

### Fast Setting Repair Concrete

#### Description


A pre-packed, polymer modified, fibre reinforced cementitious mortar designed to give rapid strength development even under adverse conditions. The product contains a specially selected latex gauging liquid which provides excellent strength, adhesion and waterproofing properties. Nupatch Concrete has been specially formulated to achieve & surpass the performance requirements of EN1504 Part 3 Class R3.

#### Advantages

- Pack contains everything required including gauging liquid
- Guaranteed low water/cement ratio
- Suitable for deep sections >20mm
- Excellent adhesion to dense concrete & steel etc.
- Contains no chloride containing additives
- Aggregate is non-Alkali Silica reactive in accordance with ASTM C289
- Excellent workability & finishing properties
- Good resistance to water, frost & salt permeation
- Complies with EN 1504 Part 3 Class R3

#### Applications

- Structural repair of damaged concrete in-situ & pre-cast
- Repairs to columns & beams using formwork
- Patch repairs of damaged floors & roads
- Screeding where abrasion and/or water resistance is required
- Suitable for use on gradients
- Repair of concrete structures & steps in tidal zones

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Nufins, Kingston House, 3 Walton Road, Pattinson North, District 15, Washington, Tyne & Wear, NE38 8QA 13 0086-CPD-594215	
EN 1504-3 Concrete repair product for structural repair PCC Mortar (based on polymer modified hydraulic cement)	
Compressive strength	Class R3 (>25 MPa)
Chloride ion content	≤0.05 %
Adhesive bond strength	>1.5 MPa
Adhesion after freeze/thaw (50 cycles with salt)	>1.5 MPa
Elastic modulus	>15
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.

Saw-cut the perimeter of damaged or spalled areas, forming good shoulders. 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 Nupatch Concrete

Properties	Standard	Performance Requirements	Declared Value
Appearance			Grey powder & white liquid
Chloride-ion content	EN 1015-17	≤0.05 %	≤0.05 %
Maximum aggregate size			6 mm
Maximum water/cement ratio			0.4
Cement content			> 400 kg/m <sup>3</sup>
Layer thickness: min / max			20mm to 100mm*
Working time			20-30 minutes
Temperature for application			5°C to 30°C
Density			2350 kg/m <sup>3</sup>
Compressive strength @ 20°C	EN 12190	>25 MPa	15 MPa @ 4 hours 35 MPa @ 24 hours 45 MPa @ 7 days 55 MPa @ 28 days
Modulus of elasticity, in compression	EN 13412	≥15 GPa	18 GPa
Tensile strength	BS 6319-7		>4.0 MPa
Adhesion to concrete	EN 1542	≥ .5 MPa	>2.0 MPa
Adhesion after: - freeze/thaw - thunder/shower - dry cycling	EN 13687-1 EN 13687 -2 EN 13687 -4	≥1.5 MPa ≥1.5 MPa ≥1.5 MPa	>2.0 MPa >2.0 MPa >2.0 MPa
CO <sub>2</sub> Diffusion coefficient			2.1 x 10 <sup>-5</sup> cm <sup>2</sup> /sec
u value			7100
R value			140 m
Sc @ 20 mm			350 mm
Sorptivity			0.01 mm min <sup>-½</sup>
Cl-Diffusion coefficient			1 x 10 <sup>-10</sup> cm <sup>2</sup> /sec
Coefficient of thermal expansion	EN 1770		7.8 x 10 <sup>-6</sup>
Water permeability coefficient	28 days		<0.01 ml/m <sup>2</sup> /sec
Skid resistance	EN 13036-4		Class 1
Carbonation resistance	EN 13295	d <sub>k</sub> ≤ 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		No crack after 180 days

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

Tolerances are those described in appropriate performance standards. \*For depths 100–150mm contact Nufins technical department

1 N/mm<sup>2</sup> = 1 MPa

1 kN/mm<sup>2</sup> = 1 GPa

## Priming

Saturate the prepared substrate with clean water and ensure all free standing water has been removed before priming. Failure to wet down will cause Nupatch Primer to dry out too quickly.

Mix the primer by adding the entire contents of the powder to the gauging liquid provided and mixed mechanically till a homogenous slurry consistency is achieved. Usable life 20 -30 minutes.

Prepared concrete and cleaned reinforcement should be coated with Nupatch Primer using a stiff brush, ensuring it is thoroughly worked into the surface.

## Mixing

Nupatch 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, mixing for approximately 30 - 60 seconds. Add sufficient of the remaining gauging liquid, to achieve the desired consistency. Mixing time is 2 - 3 minutes till the product is thoroughly mixed. **Do not overmix.**

## Application Instructions

Apply Nupatch Concrete whilst primer remains tacky. If primer dries before application of mortar, the substrate should be wet down and 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.

Application to vertical elevations will require the use of formwork.

## Cleaning

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

## Storage

The shelf life is 12 months when stored unopened in dry, normal conditions and away from direct sunlight. Protect from frost.

## Curing

Curing should be employed immediately after finishing, as work progresses. Nupatch 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.

## Packaging

Nupatch Concrete is available in 25kg packs (yield approximately 11 litres).

Nupatch Primer; is available in 3,8kg units (coverage 2.5-3.5m<sup>2</sup> per unit).

## Health & Safety

Product Safety Data Sheets (SDS) are available from Nufins. SDS sheets are provided to help customers 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.