



SAFETY DATA SHEET (SDS / MSDS) • HEDP 60% • ZEELCHEM™ 101

MATERIAL SAFETY DATA SHEET

HEDP 60% – ZEELCHEM™ 101

1-Hydroxyethylidene-1,1-diphosphonic acid (Etidronic Acid) • CAS 2809-21-4

SDS No. Company	ZEEL-SDS-101-60 ZEEL PRODUCT	Revision Product Code	03 ZEELCHEM™ 101	Issue Date Language	12-Aug-2026 English
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1. IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING

Product identifier	HEDP 60% – ZEELCHEM™ 101
Chemical name	1-Hydroxyethylidene-1,1-diphosphonic acid
Synonyms	HEDP; Etidronic acid; 1-hydroxyethane-1,1-diphosphonic acid
CAS / EC	2809-21-4 / 220-552-8
Recommended uses	Industrial water treatment, scale inhibition, corrosion inhibition, chelation/sequestration, detergent/cleaner formulations and industrial process applications.
Uses advised against	Do not use for food, pharmaceutical, medical or consumer applications unless specifically authorized and assessed.
Supplier	ZEEL PRODUCT
Contact	M: +91-9724593964 Email: zeelchem@gmail.com Web: www.zeelchem.online
Emergency information	No dedicated 24-hour emergency number supplied. Contact the supplier and applicable local emergency services.

2. HAZARDS IDENTIFICATION

Classification note: HEDP 60% is an acidic aqueous formulation. The final legal classification must be verified against the exact ZEELCHEM™ 101 formulation, concentration, impurities and applicable Indian/GHS requirements before official regulatory issue.

Signal word	DANGER
Likely GHS hazards	Corrosive/serious eye and skin damage hazards may apply to concentrated HEDP formulations; mist may irritate the respiratory tract.
Hazard statements	H290: May be corrosive to metals. H314: Causes severe skin burns and eye damage. H335: May cause respiratory irritation. — Final label classification to be confirmed for the commercial formulation.
Pictograms	GHS05 – Corrosion; GHS07 – Exclamation mark, where applicable.
Other hazards	Strong acidic character; avoid uncontrolled contact with incompatible materials.

Precautionary statements: P234 Keep only in original packaging. P260 Do not breathe mist/vapours. P264 Wash exposed skin thoroughly after handling. P271 Use only outdoors or in a well-ventilated area. P280 Wear protective gloves/protective clothing/eye/face protection. P301+P330+P331 IF SWALLOWED: Rinse mouth. Do NOT induce vomiting. P303+P361+P353 IF ON SKIN/HAIR: Remove contaminated clothing and rinse skin with water. P304+P340 IF INHALED: Move to fresh air. P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes; remove contact lenses if easy; continue rinsing. P310 Seek immediate medical attention for significant exposure. P390 Absorb spillage to prevent material damage. P406 Store in corrosion-resistant container with resistant inner liner. P501 Dispose according to applicable regulations.

3. COMPOSITION / INFORMATION ON INGREDIENTS

Mixture	Aqueous HEDP solution.
1-Hydroxyethylidene-1,1-diphosphonic acid	CAS 2809-21-4; approximately 60% w/w active content.
Water	CAS 7732-18-5; approximately 40% w/w.
Product specification	HEDP 60% active; exact batch value should be confirmed by the current COA.



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4. FIRST-AID MEASURES

- General: Remove person from exposure and obtain medical attention for significant exposure, burns, persistent symptoms or eye contact.
- Inhalation: Move to fresh air, keep at rest and monitor breathing. Seek medical attention if irritation or breathing difficulty persists.
- Skin contact: Immediately remove contaminated clothing. Flush skin with plenty of water for at least 15 minutes. Obtain medical attention for burns/irritation.
- Eye contact: Immediately flush cautiously with water for at least 15–20 minutes. Remove contact lenses if easy. Continue rinsing and obtain urgent medical attention.
- Ingestion: Rinse mouth. Do not induce vomiting. Never give anything by mouth to an unconscious person. Obtain medical attention.
- Most important symptoms: Burning, pain, redness, corrosive injury and severe eye damage; respiratory irritation from mist.

