Conplast® P509

constructive solutions

Water reducing admixture

Uses

Conplast P509 is a high performance plasticiser which allows large water reductions resulting in significant increase in early and ultimate strengths. Increased workability can be achieved without loss in strength. Conplast P509 can be used as a retarding water-reducing admixture at higher dosages.

Advantages

- **Increased strength** : Water reduction of upto 10% leads to high ultimate strength without increase in cement content.
- **Improved durability** : Improves durability by increasing density and lowering permeability. Reduces shrinkage cracking because of lower water cement ratio.
- **Speeds up construction** : Greatly improves workability which enable easier and quicker placing and optimum compaction.
- **Larger Pours** : Extended setting times at higher dosages enable large volume of concrete to be placed thus avoiding cold joints
- **Compatibility** : Conplast P509 can be used with all types of Portland cements.
- **Chloride free** : Safe in prestressed concrete and with sulphate resisting cements and in marine conditions.

Standards compliance

Conplast P509 complies with the requirements of BS:5075 part 1 and ASTM C494 types A & D as well as IS 9103 1999.

Description

Conplast P509 is a formulated blend of polymeric materials based on hydrolysed carbohydrate derivatives. It is designed to give maximum cement particle dispersion without producing unwanted side effects. This results in good, dense concrete having exceptionally high strength.

Conplast P509 acts as a normal water reducing admixture at low to medium dosage rates. At higher dosages, it acts as a retarding plasticiser. The amount of retardation will also depend on chemical composition of the cement and concrete temperature.

Technical support

Fosroc provides a technical advisory service supported by a team of specialists in the field.

Properties

Specific gravity : 1.21 - 1.220 @30^{0}C

Chloride content : NIL to IS 456

Air entrainment: Less than 1% additional air is entrained

Compatibility : Can be used with all types of portland and slag cements except high alumina cements. Conplast P509 is compatible with other Fosroc admixtures provided they are added separately.

Workability : The addition of Conplast P509 without reduction in the water content, increases the slump and significantly improves concrete flow characteristics without decrease in concrete strength.

Setting time : Initial and final setting times will relate to cement type and ambient temperature. But typically the initial setting is extended between 1 to 4 hours depending upon dosage and temperature at constant workability.

Compressive strength : Table 1 shows typical results where increased workability is obtained at original water cement ratio and increase in strength where workability is maintained and water cement ratio reduced.

Durability : Where the water reducing properties of Conplast P509 are utilised, there is increase in density, durability and the resistance of concrete to attack by aggressive agents. The reduced water cement ratio makes concrete less permeable.

Application instructions

Dosage

The optimum dosage determined by site trials with a specific concrete mix which enables the effects of workability, strength gain and setting time to be measured. The rate of addition of Conplast P509 is typical between 160ml to 500ml per 100kg cement. At dosages beyond 400ml per 100 kg of cement, it may act as a retarding plasticiser.

Dispensing

The correct quantity of Conplast P509 should be measured by means of a suitable dispenser. The measured quantity of Conplast P509 should be added directly to the mixer preferably by dispensing to the mixing water. If the mixing water is added in more than one stage, Conplast P509 should be added at the last stage.

Overdosing

Any overdosing of Conplast P509 can result in increased retardation of the initial set of the concrete. The ultimate strength of the concrete will not be affected and could be increased if advantage is taken of the increased workability by reducing water.

Conplast® P509

Table 1
Typical test results
M30 mix

Zone 2 sand : 34% (IS-383)
Coarse Aggregate (20 - 5mm) :66% (IS-383)
Cement : 410 kg/m³ OPC

Test	Dosage of Conplast P509 Ltr/50 kg cement	W/C	Slump (mm)	Compressive strength N/mm² 3 days	7 days	28 days	Density kg/m³
1. Control	Nil.	0.48	40	22.7	27.5	38.7	2395
2. Workability Increased	0.15	0.48	100	24.5	31.6	43.3	2390
3. Strength Increased	0.15	0.44	40	27.5	36.7	48.9	2400

Note : The values quoted are representative of results obtained and are provided as illustrations of performance in different situations. Because of the variability of concreting materials, the results should only be taken as typical of the performance to be expected.

Curing

Normal curing methods such as water ponding/spray or wet hessian must be used. Where water curing is a problem, efficient curing is achieved by use of Concure WB, spray applied curing compound.

Estimating

Packing

Conplast P509 is supplied in 200, 20 and 5 litre containers.

Storage

Conplast P509 has a shelf life of minimum 12 months when stored under normal temperatures. It should be protected from extremes of temperatures and preferably stored in shade.

Precautions

Health and safety

Conplast P509 is non- toxic, non-flammable and splashes on skin should be removed by copious amounts of water. If contact with eyes occurs, wash well with water immediately and seek medical advice.

Additional information

The Fosroc range of associated products includes high strength cementitious, epoxy grout,polyester resin based mortar for rapid presetting of steel shims to level or for direct bedding of small base plates; Resin Anchoring systems for same day anchoring of bolts in drilled holes in concrete or rock. Also available a range of products for use in construction; viz., curing compounds, release agents, flooring systems, repair mortars, sealants and waterproofing materials.

Important note :

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