

# NUCEM CONCRETE

## Polymer Modified Cementitious Concrete

### Description

Nucem Concrete is a prepacked shrinkage compensated, polymer modified cementitious concrete supplied with either an acrylic or SBR latex polymer. Nucem is formulated to comply with the requirements of the DTp Model Specification for the 'Repair of Concrete Highway Structures' BD 27/86 Clause 6. It is based on Portland Cements complying with Clause 1702, DTp Specification for Highway Works and non reactive aggregates. Nucem Concrete is specially designed for the restoration of spalled and damaged concrete caused by reinforcement corrosion or frost attack.

### Advantages

- Pack contains all constituents including gauging liquid.
- Guaranteed low water/cement ratio.
- Excellent adhesion to dense concrete and steel.
- Contains no added chlorides, the total chloride ion content is less than 0.1% by weight of cement.
- Non-reactive aggregates in accordance with DTp Specification for Highway Works Clause 1704.6.
- All contents pre-weighed dispensing with the need for any measurement.
- Excellent workability and finishing properties.
- Good resistance to water, frost and salt penetration.
- Controlled Equivalent Sodium Oxide to less than 3 kg/m<sup>3</sup>.
- Manufactured under BSI QA Scheme, ISO 9001, EN 29001.

### Applications

- Repair of damaged concrete both insitu and precast.
- Repair of damaged floors, bridge decks and road wearing surfaces.
- Screeding where abrasion and/or water resistance is required.
- Repairs to spalled columns and beams using formwork.

### Technical Information

	Nucem Concrete	Typical Values For Structural Concrete
Compressive Strength (N/mm <sup>2</sup> )		
24 hrs	21	10
7 days	49	30
28 days	62	40
Typical Density (kg/m <sup>3</sup> )	2400	2250 - 2400
Cement Content (kg/m <sup>3</sup> )	>400	----
Max Water/Cement Ratio	0.38	0.45 - 0.60
Equivalent Sodium Oxide	<3kg/m <sup>3</sup>	----
Water Permeability ISAT (ml/mm <sup>2</sup> /sec)		
10 min	0.05	0.20 - 0.50
2 hrs	0.01	0.07 - 0.15

## **Surface Preparation**

The substrate must be clean and sound, hence all grease, oil, dust and laitance must be removed by scarifying. The edges of the repair must be recessed at least 20mm. Where spalling is caused by reinforcement corrosion, all steel must be exposed and cleaned to remove all loose scale and rust, preferably by grit blasting.

## **Priming**

Nucem Primer is prepared by adding the contents of the base to the hardener container and mixing thoroughly. Usable life 2 - 3 hours.

The prepared surface and cleaned reinforcement steel should be coated with the Nucem Primer using a stiff brush ensuring it is thoroughly worked into the surface. Nucem Primer can be sprayed using specialist equipment.

When using Nucem Primer it is not normally necessary to pre-saturate the substrate as it may be applied to either dry or damp surfaces. However, if the substrate has dried over a substantial period it is advisable to pre-dampen the surface before priming.

Whilst the primer is still tacky, normally within 3 hours, apply Nucem Concrete. If the primer dries before the application of the Nucem Concrete then the area should be re-primed.

Coverage of Nucem Primer is 3 - 5 m<sup>2</sup> per 1.0 kg pack.

## **Mixing**

Mix as for normal concrete ensuring that the materials are thoroughly mixed before use. The use of a forced action pan mixer will ensure thorough mixing. Wet the bowl and drain, add two thirds of the gauging liquid to the mixer then all the powder component and mix for 30-60 seconds. Add the remaining gauging liquid to bring to the required consistency.

Do not over mix.

## **Application Instructions**

Apply mixed Nucem Concrete to the substrate previously primed with Nucem Primer while the primer is still tacky. Compact the Nucem Concrete to ensure maximum durability and finish as for normal concrete. All equipment should be cleaned immediately after use by washing with water.

## **Curing**

Normal curing procedures should be applied immediately after finishing and precautions taken to avoid frost attack. UV degradable resin based curing membranes should not be used if the concrete is to receive a subsequent surface coating.

## **Overcoating**

After a suitable curing period the Nucem may be overcoated with decorative coatings or a waterproof membrane.

## **Storage**

Material must be stored unopened in dry, frost free conditions.

## **Health & Safety**

Nucem Concrete does not present any undue hazard and is non-toxic, however, as it is alkaline, gloves should be worn and any material should be washed from the skin and eyes before it dries with clean water.

The normal standards of hygiene should be observed and the use of a barrier cream is advisable.

Nucem Primer, like similar products, is capable of irritating unprotected skin. We therefore recommend the use of gloves and barrier cream. Accidental skin contact should be removed using soap and water.

## **Limitations**

The minimum application thickness should be 20mm. Application should not be carried out when the temperature is below 5°C.

## **Packaging**

Nucem Concrete: 27.5 kg units (yield 11.5 litres approximately)

Nucem Primer: 1.0 kg units (coverage 3 - 5 m<sup>2</sup>) and 0.5 kg units (coverage 1.5 - 2.5 m<sup>2</sup>).

## **Technical Support**

Through our technical department and laboratories we can offer a comprehensive service to specifiers and contractors.

Technical representatives are available throughout the UK to provide further information and arrange demonstrations.



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