5. FIREFIGHTING MEASURES

- Suitable media: Water spray, dry chemical, foam or carbon dioxide as appropriate for the surrounding fire.
- Specific hazards: Aqueous product is not expected to be readily flammable. Heating/decomposition may release phosphorus oxides and irritating/corrosive fumes.
- Protective equipment: Full protective clothing and positive-pressure SCBA where decomposition fumes may occur.
- Precautions: Cool exposed containers with water spray from a safe distance.

6. ACCIDENTAL RELEASE MEASURES

- Personal precautions: Keep unnecessary personnel away. Wear chemical-resistant gloves, protective clothing and eye/face protection. Avoid breathing mist.
- Environmental precautions: Prevent uncontrolled discharge to drains, surface water and soil.
- Containment/cleanup: Dike and collect. Absorb with compatible inert material and transfer to labelled containers. Rinse the area after bulk material is removed, subject to wastewater controls.
- Use compatible corrosion-resistant equipment/containers; avoid reactive metals.

7. HANDLING AND STORAGE

- Handling: Avoid skin/eye contact and mist generation. Use adequate ventilation. Keep containers closed.
- PPE: Chemical-resistant gloves, protective clothing and splash goggles/face shield.
- Storage: Store tightly closed in a cool, dry, shaded and ventilated place. Protect from direct sunlight and excessive heat.
- Containers: Keep in original or compatible corrosion-resistant packaging.
- Incompatibilities: Avoid strong bases, strong oxidizers and incompatible reactive metals. Confirm compatibility before blending.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Exposure limits	No product-specific occupational exposure limit identified in the reviewed sources; apply applicable local limits and good industrial hygiene.
Engineering controls	Local exhaust ventilation where mist/aerosol can form; eyewash and safety shower available.
Eye/face protection	Chemical splash goggles; face shield for transfer/splash hazards.
Skin protection	Chemical-resistant gloves and protective clothing; select material using breakthrough data.
Respiratory protection	Avoid mist. If ventilation is inadequate, use an appropriate respirator under a documented respiratory-protection program.
Hygiene	Wash hands and exposed skin after handling. Do not eat, drink or smoke in handling areas.



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9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance	Colorless to pale yellow aqueous solution.
Odour	Low/characteristic; odour threshold not established.
pH (1% solution)	≤ 2.0 (ZEELCHEM™ 101 technical specification).
Active content	60.0% HEDP nominal.
Density	1.43–1.47 g/cm ³ (ZEELCHEM™ 101 specification).
Solubility	Miscible/soluble in water.
Molecular formula	C ₂ H ₈ O ₇ P ₂ .
Molecular weight	206.02 g/mol.
Flash point	Not expected to be readily flammable as an aqueous solution.
Explosive properties	Not expected under normal conditions.
Oxidizing properties	No oxidizing classification established from reviewed data.
Colour	≤30 APHA/Hazen (ZEELCHEM™ 101 specification).

10. STABILITY AND REACTIVITY

- Reactivity: Acidic product; may be corrosive to certain metals.
- Chemical stability: Stable under recommended storage and handling conditions.
- Hazardous reactions: Avoid uncontrolled mixing with strong bases, oxidizers or incompatible chemicals.
- Conditions to avoid: Excessive heat, direct sunlight, freezing/overheating extremes and contamination.
- Incompatible materials: Strong bases, strong oxidizing agents and reactive metals; confirm compatibility for process mixtures.
- Hazardous decomposition: Heating/fire may generate phosphorus oxides and irritating/corrosive decomposition products.

