Shijiazhuang City Xinsheng Chemical Co., Ltd
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# ALUMINUM TRIPOLYPHOSPHATE SERIES

## Technical Data Sheet

| Item | Information |
|---|---|
| Chemical name | Aluminum tripolyphosphate; modified aluminum tripolyphosphate; aluminum dihydrogen tripolyphosphate (ATP) |
| Formula | AlH2P3O10 |
| Anti-rust active group | P3O10 5- |
| CAS No. | 13939-25-8 |
| EINECS No. | 237-714-9 |
| Physical properties | Non-toxic, odorless white powder. Slightly soluble in water; soluble in nitric acid and hydrochloric acid. Non-volatile and non-irritating to skin under normal handling. Density 2.0-3.0 g/cm3. Contains no chromium or other harmful heavy metals. Good adhesion, impact resistance and strong heat resistance (about 1000 deg C; melting point about 1500 deg C). |

## Applications

Aluminum tripolyphosphate series products are ideal replacements for toxic anti-rust materials containing lead and chromium. Their rust-preventive performance is superior to red lead and zinc chrome yellow pigments.

The pigment is widely used in primers and one-coat anti-corrosion coatings. It has good affinity with varnish and can be used with various pigments, fillers and anti-rust pigments to prepare high-performance anti-corrosion coatings.

It is suitable for solvent-based coatings such as phenolic resin, alkyd resin, epoxy resin, epoxy polyester and acrylic resin, and for various water-based resin coatings. It can also be used in high-build coatings, powder coatings, organic titanium anti-corrosion coatings, rust-converting coatings, asphalt paint, zinc-rich primers, fireproof coatings and heat-resistant coatings.

Special note: aluminum tripolyphosphate is used in oil-based paints; modified aluminum tripolyphosphate performs better in water-based paints. Aluminum dihydrogen tripolyphosphate is a pure, low-heavy-metal pigment suitable for oil-based and water-based paints and high-temperature materials.

## Anti-rust Principle

Aluminum tripolyphosphate coatings have good anti-corrosion performance. After full immersion, the coating shows no rusting, blistering, cracking or peeling. Compared with epoxy anti-rust coatings, the studied coatings show better self-healing and corrosion resistance. When water penetrates the coating, phosphate anions are released and form a protective layer on the metal substrate, preventing water ingress and corrosion reactions.

## Packaging and Storage

Packed in woven bags or composite kraft paper bags with inner liners, net weight 25 kg per bag. Avoid package damage, moisture, contamination and contact with acids.

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# TECHNICAL PARAMETERS OF ALUMINUM TRIPOLYPHOSPHATE

| Test item | MY-O | ATP | MY-1 | MY-2 | APW-1 | APW-2 |
|---|---|---|---|---|---|---|
| Whiteness (%) | 85-90 | >=90 | 85-95 | >=90 | >=90 | >=90 |
| P2O5 (%) | 30-40 | 60-70 | 30-40 | 48-52 | 42-46 | 35-40 |
| Al2O3 (%) | 10-20 | 20-30 | 13-20 | 11-15 | 11-15 | 9.5-13.5 |
| SiO2 (%) | 10-15 | -- | 10-15 | -- | 13-17 | 11-15.5 |
| ZnO (%) | -- | -- | 15-25 | 18-22 | 15-18 | 25-30 |