

## Nucem Concrete

### Polymer Modified Cementitious Concrete

#### Description

Nucem Concrete is a pre-packed, shrinkage compensated, polymer modified cement based concrete, supplied with either an acrylic or SBR latex polymer. Nucem Concrete is formulated to comply with the requirements of EN 1504 Part 3 Class R4, as well as conforming to the highways standards Series 5700, BD 27/86 Clause 6 and DMRB CS 462 It is based on Portland Cements complying with the Clause 1702 Specification for Highway Works and non reactive aggregates.


Nucem Concrete is specially designed for deep section screeding and 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 & steel
- Contains no added chlorides
- Non-reactive aggregates in accordance with Specification for Highway Works Clause 1704.6
- Controlled Sodium Oxide to less than 3kg/m<sup>3</sup>
- Suitable for deep sections >20mm
- Excellent workability & finishing properties
- Good resistance to water, frost & salt penetration
- Suitable for next day waterproofing
- Complies with DMRB CS 462 & EN 1504 Part 3 Class R4

#### Applications

- Structural repair of damaged insitu & precast concrete
- Repair of damaged floors, car parks, bridge decks and road wearing surfaces
- Screeding where abrasion and/or water resistance is required
- Repairs to spalled columns & beams using formwork
- Bedding of concrete or stone paving/kerb units

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Nufins, Kingston House, 3 Walton Road, Pattinson North, District 15, Washington, Tyne & Wear. NE38 8QA 23 0086-CPR-774186	
EN 1504-3 Concrete repair product for structural repair PCC Mortar (based on polymer modified hydraulic cement)	
Compressive strength	Class R4 (≥45 MPa)
Chloride ion content	≤0.05 %
Adhesive bond strength	≥2.0 MPa
Adhesion after freeze/thaw (50 cycles with salt)	≥2.0 MPa
Elastic modulus	≥20 GPa
Dangerous substances	Complies with 5.4

#### Surface Preparation

The substrate must be clean and sound, and free from grease, oil, dirt, debris, 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.



## Technical properties of Nucem Concrete

Properties	Standard	Performance Requirement	Declared Value
Appearance			Grey Powder & White Liquid
Chloride-ion content	EN 1015-17	≤0.05 %	≤0.05 %
Maximum aggregate size			6 mm
Water/cement ratio			0,38
Cement content			≥ 400 kg/m <sup>3</sup>
Layer thickness-minimum			20 mm
Layer thickness-maximum			300mm*
Density			2300 kg/m <sup>3</sup>
Working time @ 20°C			30-45 minutes
Application temperature			5°C to 30°C
Compressive strength @ 20°C	EN 12190	≥45 MPa	20 MPa @ 1 day 50 MPa @ 7 days >60 MPa @ 28 days
Modulus of elasticity in compression	EN 13412	≥20 GPa	26 GPa
Flexural strength	BS 6319-3		10 MPa
Modulus of elasticity in flexure	BS 6319-3		26 GPa
Adhesion - concrete	EN 1542	≥2.0 MPa	≥2.0 MPa
Adhesion after freeze/thaw (50 cycles with salt)	EN 13687-1	≥2.0 MPa	≥2.0 MPa
Adhesion after thunder showers (30 cycles)	EN 13687-2	≥2.0 MPa	≥2.0 MPa
Adhesion after dry cycling (30 cycles)	EN 13687-4	≥2.0 MPa	≥2.0 MPa
Skid resistance	EN 13036-4		Class 1
Carbonation resistance	EN 13295	$d_k \leq \text{ref. concrete}$	Passes
Capillary absorption	EN 13057	≤0.5 kg/m <sup>2</sup> .h <sup>0.5</sup>	≤0.5 kg/m <sup>2</sup> .h <sup>0.5</sup>
Cracking tendency	Coutinho ring test		No cracking after 180 days

Technical Data shown are statistical results and do not correspond to guaranteed minima.

Tolerances are those described in appropriate performance standards.

All testing was conducted at 20°C under laboratory conditions, unless otherwise stated.

\*For depths >300mm contact Nufins technical department.

## Priming

Immediately following preparation and cleaning, Nucem Primer should be applied to protect reinforcement.

Nucem Primer is mixed by adding the contents of the base to the hardener container and mixing mechanically till a homogenous consistency is achieved. Usable life 2-3 hours.

Prepared concrete and cleaned reinforcement should be coated with Nucem Primer using a stiff brush, ensuring it is thoroughly worked into the surface. Nucem Primer may be applied to either dry or damp surfaces; we recommend that surfaces are damp, to assist spread.

## Mixing

Nucem Concrete should be mixed mechanically with the gauging liquid provided, in a forced action mixer. Prior to mixing, wet out the mixer drum and discard water. Repeat regularly at breaks and meal times.

Pour 3/4 of the gauging liquid into the rotating mixer drum then gradually add the entire powder contents. Mix for approximately 30 - 60 seconds, then add sufficient of the remaining gauging liquid, to achieve the desired consistency. **Do not overmix.**

Mixing time is 2 - 3 minutes till the product is thoroughly mixed.

## Application Instructions

Apply Nucem Concrete whilst primer remains tacky. If the primer dries before application of mortar, the substrate should be re-primed.

Using the appropriate hand tools such as float and tamping beam, compact thoroughly through the full depth to ensure maximum durability and finish surfaces as required with a plastic or steel float.

## Cleaning

Mixing equipment and tools should be cleaned regularly through the day to avoid product build up, using clean water.

## Curing

Curing should be employed immediately after finishing, as work progresses. Nucem Concrete should be protected from rapid drying out, using normal methods of curing such as taped down polythene sheeting, and wet hessian if required, in line with good concreting practise. A UV degradable resin based curing membrane such as *Chemcure R90* may be used, but this must be fully removed by mechanical equipment if the surface is going to receive subsequent treatments.

## Over coating

After a suitable curing period Nucem Concrete may be over coated with decorative coatings or a waterproof membrane.

## Packaging

Nucem Concrete is available in 27.5kg packs (yield approximately 12 litres)

Nucem Primer is available in 1kg and 5kg units (coverage 3 - 5 m<sup>2</sup> per kg).

## Storage

The shelf life is 6 months when stored unopened in dry, normal conditions and away from direct sunlight. Protect from frost.

## Health & Safety

Product Safety Data Sheets (SDS) are available from Nufins. SDS sheets are provided to help customer satisfy their safe handling, use and disposal needs as well as assist with any conformance requirements made locally by health and safety regulations.

SDS are continually updated to provide the latest information to our customers. We therefore recommend contacting our head office to obtain the most recent and accurate SDS before handling and using any product.

## Limitations

Mortar should not be installed in temperature below 5°C unless measures have been taken to protect materials in storage and prior to use. It is recommended that materials are stored above 10°C. In addition, materials should not be installed in temperatures of 3°C or below on a falling scale, without frost protection measures.

Protect installed material from adverse weather and frost. If it is necessary, the work area should be tented and heated during and after placement. Please contact Nufins technical department for further advice.

## Disclaimer

The information contained herein is to the best of our knowledge true and accurate and is given in good faith but without warranty. The user will be deemed to have satisfied themselves independently as to the suitability of our products for their own particular purpose. In no event shall Nufins be liable for consequential or incidental damages.

Users must always refer to the most recent issue of the Technical Datasheets, copies of which will be supplied on request.

## Technical Support

Through our technical department and laboratories we can offer a comprehensive service to specifiers and contractors. Technical contacts are available to provide further information and arrange demonstrations.