



ZEEL PRODUCT • TECHNICAL DATA SHEET • ZEELCHEM™ 101

TECHNICAL DATA SHEET (TDS)

HEDP 60% – ZEELCHEM™ 101

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

COMPANY GRADE	ZEEL PRODUCT HEDP 60%	PRODUCT CODE FORM	ZEELCHEM™ 101 Aqueous Solution	DOCUMENT REVISION	TDS-101-60 01
------------------	--------------------------	----------------------	-----------------------------------	----------------------	------------------

1. PRODUCT IDENTIFICATION

Product Name	HEDP 60% – ZEELCHEM™ 101
Chemical Name	1-Hydroxyethylidene-1,1-diphosphonic acid
Synonyms	HEDP; Etidronic Acid; Hydroxyethylidene Diphosphonic Acid
CAS No.	2809-21-4
Molecular Formula	$C_2H_8O_7P_2$
Molecular Weight	206.02 g/mol
Chemical Class	Organophosphonate / phosphonic acid
Physical Form	Liquid aqueous solution
Appearance	Colorless to pale yellow aqueous solution

2. TECHNICAL SPECIFICATIONS

PARAMETER	SPECIFICATION	TYPICAL / CONTROL VALUE
Active Content (HEDP)	60.0 % min / nominal 60.0 %	60.0 %
Phosphorous Acid (as PO_3^{3-})	1.0 % max	≤ 1.0 %
Phosphoric Acid (as PO_4^{3-})	0.6 % max	≤ 0.6 %
Chloride (as Cl^-)	100 ppm max	≤ 100 ppm
pH (1% aqueous solution)	2.0 max	≤ 2.0
Density @ 20°C	1.43 – 1.47 g/cm ³	1.43–1.47 g/cm ³
Iron (Fe)	10.0 mg/L max	≤ 10.0 mg/L
Colour (APHA/Hazen)	30 max	≤ 30
Calcium Sequestration	530 mg CaCO ₃ /g min	≥ 530 mg/g
Water Solubility	Completely soluble	Soluble

3. PRODUCT DESCRIPTION & PERFORMANCE

- HEDP 60% is an organophosphonate acid designed primarily for scale inhibition, corrosion-control formulations and metal-ion sequestration in industrial water-treatment systems.
- It complexes with metal ions such as calcium, iron, copper and zinc and interferes with crystal growth, helping reduce mineral deposition on heat-transfer and process surfaces.
- HEDP has good chemical stability over a broad range of operating conditions and can be combined with polymers and other water-treatment additives when formulation compatibility has been established.
- Performance is application- and water-chemistry-dependent; laboratory or field trials are recommended before final treatment-program selection.



ZEEL PRODUCT • TECHNICAL DATA SHEET • ZEELCHEM™ 101

ZEELCHEM

HEDP

(ZEELCHEM 101)

High Efficiency Water Treatment Chemical

- Excellent Scale & Corrosion Inhibitor
- High Temperature Stability
- Effective in Low Dosage
- Environmentally Friendly

M: +91-9724593964 | Email: zeelchem@gmail.com

ZEELCHEM

HEDP

(ZEELCHEM 101)

High Efficiency Water Treatment Chemical

Company Name: ZEEL PRODUCT
Product Code: ZEELCHEM™ 101
Pkg: 65.0 Kg carboy

(An "image note: general idea actual pkg may vary" disclaimer means the photo shown is just an example.)

4. KEY BENEFITS

- Excellent scale inhibition and threshold effect.
- Effective calcium and metal-ion sequestration.
- Supports corrosion-control programs when used with compatible inhibitors.
- Good resistance to heat, pH variation and chlorine oxidation compared with many conventional phosphonate systems.
- Compatible with many polymeric dispersants and water-treatment formulations.
- Liquid form enables convenient metering, dilution and dosing.

5. APPLICATIONS

- Cooling-water treatment and circulating-water systems.
- Boiler-water and industrial process-water treatment.
- Reverse-osmosis / membrane pretreatment formulations where technically appropriate.
- Oilfield and industrial water systems.
- Detergents, industrial cleaners and metal-ion control formulations.
- Textile processing, dyeing and bleaching auxiliaries.
- Electroplating and metal-surface treatment formulations.



ZEEL PRODUCT • TECHNICAL DATA SHEET • ZEELCHEM™ 101

6. DOSAGE & APPLICATION GUIDELINES

- Typical use levels depend strongly on hardness, alkalinity, pH, temperature, cycles of concentration, recovery and the dominant scaling species.

