

Plastit® LR

Retarding, Water Reducing Admixture

Uses

- To improve the effectiveness of the water content of a concrete mix.
- To help maintain the workability of readymixed concrete deliveries in hot weather.
- To extend working times of concrete.
- Particularly suitable for use in mixes with low cohesion.

Advantages

- Water reduction significantly improves compressive strengths at all ages and enhances durability.
- Controlled retardation extends working life and stiffening time for ease of construction.
- Control of stiffening improves slip forming and assists in preventing the formation of cold joints in large pours.
- Minimized transportation delay problem maintains place ability and reduces the risk of pump blockage.
- Slight air entrainment improves cohesion in mixes with poorly graded sands or a lack of fine material, minimizing bleed and segregation.
- Allows specified strength grades to be met at reduced cement content or increased workability.
- Chloride free, safe for use in prestressed and reinforced concrete.

Standards compliance

Plastit LR conforms with BS 5076 Part 1, ASTM C494 as Type B and Type D and BSEN 12344.

Description

Plastit LR is a chloride free water reducing admixture based on selected lignosulphonate materials. It is supplied as a brown solution which instantly disperses in water. Plastit LR disperses the fine particles in the concrete mix, enabling the water content of the concrete to perform more effectively. The initial hydration of the cement is also delayed, resulting in a delay in the setting time of the concrete with no adverse effect on subsequent stiffening and strength gain.

Typical dosage

The optimum dosage of Plastit LR to meet specific requirements should always be determined by trials using the materials and conditions that will be experienced in use. The normal dosage range is 0.2 to 0.8 kg/100 kg of cementitious material, including PFA, GGBFS or microsilica.

Properties

Appearance	Brown Liquid
Specific gravity	1.14 gr/cm ³ at 20°C
Chloride	Nil to BS 5076
Air entrainment	Typically less than 1% additional air is entrained at normal dosages.
Alkali content	Typically less than 0.1 g. Na ₂ O equivalent/litre of admixture. A fact sheet on this subject is available.

Instructions for use

Retardation:

The level of retardation obtained may be varied by altering the dosage of Plastit LR used, which will also alter the level of water reduction obtained. Retardation is also affected by factors other than the admixture, depending on the mix details and conditions involved. Major factors include the following:

- Cement replacement materials and SRC cements will usually give greater levels of retardation than concrete mixes made with ordinary Portland cement at the same admixture dosage.
- High temperatures will require increased dosages to obtain the same change in stiffening time compared to a control mix.
- Changes in cement content, source or chemistry may lead to variations in the retardation obtained. The amount of tri-calcium aluminate in the cement has been identified as being one of the main contributory factors in this respect, with a lower level leading to greater retardation.
- The use of a combination of admixtures in the same concrete mix may alter the setting time. Trials should always be conducted to determine such setting times.

Compatibility:

Plastit LR is compatible with other CAPCO admixtures in the same concrete mix. All admixtures should be added to the concrete separately and must not be premixed together prior to addition. The performance of concrete containing more than one admixture should be assessed by trial mixes. Plastit LR is suitable for use with all types of Portland cements, SRC cements and cement replacement materials such as PFA, GGBFS and microsilica.

The use of a combination of admixtures in the same concrete mix and or cement replacements may alter the setting time. Trials should always be conducted to determine such setting times.

Dispensing:

The correct quantity of Plastit LR 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.

Packaging

Plastit LR is available in 20 kg containers and 250 kg drums.

Storage

Plastit LR has a minimum shelf life of 12 months provided the temperature is kept within the range of 0°C to 30°C. Should the temperature of the product fall outside this range then contact CAPCO for advice.

Freezing point: Approximately -1°C

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Precautions

Health and safety:

Plastit LR does not fall into the hazard classifications of current regulations. However, it should not be swallowed or allowed to come into contact with 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 eyes rinse immediately with plenty of water and seek medical advice. If swallowed seek medical attention immediately - do not induce vomiting.

Fire:

Plastit LR is non-flammable.

Sample Test Results

Table 1:

Plastit LR Kg per 100 kg cement	W/C ratio	Air content in fresh concrete (%)	Slump (cm)	Initial concrete setting time (min)	Final concrete setting time (min)	Time (day)			
						1	3	7	28
						Compressive strength (MPa)			
0	0.47	1.7	6	225	482	3.5	16.7	23.3	33.6
0.5	0.47	1	18	553	716	5.8	24.8	30.7	39.0