or spray is remote. Prolonged inhalation may cause respiratory tract inflammation and lung damage.

5. Fire Fighting Measures

- Extinguishing** : Use water fog or spray on fires in which phosphoric acid is involved. Use water fog to keep fire-exposed containers cool. Carbon dioxide (CO₂). Dry chemical powder. Foam. Water may be used to extinguish fire by cooling, and diluting liquid with water.
- Special Exposure Hazards** : Although phosphoric acid is not combustible, it can react with metals to liberate hydrogen, a flammable gas. Never use welding or cutting torch on or near drum (even empty) because product (even just residue) can ignite explosively. Fire may produce irritating, corrosive and/or toxic gases. Under fire conditions, toxic vapors may be formed.
- Special Protective** : Wear a self-contained breathing apparatus with a full face-piece operated in the positive-pressure demand mode with appropriate turn-out gear and chemical resistant personal protective equipment.

Fire Fighting Procedures

: Phosphoric Acid is not flammable however the following hazards can occur when exposed to extreme heat: release of phosphorus oxides and/or phosphine from thermal decomposition and hydrogen from reaction with metals.

NFPA Rating

: Health - 3
Flammability - 0
Instability - 0



0=Insignificant 1=Slight 2=Moderate 3=High 4=Extreme

Uniform Fire Code Rating

: Class 3 Water-Reactive Material.

6. Accidental Release Measures

Personal Precautions

: **Large Spill:** Persons not wearing protective equipment should be excluded from area of spill until clean-up is completed.

Emergency Procedures

: **Small Spill:** Trained personnel should conduct this procedure. Untrained personnel should be removed from the spill area.
Large Spill: Local authorities should be advised if significant spillages cannot be contained.

Methods of Containment And Clean-Up

: **Small Spill:** Cover the contaminated surface with sodium bicarbonate or a soda ash/flaked lime mixture (50-50). Mix and add water if necessary to form a slurry. Scoop up slurry and wash site with soda ash solution. Proper mixing procedures are essential.
Large Spill: Stop spill at source. Dike to prevent spreading. Pump to salvage tank. Local authorities should be advised if significant spillages cannot be contained.

7. Handling and Storage

Safe Handling

: Do not get in eyes, on skin, or on clothing, and avoid breathing the mist. Wash thoroughly after handling. Empty containers may retain vapor and product residue. Observe all labeled safeguards until container is cleaned, reconditioned or destroyed. Always add slowly and in small amounts. Never use hot water. Never add water to acids. Always add acids to water.

Storage

: Keep containers closed, and use with adequate ventilation. Store in rubber lined or 316 stainless steel tanks designed for phosphoric acid. Store drums away from heat and out of direct sunlight. Addition to water releases heat which can result in violent boiling and splattering.

Work/Hygienic Practices

: All employees who handle phosphoric acid should wash their hands before eating, smoking, or using the toilet facilities. Do NOT place food, coffee or

other drinks in the area where dusting or splashing of solutions is possible.

Ventilation

: This product should be confined within closed equipment, in which case general (mechanical) room ventilation (typically 10 air changes per hour) should be suitable. Special, local ventilation is needed at points where vapors are expected to be vented to the workplace air. Consult NFPA Standard 91 for design of exhaust systems.

8. Exposure Controls/Personal Protection

Occupational Exposure Limits

Chemical Name: Phosphoric Acid				
Exposure Limits (TWAs) in Air				
CAS Number	Chemical	ACGIH TLV	OSHA PEL	STEL
7664-38-2	Phosphoric Acid	1 mg/m ³	1 mg/m ³	3 mg/m ³

Protective Equipment

: Avoid contact with the eyes. Wear chemical splash goggles and face shield (8" min.). Wear appropriate impervious gloves (neoprene, nitrile rubber, polyvinyl chloride, polyethylene) and protective clothing and boots to prevent skin contact. Wear impervious aprons when splashing is likely. Remove contaminated clothing promptly and launder before reuse. Have eye baths and safety showers immediately available where eye contact and skin contact can occur. Use only under a chemical fume hood.

Eye Protection

: Wear face shields when splashing is likely.

Respiratory

: Use only a MSHA/NIOSH-approved respirator to prevent overexposure if vapor levels may or do exceed the exposure limits.

