



Safety Data Sheet




24 hour Emergency Response No. +86-532-8027466



SECTION 1: PRODUCT AND COMPANY IDENTIFICATION

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| <h1>IR-HEDP</h1> | Shandong IRO Water Treatment Co.,Ltd Mushi Town, Tengzhou, Zaozhuang, China IRO phone: +86-532-8027466 |
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PRODUCT USE: Water Treatment Application Formulation

| Personal Protection Equipment | GHS Pictograph | DOT Symbol(s) | HMIS (See last page for guide to HMIS) | | | | | | | | | |
|-----------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------|---|--------------|---|-----------------|---|---------------------|---|
|  Safety Glasses |  Protective Apron |  | IMO/IMDG Class : 8 UN 3265 Pack Grp : III DOT Label: Corrosive | <table border="1"> <tr><td style="background-color: #000080; color: white;">HEALTH</td><td style="background-color: #000080; color: white;">2</td></tr> <tr><td style="background-color: #FF0000; color: white;">FLAMMABILITY</td><td style="background-color: #FF0000; color: white;">0</td></tr> <tr><td style="background-color: #FFA500; color: white;">PHYSICAL HAZARD</td><td style="background-color: #FFA500; color: white;">1</td></tr> <tr><td style="background-color: #000000; color: white;">PERSONAL PROTECTION</td><td style="background-color: #000000; color: white;">C</td></tr> </table> | HEALTH | 2 | FLAMMABILITY | 0 | PHYSICAL HAZARD | 1 | PERSONAL PROTECTION | C |
| HEALTH | 2 | | | | | | | | | | | |
| FLAMMABILITY | 0 | | | | | | | | | | | |
| PHYSICAL HAZARD | 1 | | | | | | | | | | | |
| PERSONAL PROTECTION | C | | | | | | | | | | | |

SECTION 2: HAZARDS IDENTIFICATION

EMERGENCY OVERVIEW

WARNING! CAUSES IRRITATION TO SKIN, EYES AND RESPIRATORY TRACT; BURNS IN RESPIRATORY TRACT AND MUCOUS MEMBRANE. HARMFUL IF SWALLOWED OR INHALED.

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| <p>GHS CLASSIFICATION Signal Word Warning: DANGER</p> <div style="text-align: center;">  </div> <p>IRRIANT CORROSIVE TO METALS</p> <p>GHS Hazard Statements H290: May be corrosive to metals. H303: May be harmful if swallowed. H314: Causes severe skin burns and eye damage.</p> | <p>Prevention Precautionary Statements P234: Keep only in original container. P260: Do not breathe. P264: Wash hands thoroughly after handling. P280: Wear protective gloves/eye protection/face protection. P301+P330+P331: IF SWALLOWED: rinse mouth. Do NOT induce vomiting. P303+P361+P353: IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower.</p> <p>Response Precautionary Statements P304+P340: IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing. P305+P351+P338: IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. P501: Dispose of contents/container through a waste management company authorized by the local government.</p> |
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RESPONSE: See section 4: **FIRST AID MEASURES**. Also, see below:

- Do not handle until all safety precautions have been read and understood.
- Wear gloves, eye protection and face protection (as needed to prevent skin and eye contact Wash hands or liquid-contacted skin thoroughly after handling.
- Do not eat, drink or smoke when using this product.

STORAGE: Store in a well ventilated place. Keep cool. Store locked up. Keep container tightly closed. Use only approved containers.

DISPOSAL: Dispose of contents/containers to approved disposal site in accordance with local, regional, and/or international regulations.



Safety Data Sheet

24 hour Emergency Response No. +86-532-8027466



| SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS | | |
|---------------------------------------------------|-----------|----------|
| COMPONENT | CAS No. | WEIGHT % |
| 1-Hydroxyethylidene-1, 1-Diphosphonic Acid (HEDP) | 2809-21-4 | 60% |
| Water | 7732-18-5 | 40% |

| SECTION 4: FIRST-AID MEASURES |
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| <p>Inhalation: When safe to enter area, remove from exposure. Use a bag valve mask or similar device to perform artificial respiration (rescue breathing) if needed. Get medical attention.</p> <p>Skin Contact: Remove contaminated clothing, jewelry and shoes immediately. Wash with soap or mild detergent and large amounts of water until no evidence of chemical remains (at least 15 – 20 minutes). Get medical attention, if needed.</p> <p>Eye Contact: Wash eyes immediately with large amounts of water or normal saline, occasionally lifting upper and lower lids, until no evidence of chemical remains. Get medical attention immediately.</p> <p>Ingestion: Never make an unconscious person vomit or drink fluids. Give water or milk. If vomiting occurs, keep head lower than hips to help prevent aspiration. If person is unconscious, turn head to side. Get medical attention immediately.</p> |

