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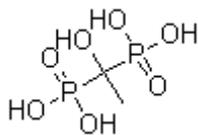
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Technical Data Sheet

1-Hydroxyethylidene-1,1-diphosphonic acid

Product Information

Chemical Name	1-Hydroxyethylidene-1,1-diphosphonic acid
CAS #	2809-21-4
Formula	C ₂ H ₈ O ₇ P ₂
Molecular Weight	201.99
Synonyms	HEDP
Chemical Structure	



Description

HEDP is an organophosphoric acid corrosion inhibitor. It can chelate with Fe, Cu, and Zn ions to form stable chelating compounds. It can dissolve the oxidized materials on these metals surfaces. HEDP shows excellent scale and corrosion inhibition effects under temperature 250. HEDP has good chemical stability under high pH value, hard to be hydrolyzed, and hard to be decomposed under ordinary light and heat conditions. Its acid/alkali and chlorine oxidation tolerance are better than that of other organophosphoric acids (salt). HEDP can react with metal ions in water system to form hexa-element chelating complex, with calcium ion in particular. Therefore, HEDP has good antiscaling and visible threshold effects. When built together with other water treatment chemicals, it shows good synergistic effects.

The solid state of HEDP is crystal powder, suitable for usage in winter and freezing districts. Because of its high purity, it can be used as cleaning agent in electronic fields and as additives in daily chemicals.

Physical Properties

Melting point, °C .	198~199°C
Boiling point, °C	578.8°C
Flash	303.8°C

Specification

Items	Specification	
Appearance	Clear, Colorless to pale yellow aqueous solution	White crystal powder
Active content (HEDP)%	58.0-62.0	90.0 min
Active content (HEDP H2O)%	-----	98.0 min
Phosphorous acid (as PO33-)%	1.0 max	0.8 max
Phosphoric acid (asPO43-)%	0.6 max	0.5 max
Chloride (as Cl-) ppm	100.0 max	100.0max
pH (1% solution)	2.0 max	2.0 max
Density g/cm3	1.43-1.47	-----
Fe,mg/L	10.0 max	5.0 max
Colour APHA (Hazen)	30.0 max	-----
Ca sequestration (mg CaCO3/g)	500.0 min	-----

Safety

Always refer to the Material Safety Data Sheet (MSDS)

Applications

HEDP is used as scale and corrosion inhibition in circulating cool water system, oil field and low pressure boilers in fields such as electric power, chemical industry,metallurgy,fertilizer etc..

- 1) In light woven industry, is used as detergent for metal and nonmetal.
- 2) In dyeing industry, HEDP is used as peroxide stabilizer and dye-fixing agent;
- 3) In non-cyanide electroplating, HEDP is used as chelating agent. The dosage of 1-10mg/L is preferred as scale inhibitor, 10-50mg/L as corrosion inhibitor, and 1000-2000mg/L as detergent.
- 4) Usually, HEDP is used together with polycarboxylic acid.

Packaging

Liquid: 250kg/plastic drum, 20mt/20" Container

Solid: 25kg/bag, 25mt/20" Container

Storage & Handling

Do not store in direct sunlight. Store in a tightly closed container.

Store in a cool, dry, well-ventilated area away from incompatible substances.

Wash thoroughly after handling. Use with adequate ventilation. Minimize dust generation and accumulation.

Avoid breathing dust, vapor, mist, or gas. Avoid contact with skin and eyes. Keep container tightly closed.

Avoid ingestion and inhalation.

Always refer to the Material Safety Data Sheet (MSDS) for detailed information on handling and disposal.

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