ARIT奥莱特

PRODUCT DATA SHEET

ART-P-CASH

Early Strength Enhancing Nano Seeds Powder

Description

ART-P-CASH is a proprietary powdered early strength-enhancing nano seeds powder independently developed by ARIT. Compared with conventional cement early-strength admixtures, it delivers a markedly stronger accelerating effect, can be used in a wider range of applications, and produces no later-age strength regression. ART-P-CASH dramatically speeds up the early hydration of cement, lowers the activation energy of the hydration reaction, promotes rapid strength development during the hardening period, and enables concrete to achieve high strength within 24 hours.

Main benefits/Characteristics

- **High Early-Strength Effect:** Excellent ultra-early strength performance, significantly enhancing strength within 24 hours, with 12h compressive strength ratio ⩾200%, without compromising later-age strength. Substantially shortens demolding time of components, accelerates mold turnover, and significantly saves energy and reduces consumption.
- **Good Compatibility:** Compatible with other concrete admixtures, with no stratification or precipitation after dissolution.
- **Wide Adaptability:** Suitable for ordinary Portland cement, sulphoaluminate cement, and other systems, with good adaptability in different concrete mix proportions.
- **Temperature Insensitivity:** Significantly improves concrete strength under normal temperature, low temperature, or steam curing conditions.

Applications

- Metro Shield Tunnel Segments
- Prefabricated Building Materials
- Low-Temperature Construction Concrete
- Ultra-Early Strength Concrete
- Ultra-High Performance Concrete (UHPC)

Physical and chemical indicators

Items	Performance
Appearance	White solid
Solid content	≥99.5
pH	11.2±1
Bulk Density/kg/m^3	600~800
Chloride content	≤0.6
Particle size distribution/nm	90±10

Application Case

- **Metro Tunnel Segment Concrete**

A C50 metro tunnel segment production workshop in Shandong adopted ART-P-CASH as an early strength agent, significantly reducing the slump sensitivity of concrete mixtures, satisfying the fabricating operation time, and enabling the concrete to enter the accelerated hydration period. The concrete slippage phenomenon was completely eliminated, with 8h compressive strength reaching 20 MPa, mold turnover time improved by over 50%, steam curing time shortened by 150 minutes, and strength at all hydration ages significantly increased.

- **Low-Temperature Environment Casting**

At a construction site, C30 concrete was cast at a temperature of 3° C. After adding 0.3% ART-P-CASH, the concrete setting time was reduced from 12h to 8h, with one-day compressive strength reaching 14.5 MPa, an increase of over 50% compared to the blank control group.

- **Prefabricated construction**

A prefabricated component production company in northern China selected ART-P-CASH crystal nucleus early strength agent to improve production efficiency and reduce costs. Mold turnover efficiency improved by 50%. When used in combination with ART-RD180 polycarboxylate superplasticizer, the steam curing process could be completely eliminated, solving energy consumption issues.

- **Self-compacting concrete**

A railway engineering bureau in Guangzhou required C40 concrete with 10-hour compressive strength no less than 15 MPa (summer season, water-binder ratio 0.36). By adopting ART-P-CASH crystal nucleus early strength agent, the T500 time was 2.3s, V-funnel time was 7.7s, with no surface air pores or bubbles, and mold turnover efficiency improved by 30%.

Usage Instructions

- 0.1% to 0.5% weight of binder
- As the water-to-binder ratio decreases, the dosage gradually decreases. In addition, environmental and raw material temperatures, as well as the proportion of mineral admixtures, can also cause the dosage to fluctuate within a certain range.
- Pre-testing must be performed to determine the exact dosage rate

Packaging

In 25kg bags

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.
- 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, the company can not 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.