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SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006

Product: Hydroxyethylidene Diphosphonic Acid (HEDP) 60%	**Revision date:** 2026-10-29	**Version:** 1.0	**Brand:** Richest

SECTION 1: Identification of the substance/mixture and of the company/undertaking

Product name	Hydroxyethylidene Diphosphonic Acid (HEDP) 60%
Synonyms	1-Hydroxyethylidene-1,1-diphosphonic acid; Etidronic acid
CAS No.	2809-21-4
EC No.	220-552-8
Molecular formula	C2H8O7P2
Molecular weight	206.03 g/mol
Relevant identified uses	Scale and corrosion inhibitor for industrial water treatment; chelating agent
Uses advised against	None
Company	Richest Group Ltd.
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SECTION 2: Hazards identification

GHS Classification	Corrosive to Metals Category 1; Acute Toxicity (Oral) Category 5; Skin corrosion/irritation Category 1C; Serious eye damage/eye irritation Category 1; Specific target organ toxicity - single exposure Category 2 (Systemic toxicity)
Pictogram(s)	GHS05 (Corrosion); GHS07 (Exclamation mark); GHS08 (Health hazard)
Signal word	Danger

Hazard statement(s)	H290 May be corrosive to metals H303 May be harmful if swallowed H314 Causes severe skin burns and eye damage H371 May cause damage to organs (Systemic toxicity)
Precautionary statement(s)	P234 Keep only in original container P260 Do not breathe dust/fume/gas/mist/vapors/spray P264 Wash skin thoroughly after handling P280 Wear protective gloves/protective clothing/eye protection/face protection P301+P330+P331 IF SWALLOWED: Rinse mouth. Do NOT induce vomiting P303+P361+P353 IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower P304+P340+P310 IF INHALED: Remove person to fresh air and keep comfortable for breathing. Immediately call a POISON CENTER/doctor 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/doctor P405 Store locked up P406 Store in corrosive resistant container with a resistant inner liner P501 Dispose of contents/container to an approved waste disposal plant
Other hazards	Forms sparingly soluble complexes with calcium and other multivalent metal ions.

SECTION 3: Composition/information on ingredients

Component	1-Hydroxyethane-1,1-diphosphonic acid
CAS No.	2809-21-4
EC No.	220-552-8
Classification	Met. Corr. 1; Acute Tox. 5; Skin Corr. 1C; Eye Dam. 1; STOT SE 2; H290, H303, H314, H371
Concentration (%)	60%

SECTION 4: First aid measures

If inhaled	Remove person to fresh air and keep comfortable for breathing. Immediately call a POISON CENTER or doctor.
In case of skin contact	Take off all contaminated clothing immediately. Rinse skin well with water/shower. Call a POISON CENTER or doctor.
In case of eye contact	Rinse with plenty of water. Remove contact lenses if easy to do. Immediately call a POISON CENTER or doctor.
If swallowed	Immediately call a POISON CENTER or doctor. Rinse mouth. Do NOT induce vomiting.
Most important symptoms and effects	Causes severe skin burns and serious eye damage. May cause damage to
Indication of any immediate medical attention	Treat symptomatically. Immediate medical attention required.

SECTION 5: Firefighting measures	
Suitable extinguishing media	Dry powder, foam, water spray, carbon dioxide (CO2)
Unsuitable extinguishing media	None known
Special hazards arising from the chemical	May decompose on heating to generate carbon monoxide, carbon dioxide and oxides of phosphorus.
Advice for firefighters	Use personal protective equipment. Evacuate personnel to safe areas. Remove undamaged containers from fire area if it is safe to do so.

SECTION 6: Accidental release measures	
Personal precautions, protective equipment and emergency procedures	Wear suitable protective equipment. Keep people away from and upwind of spill/leak. Ensure adequate ventilation. Entry of non-involved personnel should be controlled around the leakage area by roping off.
Environmental precautions	Prevent product from entering drains.
Methods and materials for containment and cleaning up	Collect as much of the spill as possible with a suitable absorbent material. Dispose of collected material in accordance with local and national regulations.

SECTION 7: Handling and storage	
Precautions for safe handling	Prevent generation of vapor or mist. Ensure adequate ventilation; handle in closed system or provide appropriate exhaust ventilation. Avoid contact with skin, eyes and clothing. Wear personal protective equipment. Wash hands and face thoroughly after handling. Keep only in original packaging.
Conditions for safe storage, including any incompatibilities	Keep container tightly closed. Store in a cool and shaded area. Store locked up. Store in corrosive resistant container with a resistant inner liner. Keep away from oxidizing agents and strong bases.

SECTION 8: Exposure controls/personal protection	
Occupational exposure limit values	Contains no substances with occupational exposure limit values
Biological limit values	None established
Appropriate engineering controls	Install a closed system or local exhaust. Also install safety shower and eye bath.
Eye/face protection	Safety glasses or safety goggles. Face-shield, if the situation requires.
Skin protection	Impervious gloves.