| SECTION 5: FIRE-FIGHTING MEASURES |
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| <p>Fire And Explosion Hazard: Slight fire hazard. Dust/air mixtures may ignite or explode.</p> <p>Extinguishing Media: Regular dry chemical, carbon dioxide, water, and regular foam.</p> <p>Large fires: Use regular foam or flood with fine water spray.</p> <p>Fire Fighting: Move container from fire area if it can be done without risk. Cool containers with water spray until well after the fire is out. Stay away from the ends of tanks. Use extinguishing agents appropriate for surrounding fire. Do not get water directly on material.</p> <p>Large Fires: Flood with fine water spray. Reduce vapors with water spray. Cool containers with water spray until well after the fire is out. Apply water from a protected location or from a safe distance. Avoid inhalation of material or combustion by-products. Stay upwind and keep out of low areas.</p> |

| SECTION 6: ACCIDENTAL RELEASE MEASURES |
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| <p>Occupational Spill: Do not touch spilled material. Stop leak if possible without personal risk.</p> <p>Small Spills: Absorb with sand or other non-combustible material. Collect spilled material in appropriate container for disposal.</p> <p>Small Dry Spills: Move containers away from spill to a safe area.</p> <p>Large Spills: Dike for later disposal. Keep unnecessary people away, isolate hazard area and deny entry.</p> |

| SECTION 7: HANDLING AND STORAGE |
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| <p>Handling: Do not get into eyes, on skin, or on clothing. Avoid breathing vapor or mist. Keep container closed. Use with adequate ventilation. Wash thoroughly after handling.</p> <p>Storage: Store in cool, dry, well ventilated area above 0oC. Product is stable under normal conditions of handling and storage.</p> |



Safety Data Sheet



24 hour Emergency Response No. +86-532-8027466

Emptied containers retain vapor and product residue. Observe all recommended safety precautions until container is cleaned, reconditioned, or destroyed. The reuse of this material's container for non-industrial purposes is prohibited and any reuse must be in consideration of the data provided in this material safety data sheet.

Suitable Materials Of Construction: Glass lining, PVC, polypropylene, glass reinforced plastic, and polyethylene.

Unsuitable Materials Of Construction: Mild steel, carbon steel, aluminum, and other metals.

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION EQUIPMENT (PPE)

Exposure limit(s): Exposure limits are listed below, if they exist.

Exposure Limits: No occupational exposure limits established.

Ventilation: Provide local exhaust ventilation system. Ventilation equipment should be explosion-resistant if explosive concentrations of material are present. Ensure compliance with applicable exposure limits.

Eye Protection: Wear splash resistant safety goggles. Provide an emergency eye wash fountain and quick drench shower in the immediate work area.

Clothing: Wear appropriate chemical resistant clothing.

Protective Material Types: Rubber

Respirator: Under conditions of frequent use or heavy exposure, respiratory protection may be needed. Respiratory protection is ranked in order from minimum to maximum. Consider warning properties before use. Any dust, mist and fume respirator. Any air-purifying respirator with a high-efficiency particulate filter. Any powered, air purifying respirator with a dust, mist and fume filter. Any powered, air-purifying respirator with a high-efficiency particulate filter.

For unknown concentrations or immediately dangerous to life or health: Any supplied-air respirator with full face-piece and operated in a pressure-demand or other positive-pressure mode in combination with a separate escape supply, or any self-contained breathing apparatus with a full face-piece.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

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|-----------------------------------|----------------------------------------------------------------|
| Physical State: | Liquid |
| Appearance: | Clear, colorless to pale straw |
| Odor: | Odorless |
| Molecular Formula: | $\text{CH}_3\text{C}(\text{H}_2\text{O}_3\text{P})_2\text{OH}$ |
| Boiling Point: | 226°F, 108°C |
| Melting point: | < 34°F, < 1°C |
| Specific gravity: | 1.43 - 1.45 |
| pH : | 2 - 3 |
| Vapor Pressure: | 23.8 @ 77°F |
| Vapor Density: | 0.8 |
| Decomposition Temperature: | Unknown |
| Evaporation Rate: | 1 (N-Butyl Acetate = 12) |
| Water solubility: | Complete |
| Viscosity: | Unknown |
| Corrosion Rate (MPY): | Unknown |

NOTE: the physical data above are typical values and should not be construed as a specification.



