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KAIDA YISHENG CO., LTD.  
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## 原材料说明 MATERIAL SPECIFICATION

原材料 Material: 1-HYDROXY ETHYLIDENE-1,1-DIPHOSPHONIC ACID (HEDP 60%)

批号 Batch No: 1503261039 分子式 Formula: C<sub>2</sub>H<sub>8</sub>O<sub>7</sub>P<sub>2</sub>

分子量 Molecular Weight: 206

外观 Appearance: COLORLESS TRANSPARENT LIQUID

包装 Package: 290KG PLASTIC DRUM NET EACH

Analysis	Unit	Standard	Results
Appearance		Colorless to light yellow transparent liquid	Colorless transparent liquid
Active content	%	58.0-62.0	60.79
Phosphorous acid(as PO <sub>3</sub> <sup>3-</sup> )	%	1.0 max	0.79
Phosphoric acid (as PO <sub>4</sub> <sup>3-</sup> )	%	0.6 max	0.34
Chloride (as Cl <sup>-</sup> )	%	0.01 max	0.0022
PH (1% water solution)		2.0 max	1.66
Density @ 20°C	g/cm <sup>3</sup>	1.43-1.47	1.451
Fe	mg/L	10 max	4.10
Color APHA (Hazen)		30 max	20
Ca sequestration(mg CaCO <sub>3</sub> /g)		500.0min	514.96



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## MSDS FOR

### 1-HYDROXY ETHYLIDENE-1,1-DIPHOSPHONIC ACID (HEDP 60%)

#### 1. PRODUCT

**Product name:** 1-hydroxy ethylidene-1,1-diphosphonic acid (HEDP)

**Company information:**

KAIDA YISHENG CO.,LTD.

1301 BANK OF AMERICA TOWER,12 HARCOURT ROAD CENTRAL,HONG KONG

#### 2. COMPOSITION/INFORMATION ON INGREDIENTS

Components	CAS No.	Concentration range	Units
Concentration		60	%
1-hydroxy ethylidene-1,1-diphosphonic acid	2809-21-4	$\geq 58.0 - \leq 62.0$	%
phosphonic acid	13598-36-2	$\leq 2.0$	%
water	7732-18-5		%

#### 3. HAZARDS IDENTIFICATION

**Emergency overview**

Form: aqueous, liquid

Colour: clear, yellow

Odour: slight to none

**Human health effects**

Risk of serious damage to eyes.

**Environmental effects**

On the basis of available information, this material is not expected to produce any significant adverse environmental effects when recommended use instructions are followed.

#### 4. FIRST AID MEASURES

**General**

Grossly contaminated clothing.

Take off immediately all contaminated clothing.

Wash before re-use.

**Eye contact**

Rinse immediately with plenty of water.

Continue for at least 15 minutes.

Obtain medical attention from an eye specialist.

**Skin contact**

Wash immediately with plenty of water.

Continue for at least 15 minutes.

Obtain medical advice if there are persistent symptoms.

Remove contaminated clothing.

**Inhalation**

Remove patient to fresh air.

Obtain medical advice if there are persistent symptoms.

**Ingestion**

Give water to drink.

Obtain medical advice.

#### 5. FIRE FIGHTING MEASURES

**Extinguishing media**

Water spray, foam, dry chemical, or carbon dioxide

**Exposure hazards**

Decomposes in a fire giving off irritant fumes.



## Combustion products

carbon monoxide (CO), carbon dioxide, phosphines

## Protective equipment

Firefighters, and others exposed, wear self-contained breathing apparatus.

Equipment should be thoroughly decontaminated after use.

## 6. ACCIDENTAL RELEASE MEASURES

### Personal precautions

Use personal protection recommended in section 8.

### Environmental precautions

Keep out of drains and water courses.

### Methods for cleaning up

Contain large spills with dikes and transfer the material to appropriate containers for reclamation or disposal.

Absorb remaining material or small spills with an inert material and then place in a chemical waste container. Neutralize washings with soda ash or lime.

Flush spill area with water.

## 7. HANDLING AND STORAGE

### Handling

Do not get in eyes, on skin, or on clothing.

Avoid breathing vapour or mist.

Keep container closed.

Use with adequate ventilation.

Wash thoroughly after handling.

### Engineering measures

Provide natural or mechanical ventilation to minimize exposure.

If practical, use local mechanical exhaust ventilation at sources of air contamination such as processing equipment.

Provide local exhaust ventilation.

### Storage

Keep in a cool, dry, well ventilated place.

Stable under normal conditions of handling and storage.

Temperature > -25 °C

Use these materials for equipment glass lining, PVC, polypropylene, glass reinforced plastic, polyethylene.

Unsuitable materials of construction mild steel, carbon steel, aluminum, other metals.

## 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

### Occupational exposure limit

No specific occupational exposure limit has been established.

### Respiratory protection

Avoid breathing vapour or mist.

Use approved respiratory protection equipment when airborne exposure is excessive.

If used, full facepiece replaces the need for face shield and/or chemical goggles.

