

Water reducing concrete admixture

Uses

- To improve the effectiveness of the water content of a concrete mix.
- Higher dosages provide effective means of reducing concrete permeability and thereby reducing water penetration.

Advantages

- Allows specified strength grades to be met at reduced cement content or increased workability.
- Water reduction significantly improves compressive strengths at all ages and enhances durability through the production of low permeability concrete.
- Minimises the risk of segregation and bleeding and assists in the production of a dense, close textured surface, improving durability.
- Chloride free, safe for use in prestressed and reinforced concrete.

Standards compliance

Conplast P211 conforms to IS:9103-1999. It also complies with IS : 2645 : 2003 as an integral waterproofing compound and ASTM C494 Type A as a normal water reducing admixture.

Description

Conplast P211 is a chloride free water reducing admixture based on selected sugar-reduced lignosulphonates. It is supplied as a brown solution which instantly disperses in water

Conplast P211 disperses the fine particles in the concrete mix, enabling the water content of the concrete to perform more effectively and improving the consistency of the concrete. This produces higher levels of workability for the same water content, allowing benefits such as water reduction and increased strengths to be taken.

Technical support

Fosroc provides a technical advisory service for on-site assistance and advice on admixture selection, evaluation trials and dispensing equipment. Technical data and guidance can be provided for admixtures and other products for use with fresh and hardened concrete.

Typical dosage

The optimum dosage of Conplast P211 to meet specific requirements should always be determined by trials using the materials and conditions that will be experienced in use. This allows the optimisation of admixture dosage and mix design and provides a complete assessment of the concrete mix. A starting point for such trials is to use a dosage within the normal typical range of 0.20 to 0.50 litres / 100kg of cementitious material, including PFA, GGBFS and microsilica.

Use at other dosages

Dosages outside the typical ranges quoted above may be used if necessary and suitable to meet particular mix requirements, provided that adequate supervision is available. Compliance with requirements must be assessed through trial mixes. Contact Fosroc Technical Services Department for advice in these cases

Properties

Appearance	:	Brown liquid
Specific gravity	:	1.160 - 1.190 @25°C
Chloride content	:	Nil to IS:456
Air entrainment	:	Typically less than 1.5%. Additional air is entrained at normal dosages.
Alkali content	:	Typically less than 5.0g Na ₂ O equivalent / litre of admixture.

Application instructions

Compatibility

Conplast P211 is compatible with other Fosroc admixtures in the same concrete mix. All admixtures should be added to the concrete separately and must not be mixed together prior to addition. The performance of concrete containing more than one admixture should be assessed by the trial mix procedure recommended in this data sheet to ensure that, effects such as unwanted retardation do not occur.

Conplast P211 is suitable for use with all types of ordinary Portland cements and cement replacement materials such as PFA, GGBFS and micro silica.

One of the most effective means by which the water permeability of a concrete mix can be reduced is to make a large reduction in water-cement ratio. Conplast P211 can be used to provide

Conplast P211

such a reduction and to produce a concrete with the benefits of low permeability.

Dispensing

The correct quantity of Conplast P211 should be measured by means of a recommended dispenser. The admixture should then be added to the concrete with the mixing water to obtain the best results.

Effects of overdosing

An overdose of double the intended amount of Conplast P211 will result in an increase in retardation as compared to that normally obtained at the intended dosage. This effect is found with most water reducing admixtures although the degree may vary. Retardation is affected by factors other than the admixture depending on the mix details and conditions involved. Trials to assess the effects in a particular mix are strongly recommended if this aspect is of particular importance, provided that adequate curing is maintained. The ultimate strength of the concrete will not be impaired by increased retardation and will generally be increased. The effects of overdosing will be further increased if sulphate resisting cement or cement replacement materials are used.

Overdosage may also cause increased air entrainment, which will tend to reduce strength. The degree of this effect will depend on the particular mix design and overdose level.

An overdose will tend to increase the plasticising effect of the admixture. As concrete is normally batched to a target workability, increased plasticising will allow an increasing ultimate strength and partially or fully offsetting the effect of any increased air entrainment. If no increase in water reduction is taken and a significant rise in workability is allowed the chance of segregation may be higher. Increased initial workability will tend to extend the working life of the concrete, which will delay finishing and stiffening time to some extent.

Curing

As with all structural concrete, good curing practice should be maintained, particularly in situations where an overdose has occurred. Water spray, wet hessian or a Concure spray applied curing membrane should be used.

Estimating

Packing

Conplast P211 is supplied in 5,20 and 200 litre containers.

Storage

Conplast P211 has a minimum shelf life of 12 months provided the temperature is kept within the range of 20°C to 40°C. Should the temperature of the product fall outside this range then the Fosroc Technical Service Department should be contacted for advice.

Precautions

Health and safety

Conplast P211 does not fall into the hazard classifications. However, it should not be swallowed or allowed to come into contact with the skin and eyes.

Suitable protective gloves and goggles should be worn. Splashes on the skin should be removed with water. In case of contact with the eyes, it should be rinsed immediately with plenty of water and medical advice sought immediately. If swallowed medical attention shall be sought immediately - Vomiting should not be induced.

Fire

Conplast P211 is water based and nonflammable.

Additional Information

Technical data and guidance can be provided on wide range of Admixtures and Concreting aids, including Plasticisers, Superplasticisers, Retarding Admixtures and accelerators etc.

Separate datasheets are available on request.

Conplast P211

Typical example of laboratory trials M20 Mix

Mix : Sand zone 2 (IS:383) 35%, aggregate 20 - 5mm (IS:383) 65%, Cement O.P. (IS:269)

Test	Cement Content	Dosage of Conplast P211 100kg cement (litre)	W/C ratio	Slump (mm)	Compressive strength (N/mm ²)		
					3D	7D	28D
1. Control	360	Nil	0.55	40	14	21	30
2. Workability Increased	360	0.30	0.55	100	14	20	30
3. Strength Increased	360	0.30	0.50	50	16	24	33

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.