Respirator Selection:

50 mg/m³: HiEPF/SAF/SCBAF

2000 mg/m³: SAF: PD,PP,CF

9. Physical and Chemical Properties

Appearance: Clear, colorless, odorless, syrupy liquid	Odor: Odorless
Odor Threshold: N/A	pH: 1-1.5 @ 1-19 g/L
Melting Point/Freezing Point: 21.1° C (70° F)	Initial Boiling Point/Range: 158° C (316° F) @ 760mmHg
Flash Point: non-Flammable	Evaporation Rate (BuAc=1): N/A
Flammability: Non-Flammable	Lower/Upper Explosive Limit: N/A
Vapor Pressure (mmHg): 4-1 @ 25° C (68° F)	Vapor Density (Air=1): 3.4
Heat of Fusion: N/A	Solubility in Water: 750-850 g/L Highly Soluble
Viscosity: -47 CP @ 20° C	Heat Capacity at 25° C (77° F): N/A
Decomposition Temperature: N/A	Density at 25° C (77° F): 14.15 lbs/gal
% Volatiles (by volume): N/A	Specific Gravity (Water=1): 1.6-1.7 g/L @ 25° C
Molecular Weight: 98 g/mol	VOC: N/A

10. Stability and Reactivity

Reactivity	: N/A
Chemical Stability	: This product is hygroscopic, but is stable under normal conditions of storage, handling and use.
Possibility of Hazardous Reactions or Polymerizations	: Hazardous Polymerization will not occur.
Conditions to Avoid	: Excess heat, and exposure to moist air or water.
Incompatible Materials	: Contact with strong caustics can cause liberation of much heat and violent spattering. Contact with most metals causes formation of flammable and explosive hydrogen gas. 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. Severely corrosive to steel based on DOT, 49 CFR criteria. Potentially violent reaction with sodium tetrahydroborate. Reacts with chloride + stainless steel to form explosive hydrogen gas. Mixtures with nitromethane are explosive. Metals, bases, alkalies (organic), ammonia, alcohols, amines, halogenated agents, organic peroxides/hydroperoxides, amides, azo, diazo, and hydrazines (e.g. dimethyl hydrazine, hydrazine, methylhydrazine), carbamates (e.g. carbanolate, carbofuran), esters (e.g. butyl acetate, ethyl acetate, propyl formate), fluorides (inorganic, e.g. ammonium fluoride, calcium fluoride, cesium fluoride), phenols and cresols, organophosphates (e.g. methylparathion, parathion, phorate, thionazin), epoxides (butyl glycidyl ether), combustible and flammable materials (e.g. alkyl resins asphalt, gasoline, grease, methyl acetone, polystyrene, polyurethane), nitromethane, sodium tetrahydroborate, mercaptans, aldehydes, ketones, glycols, cyanides, sulfides, caustics.
Hazardous Decomposition Products	: Toxic gases and vapors (such as phosphoric acid fume) may be released when phosphoric acid decomposes. Phosphine, oxides of phosphorus, hydrogen gas.

11. Toxicological Information

Acute and Chronic Effects : N/A

Routes of Exposure

Inhalation	: Yes
Ingestion	: Yes
Skin	: Yes
Eyes	: Yes

Symptoms related to Physical, Chemical & Toxicological Characteristics : **Summary of Toxicology:** Phosphoric acid mist is an irritant to the eyes, upper respiratory tract, and skin. The solid is especially irritating to the skin in the presence of moisture. Non-acclimated workers could not endure exposure to fumes of phosphorus pentoxide (the anhydride of phosphoric

acid) at a concentration of 100 mg/m³; exposure to concentrations between 3.6 and 11.3 mg/m³ produced coughing. Concentrations of 0.8 to 5.4 mg/m³ were noticeable but not uncomfortable. There is no evidence that phosphorus poisoning can result from contact with phosphoric acid. The risk of pulmonary edema resulting from the inhalation of mist or spray is remote. A dilute solution buffered to pH 2.5 caused a moderate brief stinging sensation but no injury when dropped in the human eye. A 75% solution will cause severe skin burns.

Numerical Measures of Toxicity : Oral Toxicity: LD50 (Rat) - 1530 mg/kg
Skin: LD50 (Rabbit) 2740 mg/kg (Slightly toxic)

Chronic Toxicity : N/A

Carcinogenicity : N/A

Product Name: Phosphoric Acid					
ACGIH	IARC	EPA	NIOSH	NTP	OSHA
No	No	No	No	No	Yes

TARGET ORGANS : N/A

12. Ecological Information

Ecotoxicity : When released to water, natural waters hardness minerals may readily reduce acidity. The product may affect the acidity (pH-factor) in water with risk of harmful effects to aquatic organisms.

