



HYPOPHOSPHOROUS ACID, 30 - 52%

1. Product Identification

Synonyms: Phosphinic acid

CAS No.: 6303-21-5

Molecular Weight: 66.00

Chemical Formula: HPH₂O₂ in aqueous solution, 30%

2. Composition/Information on Ingredients

Ingredient	CAS No	Percent	Hazardous
Hypophosphorous Acid	6303-21-5	30 - 52%	Yes
Water	7732-18-5	48 - 70%	No

3. Hazards Identification

Emergency Overview

DANGER! CORROSIVE. CAUSES BURNS TO ANY AREA OF CONTACT. HARMFUL IF SWALLOWED OR INHALED. POWERFUL REDUCING AGENT. HEAT MAY CAUSE FIRE OR EXPLOSIVE DECOMPOSITION, LIBERATING POISONOUS GAS.

Health Rating: 3 - Severe

Flammability Rating: 0 - None

Reactivity Rating: 3 - Severe (Explosive)

Contact Rating: 4 - Extreme (Corrosive)

Lab Protective Equip: GOGGLES & SHIELD; LAB COAT & APRON; VENT HOOD; PROPER GLOVES

Storage Color Code: White Stripe (Store Separately)

Potential Health Effects

Inhalation:

Extremely destructive to tissues of the mucous membranes and upper respiratory tract. Symptoms may include burning sensation, coughing, wheezing, laryngitis, shortness of breath, headache, nausea and vomiting.

Ingestion:

Corrosive. Swallowing can cause severe burns of the mouth, throat, and stomach. Can cause sore throat, vomiting, diarrhea.

Skin Contact:

Corrosive. Symptoms of redness, pain, and severe burn can occur.

Eye Contact:

Corrosive. Contact can cause blurred vision, redness, pain and severe tissue burns.

Chronic Exposure:

(from inhalation) Chronic cough and respiratory irritation as well as gastrointestinal disturbances have been reported.

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. Get medical attention 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. Get medical attention

immediately. Wash clothing before reuse. Thoroughly clean shoes before reuse.

Eye Contact:

Immediately flush eyes with plenty of water for at least 15 minutes, lifting lower and upper eyelids occasionally. Get medical attention immediately.

5. Fire Fighting Measures

Fire:

Not considered to be a fire hazard. Exposure to heat generates phosphine gas, which can be spontaneously flammable. Concentrating solution increases risk. This material also reacts with metals to form explosive hydrogen gas.

Explosion:

Not considered to be an explosion hazard.

Fire Extinguishing Media:

Dry chemical, foam or carbon dioxide. Water spray may be used to keep fire exposed containers cool.

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

Remove all sources of ignition. 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!

7. Handling and Storage

Store in a cool, dry, ventilated storage area with acid resistant floors and good drainage. Protect from physical damage. Keep out of direct sunlight and away from heat, water, and incompatible materials. Do not wash out container and use it for other purposes. When diluting, always add the acid to water; never add water to the acid. Do not store in metal

containers, as contact with moisture and metal at the same time may release flammable hydrogen gas. 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:

None established.

Ventilation System:

A system of local and/or general exhaust is recommended to keep employee exposures as low as possible. 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):

For conditions of use where exposure to the substance is apparent and engineering controls are not feasible, consult an industrial hygienist. 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:

Colorless to yellowish liquid.

Odor:

Odorless.

Solubility:

Miscible in water.

Specific Gravity:

1.13 - 1.27

pH:

No information found.

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

100

Boiling Point:

108C (226F) (50% aqueous solution)

Melting Point:

-25C (-13F) (50% aqueous solution)

Vapor Density (Air=1):

No information found.

Vapor Pressure (mm Hg):

50 @ 52 - 54C (126 - 129F) (50% aqueous solution)

Evaporation Rate (BuAc=1):

No information found.

10. Stability and Reactivity

Stability:

Stable under ordinary conditions of use and storage.

Hazardous Decomposition Products:

A powerful reducing agent. Decomposed by heat into phosphoric acid, spontaneously flammable phosphine, and oxides of phosphorous.

Hazardous Polymerization:

Will not occur.

Incompatibilities:

Strong oxidizers, mercuric oxide, mercury (II) nitrate, metals, strong bases.

Conditions to Avoid:

Shock, incompatibles.

11. Toxicological Information

No LD50/LC50 information found relating to normal routes of occupational exposure.

Ingredient	---NTP Carcinogen---		IARC Category
	Known	Anticipated	
Hypophosphorous Acid (6303-21-5)	No	No	None
Water (7732-18-5)	No	No	None

12. Ecological Information

Environmental Fate:

No information found.

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 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: CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S. (HYPOPHOSPHOROUS ACID)

Hazard Class: 8

UN/NA: UN3264

Packing Group: II

Information reported for product/size: 8PT

15. Regulatory Information

-----\Chemical Inventory Status - Part 1\-----

Ingredient	TSCA	EC	Japan	Australia
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Hypophosphorous Acid (6303-21-5)	Yes	Yes	Yes	Yes
Water (7732-18-5)	Yes	Yes	Yes	Yes

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

Ingredient	--Canada--	Korea	DSL	NDSL	Phil.
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Hypophosphorous Acid (6303-21-5)	Yes	Yes	No	Yes	Yes
Water (7732-18-5)	Yes	Yes	No	Yes	Yes

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

-SARA 302- -----SARA 313-----

Ingredient RQ TPQ List Chemical Catg.

Hypophosphorous Acid (6303-21-5) No No No No
Water (7732-18-5) No No No No

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

-RCRA- -TSCA-

Ingredient CERCLA 261.33 8(d)

Hypophosphorous Acid (6303-21-5) No No No
Water (7732-18-5) No No No

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

Australian Hazchem Code: 4WE

Poison Schedule: None allocated.

WHMIS:

This MSDS has been prepared according to the hazard criteria of the Controlled Products Regulations (CPR) and the MSDS contains all of the information required by the CPR.

16. Other Information

NFPA Ratings: Health: **3** Flammability: **2** Reactivity: **2**

Label Hazard Warning:

DANGER! CORROSIVE. CAUSES BURNS TO ANY AREA OF CONTACT. HARMFUL IF SWALLOWED OR INHALED. POWERFUL REDUCING AGENT. HEAT MAY CAUSE FIRE OR EXPLOSIVE DECOMPOSITION, LIBERATING POISONOUS GAS.

Label Precautions:

Do not get in eyes, on skin, or on clothing. Do not breathe vapor. Keep container closed. Use only with adequate ventilation. Wash thoroughly after handling. Keep away from heat.

Label First Aid:

If swallowed, DO NOT INDUCE VOMITING. Give large quantities of water. Never give anything by mouth to an unconscious person. In case of contact, immediately flush eyes or skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Wash clothing before reuse. If inhaled, remove to fresh air. If not breathing, give artificial

respiration. If breathing is difficult, give oxygen. In all cases get medical attention immediately.

Product Use: Laboratory Reagent.

Revision Information: No Changes.

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