REC SUPERPLAST 351

SPECIAL SUPER PLASTICIZER FOR HIGH PERFORMANCE PRE CAST

DESCRIPTION

REC SUPERPLAST 351 is a highly effective synthetic polymer-based additive which performs extremely well with Portland cement of various types specifically designed to produce ready mixed concrete for precast with low water binder ratio and excellent workability. **REC SUPERPLAST 351** improves the physical and mechanical performance of concrete.

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 SUPERPLAST 351** 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.

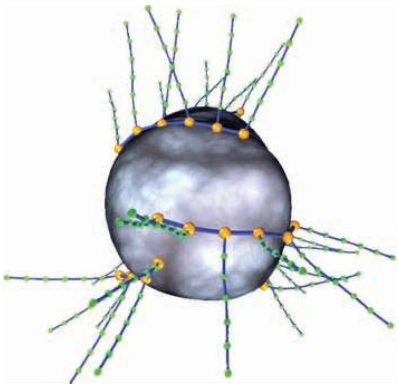

Figure 1 Schematic image of working mechanism

PROPERTIES

REC SUPERPLAST 351 provides the following properties:

- Allows reduction in cement while maintaining desired strength.
- Accelerates strength development and resulting in higher frequency in use of forms.
- Helps reduce steam curing time thereby reducing energy cost.
- Permits reduction in amount of water normally required for a given workability.
- Allows producer to switch from Type III (high early) cement to less expensive Type I (ordinary).
- Enables development of high strength concrete other than by cement addition.
- Provides flow ability (greater than 200mm slump) of fresh concrete that does not segregate and sets in normal period of time while maintaining desired water-cement ratio.
- Provides concrete with self-consolidating properties.
- Enhances passing/filling ability of the fresh concrete.
- Enhances aesthetic for minimal repairs.
- High water reduction.
- High workability-ease of placing and compaction without segregation.
- Reduced risk of cracks.
- Good pumpability - ease of pumping.
- Good workability - excellent surface appearance.
- Minimal bleeding - excellent concrete quality.
- High elastic modulus - superior load bearing capacity.
- Provides properties for sustainable pre cast.

SCOPE OF USE

REC SUPERPLAST 351 is recommended for all areas of use of high-performance concrete in ready mix and pre cast industry:

- Pre cast / Pre stressed concrete.
- Hollow core production.

- Tilt Up.
- Highly durable concrete.
- Retaining walls.
- Colored Precast.
- High strength concrete.
- Concrete mixes containing Silica Fume, GGBFS or PFA.
- Concrete with high resistance against aggressive media.
- Concrete using white cement.

TECHNICAL INFORMATION

Appearance	Liquid
Color	Light Brown
Specific gravity at 25°C	1.020 ± 0.02
Chloride content	Nil (BS 5075)
Air Entrainment	Less than 2.0% depending on dosage rate and concrete proportioning.

APPLICABLE STANDARDS:

REC SUPERPLAST 351 complies with ASTM C 494 F, ASTM C1017 Type I, BS EN 934-2, & BS 5075.

INSTRUCTIONS FOR USE

REC SUPERPLAST 351 should be dispensed after all concrete constituents are charged in the central mixer preferably after approximately 60% of water addition.

DOSAGE

Trials should be conducted to determine the optimum dosage of **REC SUPERPLAST 351** for a particular mixture. A dosage of 0.4-2.6% 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 SUPERPLAST 351** 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 SUPERPLAST 351 can be used in mixtures containing:

- Silica fume
- Fly Ash
- GGBFS
- Pozzolanic Binders

REC SUPERPLAST 351 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 SUPERPLAST 351 can be supplied in pails, drums and tanks on request.

STORAGE

Up to 1 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 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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