

Plastit[®] NCL

Chloride free accelerating admixture

Uses

- To accelerate the stiffening and early strength gain of Portland cement concrete and mortar
- Typical applications include concrete or mortar placed in cold weather and precast concrete

Advantages

- Particularly effective in assisting to offset the delaying effect of low temperatures on setting and strength gain
- Accelerated setting gives added protection against early age frost attack
- Also provides a degree of water reduction or increased workability
- Suitable for use in bricklaying mortar
- Chloride free, safe for use in reinforced concrete

Standards compliance

Plastit NCL complies with BS 5075 Part 1 and with ASTM C494 as type C and ISIRI 2930.

Description

Plastit NCL is a chloride free accelerating admixture based on a combination of formate and nitrite salts. It is supplied as a straw coloured solution that instantly disperses in water. Plastit NCL accelerates the early stages of cement hydration, producing more rapid stiffening and allowing strength gain to commence at an earlier stage. This effect is particularly noticeable at low temperatures and is most significant in the first 24 hours after mixing.

Typical Dosage

The optimum dosage of Plastit NCL to meet specific requirements should always be determined by trials using the materials and conditions that will be experienced in use. This allows the optimization 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 1.00 to 4.00 kg/100 kg of cement.

Use at other dosages

Dosages outside the typical range 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 the CAPCO Customer Service Department for advice in these cases.

Effects of overdosing

An overdose of double the intended amount of Plastit NCL may result in increased acceleration. In common with other accelerators this may slightly reduce the ultimate strength of the concrete.

Testing has shown no detrimental effect on embedded steel even at four times overdose.

Properties

Appearance	Yellow coloured liquid
Specific gravity	Typically 1.14 @ 20°C
Chloride content	Nil to BS 5075
Air entrainment	Typically less than 2%. Additional air is entrained at normal dosages.
Alkali content	Typically less than 1.5 g. Na ₂ O equivalent/litre of admixture. A fact sheet on this subject is available

Instructions for use

Compatibility:

Plastit NCL is compatible with other CAPCO admixtures in the same concrete mix. The admixtures must be added to the concrete separately with the mixing water and must not be directly mixed together prior to addition. The performance of concrete containing more than one admixture should be assessed by trial mixes to ensure the desired combination of effects is obtained.

Plastit NCL is suitable for use with ordinary Portland cement.

Contact the CAPCO Customer Service Department for advice on use with sulphate resisting cements and cement replacement materials.

Durability:

Plastit NCL has no detrimental effect on the protection given to embedded steel by the alkalinity of cement and is safe for use as an accelerator in situations where chloride containing admixtures cannot be used.

Dispensing:

The correct quantity of Plastit NCL 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.

Curing:

As with all structural concrete, good curing practice should be maintained. Water spray, wet hessian or a Capcure O spray applied curing membrane should be used.

Limitations

Plastit NCL is most effective at low temperatures and early ages. Where compressive strength gain is the major requirement, and stiffening rates are less important, a more cost effective performance may be obtained through the use of a CAPCO plasticiser or superplasticiser.

Normal precautions for application of concrete in cold weather should be followed where Plastit NCL is used.

Packaging

Plastit NCL is available in 20 kg containers and 240 kg drums.

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Storage

Plastit NCL has a minimum shelf life of 12 months provided the temperature is kept within the range of 5 °C to 35 °C.

Freezing point: Below -5 °C.

Precautions

Health and safety:

Plastit NCL 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 NCL is non-flammable.

Sample Test Results

Table 1:

Plastit NCL Kg per 100kg cement	W/C ratio	Air content in fresh concrete (%)	Slump (cm)	Initial setting time of cement mortar (min)	Time (day)		
					1	7	28
					Compressive Strength (kg/cm ²)		
0	0.48	2	7	900 (flow table =14, W/C=0.5)	128	189	262
1	0.43	1.5	6.5	530 (flow table =13, W/C=0.45)	172	248	353