Safety Data Sheet



24 hour Emergency Response No. +86-532-8027466

SECTION 10: STABILITY AND REACTIVITY

Reactivity: Stable at normal temperature and pressure.

Conditions To Avoid: Avoid heat, flames, sparks and other sources of ignition. Dangerous gases may accumulate in confined spaces. May ignite or explode on contact with combustible materials.

Incompatibilities: Bases, amines, metals, reducing agents, oxidizing materials.

Alkalis: Violent reaction

Amines: Incompatible

Metals: May be corrosive in the presence of moisture

Metal salts of sulfides: May release toxic gases

- **Oxidizers:** Fire and explosion hazard.
- **Sulfites:** May release toxic gases

Hazardous Decomposition: Thermal decomposition products: phosphine, inorganic acids, and oxides of phosphorus.

Polymerization: Will not occur.

SECTION 11: TOXICOLOGICAL INFORMATION

Toxicological information on this product or its components appear in this section when such data is available.

Toxicity Data: 1800 mg/kg oral-mouse LD50

Local Effects: Irritant skin, eye corrosive, inhalation ingestion.

Acute Toxicity Level: Moderately toxic: ingestion

Reproductive Effects Data:

- 40 mg/kg intraperitoneal-mouse TDLo 7 day/s pregnant female continuous;
- 200 mg/kg intraperitoneal-mouse TDLo 7 day/s pregnant female continuous;
- 200 mg/kg intraperitoneal-mouse TDLo 7 day/s pregnant female continuous
- 200 mg/kg intraperitoneal-mouse TDLo 8 day/s pregnant female continuous;
- 200 mg/kg subcutaneous-mouse TDLo 13 day/s pregnant female continuous;
- 1400 mg/kg subcutaneous-mouse TDLo 11-17 day/s pregnant female continuous;

HEALTH EFFECTS:-

INHALATION:

Acute Exposure: Aqueous solutions have been reported to be corrosive to all mucous membranes.

Chronic Exposure: No data available.

Skin Contact: Acute Exposure: Aqueous solutions may cause burning and itching.

Chronic Exposure: Repeated or prolonged exposure to irritants may cause dermatitis.

Eye Contact: Acute Exposure: Aqueous solutions may cause burning and itching.

Chronic Exposure: Repeated or prolonged exposure to irritants may cause conjunctivitis.

Ingestion: Acute Exposure: Aqueous solutions have been reported to be corrosive to all mucous membranes.

Chronic Exposure: Administration of 50, 150 or 500 mg/kg/day for 24 months resulted in reduced body weights and changes in liver, spleen and kidney weights or weight ratios in the high dose group. The no-effect level was considered to be 150 mg/kg/day.



Safety Data Sheet



24 hour Emergency Response No. +86-532-8027466

SECTION 12: ECOLOGICAL INFORMATION

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 (*Selenastrum capricornutum*) 3 mg/l. Algal growth inhibition is due to ability of this product to complex materials not to toxicity per se.

ENVIRONMENTAL FATE:-

Biodegradation: Zahn-Wellens Dissolved Organic Carbon removed 33 % 28 d
Modified OECD Screening: theoretical CO₂ evolution 2 % 70 d
Modified SCAS: Dissolved Organic Carbon removed 90 %
Closed Bottle BOD30/COD: 5 % Degrades after acclimatization
Bioconcentration Factor (BCF): Not expected to bioaccumulate.

SECTION 13: DISPOSAL

Environmental precautions: CAUTION: Keep spills and cleaning runoff out of municipal sewers and open bodies of water.

Disposal/Waste Classification: When a decision is made to discard this material as supplied, it does not meet RCRA's characteristic definition of ignitability, corrosivity, or reactivity, and is not listed in 40 CFR 261.33. The toxicity characteristic (TC), however, has not been evaluated by the Toxicity Characteristic Leaching Procedure (TCLP).

For disposal, incinerate or landfill at a permitted facility in accordance with local, state, and federal regulations.

SECTION 14: TRANSPORT INFORMATION

DOT Proper Shipping Name: Corrosive liquid, acidic, organic, n.o.s. (1-Hydroxyethylidene-1, 1-Diphosphonic Acid)

DOT Class: 8

DOT ID Number: UN 3265

DOT Pack Group: II

DOT Label: Corrosive

IMO Proper Shipping Name: Corrosive liquid, acidic, organic, n.o.s. (1-Hydroxyethylidene-1, 1-Diphosphonic Acid)

IMO UN Number: 3265

IMO UN Class: 8

IMO Subsidiary Risk Label : -

IATA UN ID Number: 3265

IATA Proper Shipping Name: Corrosive liquid, acidic, organic, n.o.s. (1-Hydroxyethylidene-1, 1-Diphosphonic Acid)

IATA Label: Corrosive

AFI Proper Shipping Name: Corrosive liquid, acidic, organic, n.o.s. (1-Hydroxyethylidene-1, 1-Diphosphonic Acid)



Safety Data Sheet



24 hour Emergency Response No. +86-532-8027466

AFI Class: 8

AFI ID Number: UN 3265

AFI Pack Group: II

AFI Label: Corrosive

n.o.s. Shipping Name: 1-Hydroxyethylidene-1,1-Diphosphonic Acid

Transportation classifications may vary by container volume and may be influenced by regional or country variations in regulations.

