

PRODUCT DATA SHEET

ART-P181

High Range Water Reducing Type Polycarboxylate Superplasticizer Powder

Description

ART-P181 is a powdered polycarboxylate superplasticizer developed independently by ARIT with intellectual property rights. With a special molecular structure, ART-P181 achieves high regularity of polymer chain segments through controlled polymerization process and has very excellent adsorption and dispersion effects on cementitious materials. ART-P181 can achieve good dispersion effects at a water-to-binder ratio of 0.14 and reduce the yield stress and plastic viscosity of the mixture, which provides the mixture with very high workability. It is suitable for cement-based mortar and concrete mixtures that require high fluidity and high strength.

Main benefits/Characteristics

- **Ultra Fine Particle Size & Ultra Fast Dispersion:** Rapidly wets cement grains at the very start of mixing, forming a stable adsorbed layer that delivers instantaneous dispersion and pronounced water reduction, greatly boosting mixing efficiency and placing performance.
- **Ultra High Water Reducing Rate:** Maximum water reduction exceeds 65 %, with virtually no loss after 2 h in mortar or concrete; dosage can be tuned on site to secure the required water-reducing level and slump-retention time.
- **Excellent Water Solubility:** Dissolves completely and almost instantly, dispersing evenly without lumping, making handling simple and convenient.

- **Superior Densification:** Distributes uniformly throughout the binder matrix, markedly lowering porosity and raising paste density.
- **Optimal Air Control:** Produces a stable population of tiny, evenly spaced bubbles, safeguarding workability, strength and long-term durability of mortar and concrete.

Applications

- High-strength grouts and injection grouts
- Self-leveling mortar, floor mortar, waterproof mortar, adhesive mortar
- Cement-based repair mortar
- Ultra-high-performance concrete (UHPC)
- Ordinary ready-mixed and job-site concrete

Physical and chemical indicators

Items	Performance
Appearance	White or light yellow powder
Solid Content /%	≥99.5
pH	6.0±1
Alkali content (as Na ₂ O)	≤0.5%
Density (kg/m ³)	300-600
Chloride Content	≤0.1%
Moisture content	≤0.5%

Application Cases



- Grouting material

At the production workshop of a C80 sleeve grouting material in Shanghai, ART-P181 powder water-reducing admixture is used. The 12-hour strength can reach 50 MPa, with significant improvements in fluidity and pumpability. The homogeneity of the grout is notably enhanced, and the viscosity is effectively reduced, allowing for full filling of voids. This leads to a significant increase in the convenience of operation and construction.



- Self-leveling mortar

At a self-leveling mortar application site in Shandong, the ART-P181 was used. The mortar has good adhesion to the base, and after hardening, the surface is smooth and does not require manual repair.



- Repair Mortar

At a road repair mortar construction site in Nanjing, ART-P181 was used with ART-CASH. The strength reached 20MPa after 4 hours, and the road was ready for traffic within 6 hours. There were no signs of cracking or shrinkage after 28 days.



- Ultra-high performance concrete

At a C150 UHPC production workshop in Shanghai, ART-P181 is used. ART-P181 dispersed more quickly than similar products on the market and had a larger spread and lower viscosity, which significantly reduces the difficulty of construction. The strength after 3 days is 10% higher than that of products on the market. The later strength is not affected and the surface of the material is smooth and even.

Usage Instructions

- The recommended effective solids content is 0.10 %–0.30% of the total cementitious materials; the exact dosage must be predetermined through trial tests according to the raw materials, job-site conditions, construction codes, and technical requirements.
- Any change in materials or environmental conditions may also cause the dosage to vary within a certain range, so new tests are required to re-establish the optimum dosage.
- Keep protected from moisture during use.

Complies with the Following Standards

GB/T 8076-2008

ASTM C494 TYPE F

EN934-2

Packaging

25kg bag for customer demand

Storage

- It should be stored in a cool and dry place, avoiding direct sunlight, and kept in a dedicated warehouse or a fixed location.
- The effective storage period is 1 year. It can still be used after being tested and verified to be qualified if it exceeds the time limit.

Precautions

- When changing the type of cement or using newly delivered cement, a compatibility test should be conducted.
- Do not use in combination with naphthalene-based admixtures. When using in combination with other admixtures, compatibility tests should be performed.
- Strictly follow the construction specifications during application.
- The product information is only used to describe the product's characteristics and functions, and it is not a guarantee. Users are also required to carefully test the product's functions and its suitability. The functions and suitability of the product must be verified through testing conducted by qualified professionals.

Legal Notes

- Retaining or disclosing product samples without the company's explicit permission is strictly prohibited.
- In addition to the product quality itself, the actual performance also depends on other uncontrollable factors. If there are uncontrollable factors, company cannot guarantee the performance of the product.

- Users are requested to strictly follow the technical guidance and product instructions for use. The company shall not be liable for any consequences resulting from unauthorized changes to the product usage method without the company's authorization.