Consult the respirator manufacturer to determine the appropriate type of equipment for a given application.

Observe respirator use limitations specified by the manufacturer.

In case of insufficient ventilation, wear suitable respiratory equipment.

### Hand protection

Wear chemical resistant gloves. Suitable materials : PVC, nitrile (rubber).

### Eye protection

Wear chemical goggles.

Have eye wash facilities immediately available at any location where eye contact can occur.

### Skin protection

Although this product does not present a significant skin concern, minimize skin contamination by following good industrial practice.

Wash thoroughly after handling.

Wear suitable protective clothing.

## 9. PHYSICAL AND CHEMICAL PROPERTIES

**Specific gravity:** 1.440 min @ 20 °C

**pH:** <=2.0 10 g/l @ 25 °C

**Flash point:** Non flammable aqueous solution.

**Water solubility:** Completely miscible

**Partition coefficient n-octanol/water (log Pow):** -3,5 @ 20 °C

**Dynamic viscosity** 46,0 mPa.s @ 20 °C

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20,2 mPa.s @ 40 °C  
10,3 mPa.s @ 60 °C  
5,0 mPa.s @ 90 °C

**Other information**

**Freezing point:** -25 °C

**10. STABILITY AND REACTIVITY**

**Conditions to avoid**

Do not expose to extreme temperatures.

**Materials to avoid**

Attacks many metals.

Corrosive to aluminum and mild steel.

Contact with strong oxidizing agents.

Contact with strong bases.

**Hazardous reactions**

Hazardous polymerization does not occur.

**Hazardous decomposition products**

Decomposition products: carbon monoxide (CO), carbon dioxide, phosphorus oxides (P<sub>x</sub>O<sub>y</sub>).

**11. TOXICOLOGICAL INFORMATION**

**Acute animal toxicity data**

**Oral**

LD50 ,rat, 2.400 mg/kg ,

**Dermal**

LD50 , rabbit, 7.940 mg/kg ,

**Eye irritation**

rabbit, Risk of serious damage to eyes.

**Skin irritation**

rabbit, Not irritating to skin. 24 h

**Repeat dose toxicity:**

rat & dog, diet, subchronic,

Minor effects (less than lesions) were present in some animals at the end of the observation period.

**Repeat dose toxicity:**

rat & dog, diet, chronic,

Minor effects (less than lesions) were present in some animals at the end of the observation period.

**Repeat dose toxicity:**

dog, subcutaneous, chronic,

Adverse effects observed in repeat dose studies.

**Target organs affected**

bone

**Developmental toxicity**

rat & rabbit, gavage, No birth defects were noted in rats given the active ingredient orally during pregnancy.

**Reproductive toxicity**

rat, diet, 2 generation This material had no effect on reproduction or fertility.

**Mutagenicity**

No genetic effects were observed in standard tests using bacterial and animal cells.

**12. ECOLOGICAL INFORMATION**

Data is for parent acid.

**Environmental Toxicity**

Invertebrates:

48 h, EC50 Water flea (Daphnia magna) 527 mg/l

Fish:

96 h, LC50 Rainbow trout (Oncorhynchus mykiss) 368 mg/l

96 h, LC50 Bluegill sunfish (Lepomis macrochirus) 868 mg/l

Algae:

96 h EC50 Algae 7,2 mg/l

Algal growth inhibition is due to ability of this product to complex materials not to toxicity per se.

**Environmental fate**

COD (Chemical oxygen demand) 263 mg/g

ThOD (Theoretical oxygen demand) 280 mg/g

Biodegradation

Zahn-Wellens Dissolved Organic Carbon removed 33 % 28 d

Modified OECD Screening theoretical CO<sub>2</sub> evolution 2 % 70 d

Modified SCAS Dissolved Organic Carbon removed 90 %

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Bioconcentration factor (BCF) Closed Bottle BOD30/COD 5 % Degrades after acclimatization  
not expected to bioaccumulate

### 13. DISPOSAL CONSIDERATIONS

All local and national regulations should be followed.

Small quantities : Adjust pH between 6 and 9 and flush away with plenty of water.

### 14. TRANSPORT INFORMATION

The data provided in this section is for information only. Please apply the appropriate regulations to properly classify your shipment for transportation.

**Hazard Class** 8  
**Hazard Identification number** UN3265  
**Packing Group** Packing Group III

### 15. REGULATORY INFORMATION

#### EC label

EU Dangerous Preparations Directive 1999/45/EC.

#### Xi - Irritant

R41 - Risk of serious damage to eyes.

S25 - Avoid contact with eyes.

S26 - In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.

S28 - After contact with skin, wash immediately with plenty of water.

S39 - Wear eye/face protection.

#### Contains

1-hydroxy ethylidene-1,1-diphosphonic acid

#### Other regulation

Germany - WGK (Wassergefährdungsklasse) : 2.

### 16. OTHER INFORMATION

Product use: Corrosion inhibitors.

	Health	Fire	Reactivity	Additional Information
Suggested NFPA Rating:	1	0	0	
Suggested HMIS Rating:	1	0	0	B

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