

SHIELD PCG 500

High Range, Water-Reducing and Retarding Admixture for Concrete



MICSHIELD®

Description

Shield PCG 500 is a ready-to-use, high-performance and highly effective liquid superplasticizer based on polycarboxylate technology, used in the production of free-flowing concrete, self-compacting concrete, or as a water-reducing agent for promoting high and early strength, suitable for use in hot and humid climatic conditions.

Uses

- Production of high-workability concrete
- Production of self-compacting concrete (SCC)
- Production of high-performance and high-strength concrete.
- Where slump retention is required
- Ready mixed concrete or site-batched concrete for:
 - Slabs, foundations, and walls
 - Columns, piles, and piers
 - Pre-stressed concrete
 - Bridges and cantilever structures

Characteristics / Advantages

- Workability retention is greatly improved allowing for easier placement of the concrete.
- Production of low permeability, high durability concrete.
- Improves the rheology of the mix and hence significantly reduces the risk of segregation and allows greater time for placement.
- High water reduction capability and hence, higher strength and durability.
- Low chloride-ion penetration.

Standard Compliance

- ASTM C494/C494M: Type G
- EN 934-2: Tables 11.1 and 11.2

Typical Properties

Appearance / Color	Light brown liquid
Specific Gravity @ 23°C	1.08 ± 0.02
Freezing Point	0°C
Chloride Content (EN 480-10)	Nil
Nitrate Content	Nil

Application Instructions

1. Direction of Use

Shield PCG 500 should be added into the gauging water of the concrete mix, or into the ready-mixed concrete at site, just before discharge. In this case, the concrete truck mixer should rotate additionally for 3 minutes, to achieve uniform dispersion of the admixture into the concrete mass.

2. Dosage

0.4 – 2.0% by weight of cement and supplementary cementitious materials.

It is always recommended to carry out trial mixes, since the exact dosage rates depend on many factors such as required slump, quality of cement and aggregates, water/cement ratio, ambient temperature etc.

- An excessive dosage may cause retardation of setting time, without negatively affecting the final strength of concrete.
- Never add **Shield PCG 500** to dry cement or dry aggregates.
- It must be considered that a low water/cement ratio increases the water impermeability of concrete.



3. Dispensing

Shield PCG 500 is best dispensed into the mixer via automated dosing equipment as part of the batching process or, alternatively, added to the gauging water or simultaneously poured with it into the concrete mixer at the batching plant.

Shield PCG 500 is suitable for use with all types of Portland cement (OPC and SRC) and cement blends with supplementary cementitious materials such as GGBS, PFA, and micro-silica.

4. Concrete Placement and Curing

When using **Shield PCG 500** in concrete, it is important to observe the rules for best-demonstrated concreting practices in production, placing, and curing. ACI Manual of Concrete Practice can provide valuable guidance.

Fresh concrete must be cured properly especially at high temperatures in order to prevent plastic and drying shrinkage. Apply a curing compound or use wet hessian and polythene.

5. Cleaning

Collect and dispose of spillage. Do not discharge into drains or watercourses or onto the ground. Soak up with an inert absorbent or container and remove in the best available method.

Shelf Life and Storage

Shield PCG 500 has a shelf life of 12 months when stored in its original unopened packaging in cool and dry conditions, protected from direct sunlight, heat, and moisture. Shelf life may be reduced if the recommended storage conditions are not followed.

Packaging

Shield PCG 500 is supplied in 1000-liter tanks. Bulk delivery on request.

Safety Instructions

Refer to the most recent Material Safety Data Sheet for information and advice on the safe handling, storage and disposal of the product.

Limitations

- The mix design must be proportioned for the local materials used and trial mixes performed to verify admixture dosage to give the required concrete properties.
- If frozen and/or if precipitation has occurred, only use the admixture after it has been totally thawed and mixed.
- Do not add directly onto dry cement or aggregates.
- When using high-workability concrete, take special care that formwork is properly installed and secured.
- Do not use with naphthalene-based admixtures.
- If the setting time of the concrete is extended, ensure proper curing. In this case, other properties may not be affected, and a higher ultimate strength can be achieved.
- Overdosage may cause an extended setting time. Bleeding and segregation of the mix will be observed if the water content is not reduced.
- Check compatibility when using with other admixtures.

Technical Support

Refer to technical information, method statement, or contact technical support team for any inquiry.

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