

PRODUCT DATA SHEET

ART-SP12

Powdered Accelerator

Description

ART-SP12 high-performance alkali-free powdered accelerator masterbatch for shotcrete, based on aluminum sulfate, is non-toxic, harmless, non-radioactive and non-corrosive; it is neither flammable nor explosive.

Main benefits/Characteristics

- **High Adaptability:** Suitable for wet-mix shotcrete in highways, railways, hydropower projects, mines, and similar applications.
- **Excellent Stability:** Simple on-site reconstitution—no heating required; just mix with water at ambient temperature and pressure. Prepared as needed, eliminating the stability issues, layering, and crystallization common to site-mixed accelerators.
- **Cost Reduction:** Masterbatch blended with aluminum-sulfate salt cuts finished-product cost sharply. Only basic, low-cost equipment is required.

Applications

- Suitable for shotcrete works in highways, railways, hydropower projects, mines, etc., employing wet-mix spraying processes.

Physical and chemical indicators

Items	Performance
Appearance	white powder
Solid content/%	≥99.5

pH	2.5±0.5
Alkali content	≤1%

Application Case

- **Railway tunnel**

On a Sichuan–Tibet Railway tunnel built at high altitude under low pressure and sub-zero temperatures, the liquid accelerator segregated and crystallised, causing heavy rebound, slab fall and safety risks. Switching to ART-SP12 powder masterbatch allowed on-demand mixing; the freshly prepared solution showed no layering or crystallisation after 15 days at –12 °C. Site use eliminated blockages, cut rebound, produced a smooth spray surface and shortened application time, accelerating the drive.

Usage Instructions

- The dosage of the finished liquid accelerator varies with concrete and ambient temperature, especially with cement compatibility. For Portland or ordinary Portland cement, the dosage range is 6 % - 9 %.
- The accelerator is pumped and mixed with the concrete at the nozzle. Owing to its viscosity, remove any filter screen on the accelerator hose to prevent suction problems.
- Before use, flush the accelerator pump thoroughly. Never mix this product with any other accelerator; chemical interaction may cause pump blockage.

Complies with the Following Standards

GB/T 35159-2017

ASTM C1141 / C1141M-15

EN 934-5

Packaging

Standard 25 kg / 40 kg bags or 1-ton bulk bags; special packaging available on request.

Storage

- **Storage:** Keep in a cool, dry place away from direct sunlight; store in a dedicated warehouse or fixed area.
- **Powder masterbatch:** Ensure inner and outer bags are intact to prevent moisture uptake.

After mixing into liquid, maintain temperature $> 5^{\circ} \text{C}$ and store in plastic or fiberglass tanks. The product is slightly acidic and will react with steel—do not use iron drums.

- Shelf life: 2 years for sealed powder masterbatch; 3 months after conversion to liquid. If liquid has stood for a long time, brief stirring before use will eliminate any slight visual stratification.

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.