

CT - 501

CT - 501 is a phosphase molecule. It offers combination properties of polyphosphate and aminocarboxylate sequestering agents. It has excellent thermal. Andhydrolytic stability unlike polyphosphates. The major key functions are given below ;

SEQUESTRATION

The multivalent metalloids of Calcium ,Magnesium, Iron, Manganese, Copper, Zinc, etc. Can be complete with CT - 501 By stoichiometric level if forms stable water soluble complex of CT - 501 with metalloids that suppress the unwanted effects of metal iron in various processes.

THRESHOLD EFFECT

Scalant mixtures can be kept in a solution form by low concentrations of CT - 501 (below the stoichiometric level) exhibiting threshold effects.

CT - 501 inhibits precipitation of scales such as Ferric Hydroxide, Carbonates, Phosphates, and Sulphates of Calcium Hydroxides of Aluminum and Copper.

DISPERSION

CT - 501 gets adsorbed on the growth sites of scalants. This disallows the growing crystals of scalants to come together . Due to better thermal and hydrolytic

CT - 501 helps in keeping solids in dispersed form for longer periods unlike polyphosphate.

CORROSION CONTROL

CT - 501 in combination with Zinc or Phosphate or Molybdate or Nitrate offers Excellent corrosion inhibition in water system. Any of the above composition offers better synergistic performance than that of any individual component. Thus CT - 501 plays on important role in offering corrosion inhibitors to Chromates which are objectionable due to environmental problems.

CHLORINE STABILITY

Chlorine is the most common biocide in cooling water treatment. Among the antiscalant molecules (Offering multifunctions of sequestration, threshold effect, dispersion, corrosion control and hydrolytic stability) CT - 501 is most chlorine stable molecule. Formulations of CT - 501 with Zinc enhances its stability in the presence of chlorine. In the presence of scalantions and oxidizing micro organisms also, the stability of CT - 501 is enhanced.

ADVANTAGES IN SPECIFIC APPLICATIONS

1. Cooling Water Treatment

- Inhibits Scale formation
- Synergistic performance for corrosion inhibition with Zinc, Molybdate Phosphates and Nitrates
- Compatible with most of treatment chemical
- Better replacement of chromate

2. Boiler Water Treatment

- Inhibits Calcium, Magnesium, and other trace elements
- Crystal growth modification of scalant ions
- Better stability at higher temperature than polyphosphate
- Compatible with other treatment chemicals

3. Sea Water Evaporator

- Excellent synergistic performance in combination with low molecular weight polymers for inhibition of Calcium Carbonate and Calcium Sulfate.
- Less downtime due to reduced frequency of acid cleaning
- Higher temperature.

4. Detergents

- prevention of ash build up on the fabric in zeolite / carbonate based detergents by way of threshold inhibition
- Removal of bleachable stains by enzymes CT - 501 combinations
- Stabilization of peroxides by sequestering transitional metals.

5. Peroxide Bleaching

- Sequestration of metals ions in the bath to prevent oxygen loss .Thus stabilizing peroxide bath
- Minimize fabric damage by inhibiting calcium ,Magnesium, etc.

6. Textile Dyeing

- Threshold inhibition of Calcium ,Magnesium to protect loss of dyes from precipitation

7. Oilfields

- Threshold inhibition of Calcium ,Magnesium scales
- Assistance for corrosion inhibition
- Dispersion of solids
- Control of iron fouling

8. Soaps

- Sequestration of trace metals is soap cake from rancidity and discoloration
- Preservation of perfume in the soap cake for extended periods.

ADDITION APPLICATION

The properties of CT - 501 can be utilized in the following application;

1. Deflocculation of slurries

2. Trace metal carrier in liquid fertilizers
3. Metal finishing baths
4. Drilling muds
5. Cement modification

SPECIFICATIONS OF CT - 501

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|------------------|--------------------------------------------------------|
| Chemical name | 1 Hydroxyethylidene 1, 1 Diphosphonic Acid (HEDP) |
| Molecular Weight | 206 |
| Appearance | Colorless pales yellow clear solution |
| Typical Active | 60 % |
| pH1 % Solution | 5.6 – 7.5 |
| Chloride | < 1 % |
| Specific Gravity | 1.29 |