

### Cera-Chem — Developing innovative admixtures

Cera-Chem Pvt Ltd, Chennai, is a leading chemical admixture supplier in India. The company has developed several indigenous products to meet concrete requirements in several projects. They also provide technical team expertise on concrete mix design and composition of other materials.

#### Ceraplast 300 M – Admixture for blended cements

Cera-Chem Pvt Ltd, Chennai has developed *Ceraplast 300 M* which is compatible with blended cements, especially with slag cements. *Ceraplast 300 M* is a new generation, high grade, and high-performance retarding superplasticiser specially designed for concrete with replacement of cement upto 70-80 percent by slag.

It was used in the construction of a breakwater (Asia's largest) — as a part of Ennore Coal Port Project in Tamil Nadu (see photo). It was a Rs 400-crore project consisting of 700-m jetty with South breakwater of 1 km length and north breakwater of 3.5 km length, involving about 85,000 m<sup>3</sup> concreting.

Concrete mix design using a combination of 30 percent of OPC 53 grade and 70 percent slag conforming to BS 6699 was used

The concrete requirements were 16 MPa and 35 MPa at 7 and 28 days respectively with workability of 0.86 compaction factor and good surface finish. Initial slump requirement was 120 mm and after 45 minutes, 80-mm slump was needed.

Cera-Chem, was able to develop successfully *Ceraplast 300 M* — an indigenous product to meet the concrete requirements at this project.

*Ceraplast 300M* was put to test by conducting series of trials with different cements and slag sources. The evaluation process was a three-stage approach.

I Stage : Workability and setting time checks at low dosage

II Stage : Strength development

III Stage : Chemical analysis and long term durability studies.

*Ceraplast 300 M* is a new generation, high grade and superior performance retarding superplasticiser which has several advantages such as:

- reduction in water-cement ratio of the order of 20-25 percent
- high early strength enabling early removal of form work
- increased ultimate strength
- high quality concrete of improved durability, reduction in heat of hydration even with very high strength cements

- easy pumpability
- compatibility with mineral admixtures
- improved water tightness and durability

*Ceraplast 300 M* is available in 50, 100 and 210 l packing.

#### Ceraplast 300 RS (G) — Admixture for ready mixed concrete

*Ceraplast 300 RS(G)* conforming to ASTM C-494, B5 5075 Part I and IS 9103 : 1999, is a high performance superplasticiser-cum-retarder. *Ceraplast 300 RS (G)* enhances the strength of the concrete to around 25 percent with properly designed concrete mix. It has the following advantages:

- reduction in water cement ratio of the order of 20 – 25 percent
- easy pumping; flowing concrete
- excellent workability and workability retention even in extreme temperature
- reduction in heat of hydration, even with high strength cements
- compatible with mineral admixtures.

*Ceraplast 300 RS (G)* is the preferred admixture by several RMC plants across south India and is used by many contractors at various industrial and infrastructure projects throughout the country.

It is supplied in 50, 100 and 270 l packing and is also supplied in bulk containers.

For more information, please contact:

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**Construction of breakwater, Ennore Coal Port project, Tamil Nadu**