



HIGH RANGE WATER-REDUCING/SUPERPLASTICIZING RETARDING CONCRETE ADMIXTURE

Description:

PASS 450-FR Admixture is a superplasticizer based on polycarboxylate acid. Made with selected polymers, this product is formulated to provide excellent water reduction, which results in great ultimate final strength, improved workability, and enhanced durability, with delay setting time for (5-8) hours depending on the dry material, hot weather, rate of absorption of material to increase ultimate strengths or to facilitate a reduction in the cement content while sustaining mix properties. PASS 450-FR gives high slump increase with the same amount of water, and decrease the amount of water by (30-40)% to cement ratio. PASS 450-FR set retarding slump retention admixtures that enhance finish quality.

Technical Properties:

Chemical Content	Polycarboxylate polymer
Appearance	Liquid
Color	Brown
pH	5 - 6
Density (20 °C)	1.08 – 1.12 g/cm ³
Chloride Content (%)	< 0.1
Alkaline Content (%)	< 5
Freezing	-10 °C

Advantage:

- To hot weather condition can be used up to (40°C), in term of the condition the material must be fully saturated and used water should be cooled by ice or chiller system.
- Application where long transporting is required.
- Produces concrete with high levels of workability without segregation.
- In slab and foundation, columns, architectural structures, and RCC concretes.
- To concrete elements with thin and dense reinforcement.
- Improve cohesion allows for use in mass concrete pours and piling.
- Does not contain chloride or any other substances that may cause corrosion.

Area of Use:

- Low water-cement ratios & self-compacting concrete.
- To increase concrete slump retention.
- High reduction in water without loss of workability with flow concrete.
- Improved early and long-term strengths.
- Improves shrinkage and creep behavior and optimizes cement utilization.
- To increase final strength.
- Less bleeding and separation.
- Gives a smooth surface after leveling, self-leveling.
- High-density and impermeable concrete.

Dosage:

The recommended dosage of PASS 450 FR is between 1.0 – 2.0% by weight of the total binder content in the concrete mix design. The specified dosage may vary depending on the type of cement, aggregate properties, mineral additions, water content, and the required fresh and hardened concrete performance characteristics. The optimum dosage should be determined through laboratory trials based on the specific project requirements, and the final mix proportions should be established accordingly. When it is required, the Shva Co. technical support unit should be consulted.

Method of Application:

PAS 450 FR should be added to the mixing water or directly into the concrete mix during batching. It is recommended not to add the admixture to dry cement. Ensure adequate mixing time after addition to achieve uniform distribution throughout the concrete. For optimum performance, trial mixes are strongly recommended before large-scale production to verify workability, setting behavior, and strength development under specific project conditions.

Standards:

- PASS 450 FR: EN 934-2 Table 11.1-11.2
ASTM C 494 Type G

Compatibility:

PASS 450 FR admixture is compatible with other Shva Co. admixtures used in the same concrete mix. If more than one type of admixture will be used in the concrete mix, they must be dispensed to the concrete separately.

Precautions in Application:

- Do not exceed the recommended dosage without prior laboratory verification.
- Always perform trial mixes before full-scale production.
- Do not add directly to dry cement; ensure addition into mixing water or fresh concrete.
- Adjust dosage in case of changes in cement type, aggregate grading, mineral additions, or ambient temperature.
- Protect the product from frost and direct sunlight.
- Ensure proper mixing time to achieve homogeneous distribution.
- Compatibility with other admixtures must be tested before combined use.
- Use appropriate personal protective equipment during handling.



Cleaning: PASS 450 FR admixture can be washed with fresh cold water and should not be allowed to enter sewers or open bodies of water.

Packing: 25 kg plastic drum 200 kg drum 1000 kg container Bulk

Storage and Shelf Life: Must be stored at temperatures between +5°C and +35°C. Under proper storing conditions, the product's shelf life is 12 months from production date if kept in original packaging unopened and undamaged. Packaged products must be shaken before use.

Security Information: Use protective clothes, gloves, glasses and mask compatible with Health and Safety regulations during the application. It should not contact skin and eyes. In case it contacts to skin and eyes, rinse it with water and if swallowed ask for medical help. Food and beverage should not be allowed in the application area. It should be stored at the reach out of the children. The Material Safety Data Sheet (MSDS) should be read for detailed information.

