

DUPLAST WPR

Water reducing concrete admixture

Description

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

Duplast WPR 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.

Areas of Application

- 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.
- Minimizes 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.

Typical Properties

Duplast WPR 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.

Effect of over dosage

An overdose of double the intended amount of Duplast WPR 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. Over dosage 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 plasticizing effect of the admixture. As concrete is normally batched to target workability, increased plasticizing 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.

■ Dosage

The optimum dosage of Duplast WPR 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.

■ Technical Information

Appearance: Brown liquid

Specific gravity: 1.150 - 1.170 @250C

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 Na₂O equivalent / liter of admixture

■ Compatibility

Duplast WPR is compatible with other Dubond 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.

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

■ Reducing water permeability ('waterproofing')

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. Duplast WPR can be used to provide such a reduction and to produce a concrete with the benefits of low permeability.

■ Storage

Duplast WPR has a minimum shelf life of 12 months provided the temperature is kept within the range of 20° C to 40° C.

■ Safety and Precautions

Duplast WPR 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 sought immediately - **Vomiting should not be induced..**



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