

PRODUCT DATA SHEET

ART-P180

Powdered polycarboxylate superplasticizer

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

ARIT-P180 achieves a purity of 100% as a powdered polycarboxylate superplasticizer through the introduction of partially rigid hydrophobic groups to its molecular structure and the use of a special powder processing technique. By incorporating with an ultra-long polyethylene glycol side chain, it not only ensures excellent flowability but also significantly enhances early strength in concrete.

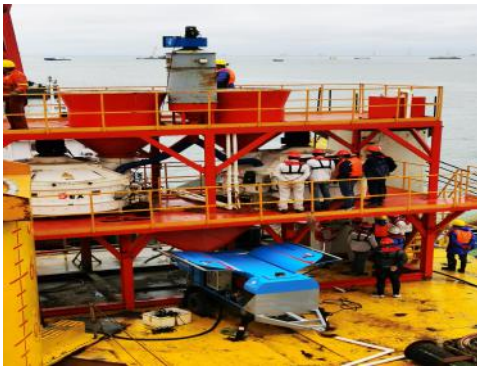
- Maximum water-reduction rate can reach 45% and be higher with more dosage
- Compatible with other dispersants, retarders, air entrainers, early strength agents, and other additives to achieve different effects
- Suitable for gel systems such as Portland cement and sulfoaluminate cement
- Excellent plasticizing and flow-retaining properties
- Significant reduction in yield stress of mortar mixtures
- Good defoaming and plasticizing effects
- Increased cohesion and water retention of mixtures
- Substantial reduction in shrinkage of mortar
- Excellent early strength performance
- Effective solid content of 100%, fully soluble
- Improved durability of hardened mixtures

Applications

- Ultra-high-strength cementitious grouting materials (e.g., grouting materials for wind power)
- High-strength self-leveling mortars
- Injection materials
- Special repair mortars
- Self-compacting mortars and self-compacting concrete
- Ultra-high-performance concrete (UHPC)

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.

Physical and chemical indicators

Items	Performance
Appearance	White
Solid Content /%	99.5±0.5
pH	6.0±1
Alkali content (as Na ₂ O)	≤1.0%
Chloride content	None

Recommended Dosage

0.1% to 1.0% weight of binder

Pre-testing must be performed to determine the exact dosage rate

Packaging

In Bags

Storage

Store in undamaged, original sealed packaging in dry conditions.

Protect product from direct sunlight

A minimum shelf life of 12 months under normal storage conditions. Shelf life may be greater than stated depends on storage conditions.

LEGAL NOTES

It is prohibited to retain or disclose samples of the product without the company's permission.

In addition to the product quality itself, the actual performance also depends on other factors.

If there are factors beyond our control, we cannot guarantee the performance of the product.

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