Technical data sheet

Product Name: ATMP - Amino Trimethylene Phosphonic Acid
CAS No.: 6419-19-8
EINECS No.: 229-146-5
Molecular Formula: $C_3H_{12}NO_9P_3$
Molecular Weight: 299.048

Product Description

ATMP is a highly effective phosphonate widely used as a scale inhibitor and corrosion inhibitor in industrial water treatment. Its strong chelating ability prevents precipitation of calcium, magnesium, and other multivalent cations, reducing scale formation. ATMP also forms a protective film on metal surfaces, effectively preventing corrosion.

The product is stable, water-soluble, and compatible with other water treatment additives such as polycarboxylates, zinc salts, and phosphonates. Jiangsu Khonor Chemicals Co., Limited supplies high-quality ATMP suitable for boilers, cooling water systems, oilfield water injection, and various industrial processes.

Specification

Application		Water treatment	
Appearance		Transparent or light yellowish liquid	White crystalline solid
Active content (as ATMP)	≥%	50.0	95.0
Active content (as ATMP acid)	≥%	40.0	88.0
Phosphorus acid(as PO_3^{3-})	≤%	3.5	3.0
Phosphoric acid(as PO_4^{3-})	≤%	0.8	0.8
Chloride	≤%	2.0	1.0
Iron	≤ppm	20	20
pH (1% water solution)	≤	2.0	2.0

Applications

Cooling Water Systems: Inhibits scale and corrosion in circulating water.

Boiler Water Treatment: Controls $CaCO_3$, $CaSO_4$, and other scale deposits.

Oilfield Water Treatment: Protects injection pipelines and equipment.

Detergent & Cleaning Formulations: Enhances chelation and cleaning efficiency.

Textile & Papermaking: Prevents scale formation during processing.

Working Principle

1. Scale Inhibition:
ATMP chelates multivalent metal ions (Ca^{2+}, Mg^{2+}, Fe^{3+}), keeping them soluble and preventing precipitation of insoluble salts. It also adsorbs on active crystal growth sites, distorting crystal lattices to prevent scale formation.

2. Corrosion Inhibition:
ATMP forms a protective layer on metal surfaces, isolating the metal from water and corrosive ions (Cl^-, SO_4^{2-}). It slows anodic dissolution and cathodic reactions, protecting steel, copper, and other metals in industrial water systems.

3. Synergistic Effects:
When combined with zinc salts or polycarboxylates, ATMP enhances corrosion inhibition and scale prevention efficiency, making it ideal for modern industrial water treatment formulations.

Handling & Storage

Avoid contact with eyes and skin.

Wear protective gloves and goggles during handling.

In case of accidental contact, rinse with plenty of water and seek medical advice.

Store in a cool, dry, and well-ventilated place.

Avoid contact with strong oxidizing agents.

Shelf life: **24 months** in original sealed container.

Packaging

Drums / IBC tanks / 25kg bags or jumbo bags