Persistence and Degradability : Phosphate may persist indefinitely.

Bioaccumulative Potential : N/A

Product/Ingredient	Log _{Pow}	BCF	Potential
-	-	-	-

Mobility in Soil : When released into the soil this material may leach into groundwater. 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.

13. Disposal Considerations

Disposal of Container : Dispose of in accordance with applicable local, county, state and federal regulations. Neutralization by a waste treatment facility is recommended.

14. Transport Information

UN# : UN1805
Proper Shipping Name : Phosphoric acid, solution
Hazard Class/Division : 8
Packing Group : III
Marine Pollutant : No
Special Precautions : A7, IB3, N34, T4, TP1
Emergency Response Guidebook : 2012 ERG, Guide 154, pages 246-247
Placard Advisory :



15. Regulatory Information

SARA 302 Extremely Hazardous Substances (EHS) : No chemical in this product is listed as an Extremely Hazardous Substance (EHS) under Section 302 of EPCRA.

SARA 304 Extremely Hazardous Substances (EHS) Release Notification : No chemical in this product is listed as an Extremely Hazardous Substance (EHS) which, if released to the environment in quantities at or above the substance's Reportable Quantity (RQ), would require reporting to the SERC and LEPC under Section 304 of EPCRA.

SARA 311/312 Hazards :

SARA 311/312 Hazards				
Acute	Chronic	Flammability	Pressure	Reactivity
Yes	No	No	No	No

SARA 313 Reportable Chemicals : No chemical in this product is subject to annual emissions, transfers, or waste management reporting under the Community-Right-to-Know provisions of EPCRA Section 313, also known as the Toxic Release Inventory (TRI) Report or Form R.

CERCLA Hazardous Substances : This product contains the following CERCLA hazardous substance(s) subject to the National Response Center (NRC) reporting requirements if released to the environment in quantities greater than or equal to the substance's CERCLA Reportable Quantity (RQ).
 Phosphoric Acid, CAS #7664-38-2 CERCLA RQ = 5000 lbs. (2268 kg.)

Clean Air Act (CAA) Section 112(r) Air Pollutants : No chemical in this product is listed as an air pollutant under the U.S. Clean Air Act, Section 112(r) (40 CFR 61).

California Prop 65 Chemicals : This product does not contain any chemicals known to the state of California to cause cancer and birth defects or other reproductive harm.

Hazard Label Warning : This product requires the following hazard label warning:
Corrosive, Class 8.

TSCA (Toxic Substances Control Act) : All chemical substances in this product are listed on the U.S. TSCA Inventory List.

ACRONYMS:

CAS # – Chemical Abstract Services Registry Number

CFR – Code of Federal Regulations

CERCLA – Comprehensive Environmental Response, Compensation, and Liability Act

EPCRA – Emergency Planning and Community Right-to-Know Act

LEPC – Local Emergency Planning Committee

SERC – State Emergency Response Commission

16. Other Information

Revision date : 05/27/2015

Supersedes : 06/19/2008

First Issue : 06/24/1987

Chemical Family/Type : Mineral Acid

Section(s) changed since last revision : MSDS to First Issue SDS Conversion

IMPORTANT! Read this SDS before use or disposal of this product. Pass along the information to employees and any other persons who could be exposed to the product to be sure that they are aware of the information before use or other exposure. This SDS has been prepared in accordance with the Globally Harmonized System of Chemical and Labeling of Chemicals (GHS) Fifth Edition and the OSHA Hazard Communication Standard [29 CFR 1910.1200]. The SDS information is based on sources believed to be reliable. Available data, safety standards, and government regulations are subject to change and the conditions of handling and use, or misuse are beyond our control; **Hill Brothers Chemical Company** makes no warranty, either expressed or implied, with respect to the completeness or continuing accuracy of the information contained herein and disclaims all liability for reliance thereon. Additional information may be necessary or helpful for specific conditions and circumstances of use. It is the user's responsibility to determine the suitability of this product and to evaluate risks and exercise appropriate precautions for protection of employees and others prior to use.