APPLICATION	INDICATIVE RANGE*	NOTE
Scale inhibition	1–10 mg/L	Optimize by water analysis / system trial.
Corrosion-control formulation	10–50 mg/L	Usually combined with other inhibitors.
Detergent / cleaning formulations	As formulation requires	Determine by formulation testing.

- *Indicative ranges only; they are not guaranteed product performance limits or a substitute for a site-specific treatment calculation.

HEDP

(ZEELCHEM 101)

High Efficiency Water Treatment Chemical

DOSING RATIO		
Application	Dosage Range (ppm)	Dosage as HEDP (g per 1000 L)
Cooling Water Treatment	5 – 15 ppm	5 – 15 g
Boiler Water Treatment	10 – 30 ppm	10 – 30 ppm
RO System	2 – 10 ppm	2 – 10 g
Textile & Dyeing Industry	1 – 5 ppm	1 – 5 g
Oil & Gas Field Water	5 – 15 ppm	5 – 15 g

Excellent Scale & Corrosion Inhibitor

High Temperature Stability

Effective in Low Dosage

Environmentally Friendly

DOSING CALCULATION EXAMPLE

Required Dose: 10 ppm
Water Volume: 10,000 Liter

Calculation:

$$\text{Dose (g)} = \frac{\text{ppm} \times \text{Volume (L)}}{1000}$$

$$= \frac{10 \times 10,000}{1000}$$

$$= 100 \text{ g HEDP}$$

So, add 100 grams of HEDP (ZEELCHEM 101) in 10,000 Liter of water.

Note: Dose may vary based on system condition and water analysis.

M: +91-9724593964

Email: zeelchem@gmail.com

ZEEL PRODUCT

Appearance: Water White Liquid

7. HANDLING, STORAGE & PACKAGING

- Store in a cool, dry, shaded and well-ventilated area, protected from direct sunlight and excessive heat.
- Keep containers tightly closed when not in use and use compatible HDPE/corrosion-resistant packaging.
- Avoid contact with eyes and skin; use chemical-resistant gloves, goggles/face protection and suitable protective clothing.
- Do not mix directly with strong bases, strong oxidizers or incompatible chemicals without technical compatibility review.
- Typical packaging: 65 kg HDPE carboy; larger HDPE drums/containers or bulk supply may be available subject to commercial specification.

8. QUALITY, SHELF LIFE & CONTROL

Manufactured to stated TDS specification	Cool, dry, shaded, closed	Up to 24 months*	COA + SDS/MSDS available
--	---------------------------	------------------	--------------------------

- *Shelf life should be confirmed against the current commercial packaging/storage specification and batch documentation.



ZEEL PRODUCT • TECHNICAL DATA SHEET • ZEELCHEM™ 101

9. COMPATIBILITY & TECHNICAL NOTES

- HEDP is generally used with polymeric dispersants, phosphonates and other treatment chemicals, but compatibility should be verified by jar testing or formulation testing.
- For RO applications, dose and compatibility must be calculated from feedwater chemistry and membrane-manufacturer requirements; avoid overdosing.
- The product is acidic. Equipment, dosing pumps, tubing and storage tanks should be selected for chemical compatibility.

10. SAFETY & REGULATORY DOCUMENTATION

- Refer to the current ZEELCHEM™ 101 Safety Data Sheet (SDS/MSDS) for GHS hazards, first aid, PPE, spill response, transport and disposal information.
- This TDS is a technical product document and does not replace the SDS or applicable regulatory requirements.
- For food, pharmaceutical, medical or other regulated applications, obtain written grade suitability and regulatory confirmation before use.

11. COMPANY INFORMATION

MOBILE WEBSITE	+91-9724593964 www.zeelchem.online	EMAIL PRODUCT CODE	zeelchem@gmail.com ZEELCHEM™ 101
-------------------	---------------------------------------	-----------------------	-------------------------------------

HEDP
(ZEELCHEM™ 101)

— HIGH EFFICIENCY WATER TREATMENT CHEMICAL —

- Excellent Scale & Corrosion Inhibitor
- High Temperature Stability
- Effective in Low Dosage
- Environmentally Friendly

APPLICATIONS

- Cooling Water Treatment
- Boiler Water Treatment
- RO System
- Textile & Dyeing Industry
- Oil & Gas Field Water

Effective Performance, Trusted Quality.

ZEEL PRODUCT
Trusted Quality, Pure Performance.

M: +91-9724593964 | Email: zeelchem@gmail.com | www.zeelchem.online

Company Name: ZEEL PRODUCT
Product Code: ZEELCHEM™ 101
Pkg: 65.0 Kg carboy