

武汉宏信化工有限公司  
WUHAN HONGXIN CHEMICAL INDUSTRY CO., LTD.

No.810, Hannan Road, Hannan District, Wuhan City, Hubei Province 430090 P.R.China.

**MATERIAL SAFETY DATA SHEET FOR  
HYPOPHOSPHOROUS ACID 50% SOLUTION**

**1. Product Identification and company identification**

**Product Name:** Hypophosphorous acid 50% solution

**Synonyms:** Phosphinic acid

**CAS No.:** 6303-21-5

**Molecular Weight:** 66.00

**Molecular Formula:** H<sub>3</sub>PO<sub>2</sub>

**Company Identification:** Wuhan Hongxin Industry Chemical Co., Ltd.

No.810, Hannan Road, Hannan District, Wuhan City, Hubei Province 430090 P.R.China.

**For emergencies, call:** + 86 13871391066

**2. Composition/Information on Ingredients**

Ingredient	CAS No	Percent	Hazardous
Hypophosphorous Acid	6303-21-5	50%	Yes
Water	7732-18-5	50%	No

**3. Hazards Identification**

**Emergency Overview**

**Physical Appearance and Odor:**

Colorless oily liquid, odorless.

**Warning Statements:**

**DANGER! CORROSIVE TO SKIN AND EYES. HARMFUL IF INHALED OR SWALLOWED.**

**Potential Health Effects**

**Acute Eye:**

Corrosive. Causes burns, permanent damage to the cornea.

**Acute Skin:**

Corrosive. Causes burns, irritation.

**Acute Inhalation:**

Causes coughing, dizziness, headache, muscle weakness, a burning sensation.

**Acute Ingestion:**

Causes abdominal pain, chest pain, burns to mouth and esophagus.

**Chronic Effects:**

This product does not contain any ingredient designated by *IARC*, *NTP*, *ACGIH* or *OSHA* as probable or suspected human carcinogens.

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**4. First Aid Measures**

**Eye Exposure:**

Hold eyelids open and flush with a steady, gentle stream of water for at least 15 minutes. Seek immediate medical attention, preferably with an ophthalmologist. If the physician is not immediately available, eye irrigation should be continued for an additional 15 minutes. If it is necessary to transport the patient to a physician and the eye needs to be bandaged. Use a dry sterile cloth pad and cover both eyes.

**Skin Exposure:**

In case of contact, immediately wash with plenty of soap and water for at least 15 minutes, particular attention should be paid to hair, nose, ears and other areas not easily cleaned. Seek immediate medical attention. Remove contaminated clothing and shoes while washing. Clean contaminated clothing and shoes before re-use or discard if they cannot be thoroughly cleaned. Heavily contaminated shoes and clothing should be discarded in a manner which limits further exposure. Launder contaminated clothing separately.

**Inhalation:**

Remove victim from immediate source of exposure and assure that the victim is breathing. If breathing is difficult, administer oxygen, if available. If victim is not breathing, administer CPR (cardio-pulmonary resuscitation). Seek medical attention.

**Ingestion:**

if victim is conscious and alert, give 2-3 glasses of water to drink and do not induce vomiting. 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.

**MEDICAL CONDITIONS POSSIBLY AGGRAVATED BY EXPOSURE:**

Inhalation of product may aggravate existing chronic respiratory problems such as asthma, emphysema or bronchitis. Skin contact may aggravate existing skin disease.

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**NOTES TO PHYSICIAN:**

All treatments should be based on observed signs and symptoms of distress in the patient. Consideration should be given to the possibility that overexposure to materials other than this product may have occurred.

This material is an acid. The primary toxicity of this product is due to its irritant effects on mucous membranes.

**INHALATION:** If cough or shortness of breath occurs, evaluate the possibility of bronchitis or pneumonitis. Chest x-ray and arterial blood gases can be used to determine the presence of pulmonary edema. In severe cases, use of humidified oxygen and assisted ventilation including positive and expiratory pressure (PEEP) may be needed.

Parenteral steroids may be useful in limiting the extent of pulmonary damage.

**SKIN:** Wash exposed area thoroughly with soap and water. Chemical burns from strong acids are generally treated the same as thermal burns.

**EYES:** Irrigate eyes for 15 minutes with sterile saline. If irritation, pain, swelling, photophobia or lacrimation persists, examination by an ophthalmologist is recommended.

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## 5. Fire Fighting Measures

**Fire:**

Not considered to be a fire hazard. Exposure to heat generates phosphinic 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.

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## 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!

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## **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.

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## **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.

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## 9. Physical and Chemical Properties

**Appearance:** Colorless to yellowish liquid.

**Odor:** Odorless.

**Water Solubility:** Miscible in water.

**Specific Gravity:** 1.210-1.265

**pH:** 2 at 1 wt/wt%

**% 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.

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## 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.

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## 11. Toxicological Information

**Acute Eye Irritation:** No test data found for product.

**Acute Skin Irritation:** No test data found for product.

**Acute Dermal Toxicity:** No test data found for product.

**Acute Respiratory Irritation:** No test data found for product.

**Acute Inhalation Toxicity:** No test data found for product.

**Acute Oral Toxicity:** No test data found for product.

**Chronic Toxicity:** This product does not contain any substances that are considered by OSHA, NTP, LARC or ACGIH to be “probable” or “suspected” human carcinogens.

No additional test data found for product.

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## 12. Ecological Information

**Environmental Fate:** No information found.

**Environmental Toxicity:** No information found.

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## 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.

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## 14. Transport Information

The listed transportation classification does not address regulatory variations due to changes in package size, mode of shipment or other regulatory descriptors.

**Proper Shipping Name: CORROSIVE LIQUID, ACIDIC, INORGANIC,  
N.O.S. (HYPOPHOSPHOROUS ACID)**

**Hazard Class: 8**

**UN/NA: 3264**

**Packing Group: II**

**Labels: Corrosive**  
**Emergency Guide #: 154**

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## 15. Regulatory Information

-----\Chemical Inventory Status - Part 1\-----				
Ingredient	TSCA	EC	Japan	Australia
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.
Hypophosphorous Acid (6303-21-5)	Yes	Yes	No	Yes
Water (7732-18-5)	Yes	Yes	No	Yes

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-----\Federal, State & International Regulations - Part 1\-----				
Ingredient	-SARA 302-		-----SARA 313-----	
	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\-----			
Ingredient	CERCLA	-RCRA-	-TSCA-
		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: No  
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.

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**16. Other Information**

**NFPA Ratings:** Health: **2**, Moderate    Flammability: **1**, slight.    Reactivity: **1**, slight

**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.

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**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:**

MSDS Section(s) changed since last revision of document include: 8.

**Disclaimer:**

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