Body protection	Impervious protective clothing.
Respiratory protection	Gas mask; self-contained breathing apparatus when necessary.
Thermal hazards	Not applicable

SECTION 9: Physical and chemical properties

Physical state	Liquid
Colour	Colorless - yellow
Odour	Slight, characteristic
Melting point / freezing point	-40 °C
Boiling point or initial boiling point and boiling range	105 °C
Flammability	Not flammable (aqueous solution)
Lower and upper explosion limit / flammability limit	Not applicable (aqueous solution)
Flash point	Not applicable (aqueous solution; does not flash)
Auto-ignition temperature	Not applicable (aqueous solution)
Decomposition temperature	Decomposes on heating above ca. 200 °C, releasing oxides of phosphorus and carbon oxides
pH	≤2.0 (1% solution)
Kinematic viscosity	ca. 40 - 50 mm2/s at 20 °C (dynamic viscosity: ca. 60 - 70 mPa·s, 60% solution)
Solubility	Miscible with water
Partition coefficient n-octanol/water	log Pow: -2.54
Vapour pressure	< 3.2 kPa at 25 °C
Density and/or relative density	1.45 g/cm3 at 20 °C
Relative vapour density	Not applicable (aqueous solution)
Particle characteristics	Not applicable (liquid)

SECTION 10: Stability and reactivity

Reactivity	Corrosive to metals; reacts with strong bases and oxidizing agents
Chemical stability	Stable under normal conditions.

Possibility of hazardous reactions	None under normal processing.
Conditions to avoid	High temperatures
Incompatible materials	Oxidizing agents, strong bases
Hazardous decomposition products	Carbon monoxide, carbon dioxide (CO2), oxides of phosphorus

SECTION 11: Toxicological information

Acute toxicity - Oral / Inhalation / Dermal	LD50 Oral - Rat: ca. 2,400 - 3,100 mg/kg (minimally toxic after single ingestion, Acute oral toxicity Category 5) Inhalation/Dermal: No data available
Skin corrosion/irritation	Corrosive, Category 1C (responses after 1 - 4 h exposure, observations up to 14 days)
Serious eye damage/irritation	Irreversible effects on the eye
Respiratory or skin sensitization	Not classified (based on available data)
Germ cell mutagenicity	Not classified (based on available data)
Carcinogenicity	Not classified (based on available data); not listed by IARC
Reproductive toxicity	Not classified (based on available data)
STOT - single exposure	May cause damage to organs (Systemic toxicity)
STOT - repeated exposure	Not classified (based on available data)
Aspiration hazard	Not classified (based on available data)

SECTION 12: Ecological information

Toxicity to fish / daphnia / algae	Fish: LC50 - Oncorhynchus mykiss - 360 - 868 mg/L - 96 h; Daphnia: EC50 - Daphnia magna - > 500 mg/L - 48 h; Algae: ErC50 - Pseudokirchneriella subcapitata - ca. 24 mg/L - 96 h (read-across, phosphonates)
Persistence and degradability	Not readily biodegradable (inherently biodegradable); strongly chelating phosphonate
Bioaccumulative potential	Low bioaccumulation potential (log Pow: -2.54)
Mobility in soil	Adsorbs to soil and sediment; low mobility in dissolved form
Other adverse effects	May contribute to eutrophication of water bodies (phosphorus content)

SECTION 13: Disposal considerations

Product disposal methods	Dispose in accordance with local and national regulations. Entrust disposal to a licensed waste disposal company.
Contaminated packaging	Dispose in accordance with local and national regulations. Before disposal of used container, remove contents completely.

SECTION 14: Transport information

UN Number (ADR/RID, IMDG, IATA)	UN 3265
UN Proper Shipping Name	CORROSIVE LIQUID, ACIDIC, ORGANIC, N.O.S. (Hydroxyethylidene Diphosphonic Acid solution)
Transport hazard class(es)	8
Packing group	III
Environmental hazards (Marine pollutant)	No
Special precautions for user	EmS Code: F-A, S-B

SECTION 15: Regulatory information

Safety, health and environmental regulations specific for the product	EINECS: Listed (220-552-8) / TSCA: All substances listed as active / IECSC: Listed / China Catalog of Hazardous Chemicals 2015: Not Listed

SECTION 16: Other information

Full text of H-Statements	H290 May be corrosive to metals H303 May be harmful if swallowed H314 Causes severe skin burns and eye damage H371 May cause damage to organs
Revision date	2026-10-29
Version	1.0

Abbreviations and acronyms: CAS: Chemical Abstracts Service; EC: European Commission; EINECS: European Inventory of Existing Commercial Chemical Substances; ADR: European Agreement concerning the International Carriage of Dangerous Goods by Road; RID: Regulation concerning the International Carriage of Dangerous Goods by Rail; IMDG: International Maritime Dangerous Goods; IATA: International Air Transport Association; TWA: Time Weighted Average; STEL: Short Term Exposure Limit; LD50: Lethal Dose 50%; LC50: Lethal Concentration 50%; EC50: Effective Concentration 50%; PBT: Persistent, Bioaccumulative and Toxic; vPvB: very Persistent and very Bioaccumulative; SDS: Safety Data Sheet.

References: ECHA - European Chemicals Agency, https://echa.europa.eu/; IPCS - International Chemical Safety Cards (ICSC), http://www.ilo.org/; HSDB - Hazardous Substances Data Bank; eChemPortal - OECD Global Portal to Information on Chemical Substances; ERG - Emergency Response Guidebook by U.S. DOT.

Disclaimer: The information in this SDS is only applicable to the specified product and is provided in good faith. It is based on the knowledge available to Richest Group Ltd. at the date of issue and is intended to describe the product for the purposes of health,

safety and environmental requirements only. It does not constitute any guarantee of the properties of the product. Richest Group Ltd. shall not be held liable for any damage resulting from handling or from contact with the above product.