SECTION 15: REGULATORY INFORMATION

The following statutes, regulations and standards have the related prescribes on chemicals in terms of safe use, storage, transportation, loading and unloading, classification and symbol S, etc.

- Provisions on the Environmental Administration of New Chemical Substances.
- The Regulation on Chemicals Safe Use at Working Site
- Law on Prevention and Control of Environmental Pollution Caused by Solid Waste.
- Occupational Exposure Limits for Hazardous Agent in The workshop Chemical Hazardous Agents (GBZ 2.1).

TSCA Status: Y

TSCA 12(b) export notification: Not listed

CERCLA Section 103 (40 CFR 302.4): N

SARA Section 302 (40 CFR 355.30): N TPQ

SARA Section 304 (40 CFR 355.40): N RQ

SARA Section 313 (40 CFR 372.65): N

California Prop 65 Status: N

SARA Acute Hazard: Y

SARA Chronic Hazard: N

SARA Fire Hazard: N

SARA Reactivity Hazard: N

SARA Sudden Release Hazard: N

WHMIS Classification: N

INTERNATIONAL REGULATIONS:

EU Risk and Safety Phrases:

R: 22-36-38 Harmful if swallowed. Irritating to eyes. Irritating to skin

S: 2-13-24-25-26-36-46

China. Inventory of Existing Chemical Substances in China (IECSC):

All intentional components are listed on the inventory, are exempt, or are supplier certified

SECTION 16: OTHER INFORMATION

Further information: The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material



Safety Data Sheet

24 hour Emergency Response No. **+86-532-8027466**



designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.

Information Source and References: This SDS is prepared by IRO Specialty Chem. USA, Inc. from information supplied by internal references within our company

Shandong IRO Water Treatment Co. Ltd., Shandong Province, China: Urges each customer or recipient of this SDS to study it carefully and consult appropriate expertise, as necessary or appropriate, to become aware of and understand the data contained in this SDS and any hazards associated with the product. The information herein is provided in good faith and believed to be accurate as of the effective date shown above. However, no warranty, express or implied, is given.

Regulatory requirements: These are subject to change and may differ between various locations. It is the buyer's/user's responsibility to ensure that his activities comply with all federal, state, provincial or local laws. The information presented here pertains only to the product as shipped. Since conditions for use of the product are not under the control of the manufacturer, it is the buyer's/user's duty to determine the conditions necessary for the safe use of this product. Due to the proliferation of sources for information such as manufacturer, specific SDSs, we are not and cannot be responsible for SDSs obtained from any source other than ourselves. If you have obtained an SDS from another source or if you are not sure that the SDS you have is current, please contact us (<https://www.irowater.com>) for the most current version. **Date of production of SDS: 7/06/2015:**

Author: CFrayne

| HAZARDOUS MATERIALS IDENTIFICATION SYSTEM | | | | | |
|-------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------|---------------------------------|----------|---------------------------------------------------------------------|
| HAZARD INDEX | | PERSONAL PROTECTION INDEX | | | |
| 4 = SEVERE HAZARD | An asterisk(*) or other designation corresponds to additional information on a data sheet or separate chronic effects notification | A | | | |
| 3 = SERIOUS HAZARD | | B | | | |
| 2 = MODERATE HAZARD | | C | | | |
| 1 = SLIGHT HAZARD | | D | | | |
| 0 = MINIMAL HAZARD | Additional Information | E | | | |
| PERSONAL PROTECTION EQUIPMENT | | F | | | |
| A Safety Glasses | n Splash Goggles | O Face Shield & Eye Protection | P Gloves | G | |
| q Boots | r Synthetic Apron | S Full Suit | t Head Respirator | H | |
| u Vapor Respirator | w Chem & Vapor Respirator | y Full Face Respirator | Z Filter Head or Mask | I | |
| | | | | J | |
| | | | | K | |
| | | | | X | Consult your supervisor or S.O.P. for "SPECIAL" handling directions |