11. TOXICOLOGICAL INFORMATION

Routes of exposure	Skin, eyes, inhalation of mist/aerosol and accidental ingestion.
Acute effects	Concentrated acidic HEDP solutions may cause severe irritation/corrosive injury; eye exposure is particularly hazardous.
Skin corrosion/irritation	Corrosive effects are reported for concentrated HEDP formulations; exact ZEELCHEM™ 101 classification requires formulation verification.
Serious eye damage	Severe eye injury may occur with concentrated acid exposure.
Respiratory effects	Mist/aerosol may irritate the respiratory tract.
Sensitization	No sensitization classification identified in reviewed information.
Carcinogenicity	No carcinogenic classification identified in reviewed information.
Mutagenicity	No mutagenic classification identified in reviewed information.
Reproductive toxicity	No reproductive-toxicity classification identified in reviewed information.
Aspiration hazard	Not expected to be the primary hazard for this aqueous product.

12. ECOLOGICAL INFORMATION

- Ecotoxicity: Avoid uncontrolled release; HEDP strongly complexes metal ions and can affect metal availability in aquatic systems.
- Persistence/degradability: Product-specific biodegradation data should be used for the exact formulation; do not assume rapid degradation.
- Bioaccumulation: HEDP is highly water soluble/ionic and has low lipid-partitioning potential; environmental behavior is influenced by complexation.
- Mobility: High water solubility; fate can be affected by adsorption and metal complexation.
- PBT/vPvB: Product-specific assessment should be made under the applicable regulatory framework.
- Environmental precautions: Prevent entry into drains, waterways and soil unless discharge is controlled and permitted.



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13. DISPOSAL CONSIDERATIONS

- Dispose of product, contaminated absorbents and packaging through an authorized waste contractor in accordance with applicable regulations.
- Do not discharge concentrated product to drains or surface waters.
- Empty containers may retain hazardous residues; do not reuse for unrelated purposes.
- Recover/recycle product and packaging where legally and technically feasible.

14. TRANSPORT INFORMATION

UN number	Not assigned in this draft; verify shipment-specific classification.
Proper shipping name	Determine from applicable transport classification.
Transport hazard class	Verify for actual concentration and shipment mode.
Packing group	Verify if applicable.
Environmental hazards	Do not assume marine pollutant status without shipment-specific determination.
Special precautions	Use secure, compatible, leak-tight packaging; protect from damage and incompatible materials.
Transport regulations	ADR/RID/IMDG/IATA and Indian/national rules may differ; verify before shipment.

15. REGULATORY INFORMATION

- Chemical identity: HEDP/Etidronic acid, CAS 2809-21-4
- ECHA identifies etidronic acid as a REACH-registered substance and provides regulatory information for CAS 2809-21-4.
- Classification and labelling: Apply the legally applicable Indian GHS/chemical safety requirements to the exact ZEELCHEM™ 101 formulation.
- Regulatory status, inventory listing, import/export controls and workplace requirements must be checked for the destination country and intended use.

16. OTHER INFORMATION

SDS revision	Revision 01 • 12-Aug-2026
Prepared for	ZEEL PRODUCT – HEDP 60% ZEELCHEM™ 101
Abbreviations	CAS, GHS, SDS/MSDS, STOT, PBT, vPvB, APHA/Hazen.
Key H-statements	H290, H314 and H335 may apply depending on the final formulation classification; confirm before legal issue.
Technical specification basis	ZEELCHEM™ 101 TDS: HEDP 60%, pH ≤2.0, density 1.43–1.47 g/cm ³ , chloride ≤100 ppm, Fe ≤10 mg/L, colour ≤30 Hazen, Ca sequestration ≥530 mg CaCO ₃ /g.
References	ZEEL PRODUCT ZEELCHEM™ 101 TDS/MSDS.
Disclaimer	This document is a technical SDS draft. It must be reviewed and approved by a competent chemical-safety/regulatory professional using the exact commercial formulation, current COA, impurity profile, applicable Indian requirements and intended transport/use conditions before official issue.