

K2 SELFPLAST PCE

POLYCARBOXYLATE ETHER BASED HIGH STRENGTH SUPERPLASTICISER FOR SELF COMPACTING CONCRETE.



DESCRIPTION AND MECHANISM OF SUPERPLASTICIZATION

K2 SELFPLAST PCE is a high performance, high strength and durable superplasticizer for concrete based on polycarboxylate ether polymer.

K2 SELFPLAST PCE has better molecular weight distribution and degree of polymerization of the carboxylate monomer. The main polymer chain has carboxyl groups for the adsorption on the surface of cement particles and long polyethylene oxide graft chains with slumps loss controlling agent (SLCA) that keep the cement particles physically away from each other. This results in superior workability of concrete mixtures coupled with the ability to maintain the fluidity and Slump retention for at least 4 hours after mixing at higher than ambient temperatures (35° C or more). The SLCA enhances slump retention apart from its role of providing fluidity to the Concrete mixture.

K2 SELFPLAST PCE comprises of particles in the size range of 0.25 to 0.35 micrometers and is synthesized through nano-scale polymerization. It 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 made with water-to-cement ration of less than 0.30.

BENEFITS AND ADVANTAGES

- K2 SELFPLAST PCE is highly dosage efficient – a much smaller dosage as compared to conventional superplasticizers is only sufficient.
- K2 SELFPLAST PCE 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 (about 4 hours 35° C because of the presence of SLCA). SLCA prevents slump losses by “parachute effect” of slow adsorption on Ettringite crystals formed at the beginning of cement hydration.
- K2 SELFPLAST PCE can be used as a pumpability enhancer along with plasticizing effect which allows high range water reduction leading to phenomenal increase in compressive strength, impermeability and durability.
- K2 SELFPLAST PCE is especially recommended for RMC production and in batching plants because of its very high slump retention characteristic imparted by SLCA. For long distance transportation of concrete from plant to site, K2 SELFPLAST PCE concretes can retain smooth pumpability with minimal set retardation. Ready mixed concretes of moderate to very high strengths can be produced using this super plasticizer.
- K2 SELFPLAST PCE imparts high self-compaction or self-leveling, reduces shrinkage and creep, increases flexural strength, reduces carbonation, improves adhesion to re-inforcing and pre-stressing steel and develops early strength. It helps in producing a cohesive, smooth and fair faced concrete.

CHEMICAL PROPERTIES

1 Appearance	:	Amber colored liquid
2 Specific Gravity	:	1.10 ± 0.20
3 pH Value	:	7 ± 1
4 Chloride Content	:	Nil (BS: 5075)
5 Solubility	:	Water Soluble

STANDARDS

K2 SELFPLAST PCE conforms to ASTM C 494 Type B, Type D, and Type G and complies with IS:9103-1999.

Dosage

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

As with most concrete additives, the efficiency obtained by the use of K2 SELFPLAST PCE is dependent on dosage, water –to –cement ration, the nature of constituent materials such as cement, fly ash and ground granulated blast furnace slag. The type of cement, its fineness and the C₃A (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 decide optimum dosage of K2 SELFPLAST PCE to ensure desirable plastic and hardened concrete properties.

Compatibility With Cement

K2 SELFPLAST PCE can be used with all types of OPC, composite cement (PSC and PPC), Silica Fume, Metakaolin, Rice Husk Ash (RHA), Pulverized Fuel Ash (PFA) and Ground Granulated Blast Furnace Slag (GGBFS).

Material Safety Data

K2 SELFPLAST PCE is made from chemicals which present no fire or health hazard. However, in case of spillage, washing with water is adequate. Eye / Skin contact should be avoided.

Storage And Shelf Life

To be stored away from heat and frost. Best before 12 months from the date of manufacture.

Packing:

200 kg HDPE drums.

TECHNICAL SUPPORT

The company provides a technical service supported by a team of specialist applicators in the industry

Important note :

Jay Chemical Industries Ltd products are guaranteed against defective materials and manufacture and are sold subject to its standard terms and conditions of sale, copies of which may be obtained on request. Whilst Jay Chemical Industries Ltd endeavors to ensure that any advice, recommendation specification or information it may give is accurate and correct, it cannot, because it has no direct or continuous control over where or how its products are applied, accept any liability either directly or indirectly arising from the use of its products whether or not in accordance with any advice, specification, recommendation or information given by it or its applicators.

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