



STAR-PCE 4420

NEW GENERATION SLUMP RETAINING CONCRETE SUPERPLASTICIZER

DESCRIPTION

STAR-PCE 4420 is a High Range Water Reducing Admixture for High performance, High strength and durable concrete. It is based on a Polycarboxylate Ether (PCE) Polymer. The main polymer backbone has carboxyl groups for the adsorption on the surface of cement particles and alkoxy polyether lateral chains that keep the particles physically away from each other. This phenomenon of separating discrete solid agglomerating particles is known as Steric Hindrance. This result in superior fluidity of the mixture combined with better retention of workability (slump) as compared to the conventional superplasticizers based on Naphthalene or Melamine formaldehyde polycondensates. **STAR-PCE 4420** comprises of particles less than 1/50 the size of cement grains, and is synthesized through ionic polymerization in nano-scale.

STAR-PCE 4420 is a High Range Superplasticizer (water reduction up to 40% in control concrete) with superior cement dispersion ability to provide extremely high slump values, even to concrete mixtures with water-to-cement ratio of less than 0.30. **STAR-PCE 4420** can provide slump retention of more than 120 minutes after mixing at higher than ambient temperatures (35 C or more).

ADVANTAGES

- STAR-PCE 4420 is highly dosage efficient – a much smaller dosage as compared to conventional superplasticizers is only sufficient.
- STAR-PCE 4420 imparts high flowability to the mixture so as to fill the formwork under its own weight (self compacting ability) without any voids or segregation of aggregates. This self compacting concrete (SCC) maintains fluidity for longer periods unlike conventional superplasticizers that suffer rapid slump loss.
- STAR-PCE 4420 can be used as a pumpability enhancer combined with plasticizing effect which allows high range water reduction leading to phenomenal increase in compressive strength, impermeability and durability.
- STAR-PCE 4420 has no effect on the setting time of concretes and develops high early strength that allows rapid progress in large scale civil engineering applications.
- STAR-PCE 4420 is ideal for pre-cast and pre-stressed concrete products. The very high fluidity of the concrete mixtures facilitated by STAR-PCE 4420 results in smooth surfaces on removal of formwork.

DOSAGE

Range : 400 ml – 1200 ml per 100 kg cement.
(0.4% to 1.2% [v/w])

As with most commodity concrete additives, the efficiency obtained by the use of STAR-PCE 4420 is dependent on dosage, water to-cement ratio, the nature of constituent materials such as cement, fly ash and ground granulated blast furnace slag. The type of cement, its fineness and the C A (tricalcium aluminate) content are important parameters that influence the performance of the chemical admixture. It is therefore necessary to assess the performance of concrete in its conditions of placing to arrive at optimum dosage of STAR-PCE 4420 to ensure desirable plastic and hardened concrete properties.

COMPATIBILITY WITH CEMENT

STAR-PCE 4420 can be used with all types of OPC, composite cement (PSC and PPC), Silica Fume, Metakaolin, and Rice Husk Ash (RHA), Pulverized Fuel Ash (PFA) and Ground Granulated Blast Furnace Slag (GGBFS).

TECHNICAL DETAILS

Appearance : Amber colored liquid
Specific Gravity : 1.12 ± 0.01
pH value : 7 ± 1
Chloride content : Nil (BS: 5075)
Solubility : Water soluble.

STAR-PCE 4420 conforms to ASTM C 494 Type A and Type F and complies with IS: 9103 - 1999.

SAFETY

STAR-PCE 4420 is safe, non-toxic, and eco-friendly and presents no health hazard. As with all chemicals, caution should always be exercised. Protective clothing such as gloves and goggles

INHALATION: Inhalation of vapor or mist should be avoided. Symptoms include coughing, wheezing, laryngitis, and shortness of breath, headache, nausea, and vomiting. Immediately shift victim to fresh air, and, if needed immediately start artificial respiration. Give oxygen if breathing is labored. Get emergency

EYE CONTACT: Flush eyes with water for 15 minutes and call for medical help.

INGESTION: causes nausea, vomiting, and loss of consciousness. If accidentally swallowed do not induce

SKIN CONTACT: Flush with water or soap and water until all traces have been removed. Seek medical attention if required.

STORAGE

Minimum 18 months in unopened container. Store away from sunlight and preferably below 30°C.

PACKING

50 kg and 200 kg HDPE drums. Small and Bulk packing on request.

Technical Support:



& Polymertech UK Ltd.
CN-07468396
United Kingdom

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