ARIT奥莱特

PRODUCT DATA SHEET

ART- TRI

Temperature Rise Inhibition and Crack Resistance and Waterproofing Admixture

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Description

ART-TRI is a multifunctional admixture designed to address thermal cracking issues in mass concrete. Its core innovation lies in proactive intervention at the thermodynamic source: by inhibiting the heat release rate of cement hydration, it flattens the internal temperature peak and reduces the temperature gradient between the core and surface, thereby significantly reducing early-age cracking caused by thermal stress. Simultaneously, it utilizes the physical filling effect of ultrafine powder and the chemical densification of active components to optimize pore structure and block water permeation channels, achieving structural self-waterproofing.

Main benefits/Characteristics

- **Significant Temperature Control Effectiveness:** The active components in the product feature a gradient slow-release function. During the concrete hydration temperature rise phase, it continuously releases temperature-inhibiting ingredients, reducing the hydration reaction rate of cement in the early and middle stages, thereby decreasing the heat release rate and maximum temperature rise of hydration heat, and delaying the occurrence of the temperature peak, with a temperature inhibition rate ≥30%.
- **High-Efficiency Waterproofing, Achieving Structural Self-Waterproofing:** Through the physical filling effect of ultrafine powder and the chemical densification of active components, the concrete pore structure is optimized and water permeation channels are

cut off.

- **Green, Environmentally Friendly, and Convenient Construction:** The product is a non-toxic, pollution-free green material, packaged in soluble film with dust-free feeding. It is easy to use and exhibits good compatibility with various concrete admixtures.

Applications

- Large-Scale Hydraulic and Marine Engineering
- Underground and Tunnel Engineering
- Transportation and Municipal Engineering
- Industrial and Civil Construction

Physical and chemical indicators

Items	Performance	Inspection Results
Temperature Inhibition Rate (%)	≥30	34.3
Initial Temperature Rise 5℃ Time Difference (h)	≤48	19.4
28d Water Permeation Height (mm)	≤100	27.4
28d Compressive Strength Ratio (%)	≥100	102

Application Case

- Hydraulic Engineering

In a mass concrete dam project, the impact assessment of adding ART-TRI is as follows:

Temperature control met standards, replacing cooling pipes: internal-external temperature difference ≤24.6℃, cooling rate ≤1.4℃/d, both meeting specifications, achieving construction without cooling pipes.

Delayed temperature peak, reduced cracking risk: temperature peak postponed, heat release smoothed, reducing temperature cracks.

- Underground Engineering

Taking C40P8 concrete for an underground station as an example, the impact assessment of adding ART-TRI is as follows:

Temperature rise control: reduced concrete temperature peak by 3.1℃;

Mechanical properties: early strength slightly decreased, but no adverse effect on later-age strength;

Durability performance: crack resistance grade improved from L-IV to L-V.

Usage Instructions

- Recommended Dosage: 0.05%~1.00% of total binder content, to be determined by pre-testing based on raw materials, construction environment, construction specifications, and technical requirements.
- Material replacement and changes in environmental factors may also cause dosage fluctuations within a certain range, requiring re-testing to determine the dosage.
- Mixing Process: Execute in accordance with the provisions of T/CECS 1239-2023 Technical Specification for Application of Concrete Temperature-Inhibiting Anti-Cracking Waterproofing Agent.
- Curing Requirements: Cover and maintain moisture curing after pouring to avoid early-age water loss and cracking.
- Special Scenarios: Nuclear power projects, etc., require real-time monitoring with temperature measurement systems.

Complies with the Following Standards

JC/T 60014-2022

T/CECS 1239-2023

Packaging

Outer Packaging: Mainly 25kg bags, special packaging available upon customer request.

Inner Packaging: Mainly 400g individual small packages (water-soluble packaging), special packaging available upon customer request.

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 6 months. 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, 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.