REC PLAST PC 1006

THIRD GENERATION PCE BASED HIGH PERFORMANCE SUPER PLASTICIZER

DESCRIPTION

REC PLAST PC 1006 is an advanced poly carboxylate ether based high range water reducing admixture designed to produce high-performance concrete with very low water-to-cement/binder ratios while maintaining excellent workability and cohesion. It provides superior dispersion of cement particles, enabling the production of highly flowable and self-consolidating concrete when used with an appropriately designed mix. **REC PLAST PC 1006** can achieve water reductions of up to 45%, resulting in improved compressive strength, reduced permeability, and enhanced long-term durability. The product is chloride-free and does not contain ingredients known to promote corrosion.

WORKING MECHANISM

Sulphonated naphthalene or melamine-based superplasticizer is adsorbed onto the surface of cement particles at a very early stage of the cement hydration process. These polymers chains adsorbed to increase the negative charge on the surface of cement particles, and dispersion is obtained by electrostatic repulsion. While third generation super plasticizers such as **REC PLAST PC 1006** are specially designed with multi–Carboxylate Ether with long lateral chains that improve greatly the dispersion of cement particles. Therefore, in addition to the electrostatic repulsion which occurs at the start of the mixing process, the presence of these lateral chains generates a steric hindrance which greatly enhances the capacity of cement particles to separate and disperse. This property enables the production of concrete with extended workability retention.

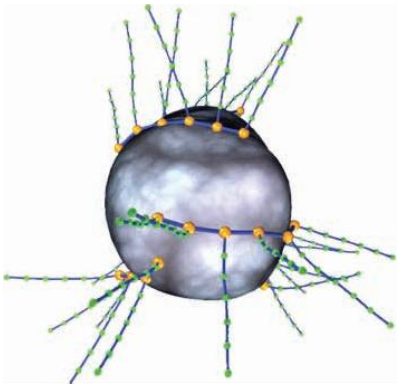

Figure 1 Schematic image of working mechanism

PROPERTIES

REC PLAST PC 1006 provides the following properties:

- High-range water reduction of up to 40 %.
- Produces highly flowable and cohesive concrete.
- Improves workability and slump flow.
- Facilitates production of self-consolidating concrete.
- Enhances early and ultimate compressive strength.
- Improves surface finish and mould filling.
- Reduces bleeding and segregation.
- Improves pumpability and placement efficiency.
- Reduces permeability and improves durability.
- Chloride-free and non-corrosive to reinforcing steel.

SCOPE OF USE

REC PLAST PC 1006 is recommended for all following areas:

- High Performance Concrete.
- High Strength Concrete.
- Self-Consolidating Concrete.
- Ready-Mixed Concrete.
- Pumped Concrete.
- Precast Concrete.
- Pre stressed Concrete.
- Hot Weather Concreting.

TECHNICAL INFORMATION

Appearance	Liquid
Color	Yellow
Specific gravity at 25°C	1.072 ± 0.03
Chloride content	Nil (BS 5075)
Air Entrainment	Less than 2.0% depending on dosage rate and concrete proportioning.

APPLICABLE STANDARDS:

REC PLAST PC 1006 complies with ASTM C 494 Type G & F, BS EN 934-2, AASHTO M 194 & BS 5075.

INSTRUCTIONS FOR USE

REC PLAST PC 1006 should be added with the initial mixing water or directly into the freshly batched concrete. For optimum performance, addition after the initial wet mixing stage is generally recommended. Do not add the admixture directly onto dry cement. Further do not premix **REC PLAST PC 1006** with other chemical admixtures. Add each admixture separately and ensure adequate mixing before introducing another admixture.

DOSAGE

Trials should be conducted to determine the optimum dosage of **REC PLAST PC 1006** for a particular mixture. A dosage of 0.4-2.0% per 100 kg of cementitious material is recommended. Further the required dosage for a specific site with controlled delay in setting and workability should be determined by in-situ trials. In addition, admixture demand varies with w/b of the concrete, cement type, pozzolanic materials and ambient temperature. Trials are to be conducted prior to use in order to determine required performance, including workability retention, setting, and strength development.

EFFECTS OF OVER DOSE

Severe over dose of **REC PLAST PC 1006** will result in the following:

- Delay in initial setting time.
- Increase in air content
- Higher workability
- Impair Consistency and Cohesion.

Dependent upon the level of overdose, concrete mixture details and conditions involved.

COMPATIBILITY

REC PLAST PC 1006 can be used in mixtures containing:

- Silica fume
- Fly Ash
- GGBFS
- Pozzolanic Binders

REC PLAST PC 1006 is compatible with other admixtures like air entraining admixtures. **REC PLAST PC 1006** is not compatible with naphthalene sulfonate- and melamine sulfonate-based superplasticizers. The compatibility tests should be performed before mixing with other admixtures. Further, please consult technical department of Reckon Chemicals for advice.

DISPENSING

It is preferable that liquid admixtures for concrete should be introduced into a mixer by means of automatic dispensing equipment.

PACKAGING

REC PLAST PC 1006 can be supplied in pails, drums and tanks on request.

STORAGE

Up to 2 years when stored in accordance with manufacturer's instructions.

HEALTH & SAFETY

In case of frost, the product recovers its properties after progressive thawing and homogenizing by agitation. In case of contact with skin or eyes, rinse thoroughly with water. If irritation persists, seek medical attention. If swallowed, do not induce vomiting and seek medical attention.

QUALITY STATEMENT

All our products are manufactured to comply with our internal QA/QC program and quality management system to ensure consistency and quality.

DISCLAIMER

While the company guarantees its products against defective materials, the use and application of these products are made without guarantee since the conditions of their application are beyond its control. It is recommended to verify with the company that the product is suitable for the intended use. This Data Sheet version is the latest one. The company may modify it without any prior notice. Technical characteristics are listed for guidance only. For more information, please contact the company's head office located in Lahore.

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