

PRODUCT DATA SHEET

ART-P180

Hardening Accelerating Type Polycarboxylate Superplasticizer Powder

Description

ART-P180 is a powdered polycarboxylate superplasticizer developed independently by ARIT with proprietary intellectual property rights. It is characterized with high water reduction rate, high early strength, anti-segregation, low shrinkage, and demonstrates wide adaptability in dry-mixed mortar and concrete mixtures.

Main benefits/Characteristics

- **Ultra Fine Particle Size & Ultra Rapid Dispersion:** Instantly wets cement grains at the start of mixing, forming a stable adsorbed layer that delivers immediate dispersion and marked water reduction, greatly boosting mixing efficiency and placing performance.
- **Outstanding Early Strength Performance:** Shortens setting time by $\geq 30\%$ and raises 1-day strength by $\geq 40\%$ compared with conventional superplasticizers, with no later-age strength regression.
- **Excellent Workability:** Rapid, uniform dispersion of cement particles gives a smooth, cohesive mix that finishes flat and blemish-free.
- **High Water Reducing Rate:** Maximum water reduction exceeds 50%; dosage can be tuned on site to meet specific requirements.
- **Superior Shrinkage Control:** Reduces drying shrinkage and creep, cutting overall shrinkage significantly.

- **Wide Compatibility:** Performs well with almost all commercial cements, supplementary cementitious materials and aggregate types.

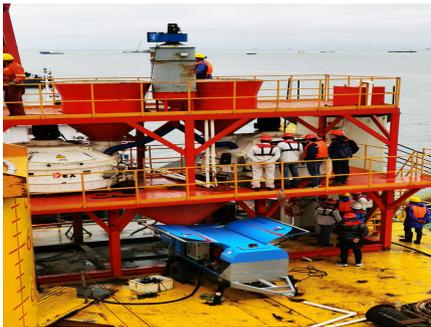
Applications

- High-strength grouts and injection grouts
- Low-temperature construction mortars and concretes
- High-strength self-leveling mortars
- Special repair mortars
- Self-compacting mortars and self-compacting concrete
- Ultra-High Performance Concrete (UHPC)

Physical and chemical indicators

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

Application Cases



- Offshore wind power grouting material

The installation and construction site of a wind power project was located in the northern coastal region of China, with an average annual temperature of 5°C. The grouting process at the site experienced slow strength development, which significantly impacts the construction progress.

After using ART-P180 as a dispersant for offshore wind power grouting materials, the setting time was reduced by 6 hours, and the compressive strength reached 31.3 MPa at 1 day. Without the addition of an expansive agent, the hardened mortar maintained non-shrinkage, greatly improving the grouting efficiency.

- Thin layer repair material for road surface

Due to severe surface deterioration of the road at a Nanjing factory, a rapid repair material



based on sulfoaluminate and prepared with ART- P180 was used. This repair material met the self-leveling process requirements. It achieved a compressive strength of over 25 MPa within 4 hours and a bonding strength of 1.4 MPa, allowing for the quick restoration of traffic conditions. Furthermore, the compressive strength reached

48.5 MPa at 1 day.

- Self leveling floor mortar



A construction company used C30 self-leveling floor mortar to achieve floor leveling in the interior of a residential building. The requirement was to achieve rapid hardening and reduce surface roughness. By using self-leveling floor mortar prepared with ART-P180, they achieved hardening within 4 hours, enabling walking

capability within 6 hours. The self-leveling floor had a thickness of 4mm and a flatness within the range of 1-2mm/m.

- Ultra-high performance concrete

During the casting process of a UHPC (Ultra-High Performance Concrete) bridge deck panel, a pre-mixture was formed by using ART-P180 in combination with the cementitious material, and it was mixed and poured on-site. ART-P180 significantly reduced the viscosity of the UHPC mixture and enhanced its flowability and ability to release trapped air bubbles. The on-site production test blocks achieved a compressive strength of 147.6 MPa at 28 days.

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.

Complies with the Following Standards

GB/T 8076-2008

ASTM C494 TYPE E

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 1year. 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.