Nupatch Concrete

Fast Setting Repair Concrete

Description

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

Advantages

- Pack contains everything required including gauging liquid
- Guaranteed low water/cement ratio
- Can be laid in sections from 25mm and above
- Rapid setting enabling successive layers to be built up with minimum delay
- Excellent adhesion to dense concrete and steel etc.
- Contains no chloride containing additives
- Aggregate is non-Alkali Silica reactive in accordance with ASTM C289
- Excellent workability and finishing properties
- Good resistance to water, frost and salt permeation

Applications

- Repair of damaged concrete both in-situ and pre-cast
- Repairs to columns and beams using formwork
- Repairs of damaged floors and roads
- Screeding where abrasion and/or water resistance is required
- Repair of concrete in tidal situations

Surface Preparation

Substrate must be clean and sound, and free from all grease, oil, paint, plaster and laitance must be removed. Oil and grease should be removed by using Desolve and laitance should 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. If the reinforcement bar has corroded reducing the bar diameter, then consideration should be given to replacing it.
**Technical properties of Nupatch Concrete.**

<table>
<thead>
<tr>
<th>Properties</th>
<th>Standard</th>
<th>Performance Requirements</th>
<th>Declared Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Appearance</td>
<td></td>
<td></td>
<td>Grey Powder &amp; White Liquid</td>
</tr>
<tr>
<td>Chloride-ion Content</td>
<td>EN1015-17</td>
<td>≤ 0.05%</td>
<td>≤ 0.05%</td>
</tr>
<tr>
<td>Maximum Aggregate Size</td>
<td></td>
<td></td>
<td>6mm</td>
</tr>
<tr>
<td>Maximum water/cement ratio</td>
<td></td>
<td></td>
<td>0.4</td>
</tr>
<tr>
<td>Cement content</td>
<td></td>
<td></td>
<td>&gt; 400 kg/m³</td>
</tr>
<tr>
<td>Minimum Layer Thickness</td>
<td></td>
<td></td>
<td>20mm</td>
</tr>
<tr>
<td>Working time</td>
<td></td>
<td></td>
<td>20-30 Minutes</td>
</tr>
<tr>
<td>Temperature for application</td>
<td></td>
<td></td>
<td>5°C to 30°C</td>
</tr>
<tr>
<td>Density</td>
<td></td>
<td></td>
<td>2350 kg/m³</td>
</tr>
<tr>
<td>Compressive strength</td>
<td>EN12190</td>
<td>≥ 15 MPa</td>
<td>18 GPa</td>
</tr>
<tr>
<td>Modulus of elasticity, in compression</td>
<td>EN13412</td>
<td>≥ 15 GPa</td>
<td>15 MPa @ 4 Hrs</td>
</tr>
<tr>
<td>Tensile strength</td>
<td>BS6319-7</td>
<td></td>
<td>&gt; 25 MPa</td>
</tr>
<tr>
<td>Adhesion to concrete</td>
<td>EN1542</td>
<td>≥ 1.5 MPa</td>
<td>&gt; 2.0 MPa</td>
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<tr>
<td>Adhesion after:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>freeze/thaw</td>
<td>EN13687-1</td>
<td>≥ 1.5 MPa</td>
<td>&gt; 2.0 MPa</td>
</tr>
<tr>
<td>thunder/shower</td>
<td>EN13687-2</td>
<td>≥ 1.5 MPa</td>
<td>&gt; 2.0 MPa</td>
</tr>
<tr>
<td>Dry cycling</td>
<td>EN13687-4</td>
<td>≥ 1.5 MPa</td>
<td>&gt; 2.0 MPa</td>
</tr>
<tr>
<td>CO₂ Diffusion coefficient</td>
<td></td>
<td></td>
<td>2.1 x 10⁻⁵ cm²/sec</td>
</tr>
<tr>
<td>u value</td>
<td></td>
<td></td>
<td>7100</td>
</tr>
<tr>
<td>R value</td>
<td></td>
<td></td>
<td>140 m</td>
</tr>
<tr>
<td>Sc @ 20mm</td>
<td></td>
<td></td>
<td>350 Mm</td>
</tr>
<tr>
<td>Sorptivity</td>
<td></td>
<td></td>
<td>0.01 mm min⁻¹</td>
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<tr>
<td>Cl-Diffusion coefficient</td>
<td></td>
<td></td>
<td>1 x 10⁻¹⁰ cm²/sec</td>
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<tr>
<td>Coefficient of thermal expansion</td>
<td>EN1770</td>
<td></td>
<td>7.8 x 10⁻⁶</td>
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<tr>
<td>Water permeability coefficient</td>
<td></td>
<td></td>
<td>&lt;0.01 ml/m²/sec</td>
</tr>
<tr>
<td>Skid resistance</td>
<td>EN13036-4</td>
<td></td>
<td>Class 1</td>
</tr>
<tr>
<td>Carbonation resistance</td>
<td>EN13295</td>
<td>d, ≤ ref. Concrete</td>
<td>Passes</td>
</tr>
<tr>
<td>Capillary absorption</td>
<td>EN13057</td>
<td>≤ 0.5 kg/m²/Hz⁰.⁵</td>
<td>≤ 0.5 kg/m²/Hz⁰.⁵</td>
</tr>
<tr>
<td>Cracking tendency</td>
<td>Coutinho ring</td>
<td></td>
<td>No crack after 180 days</td>
</tr>
</tbody>
</table>

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

Tolerances are those described in appropriate performance standards.

1 N/mm² = 1 MPa
1 kN/mm³ = 1 GPa
Priming
Saturate the substrate then remove free standing water before priming with Nupatch Primer. Dampening the substrate is essential to prevent the Nupatch Primer from drying too quickly. Add the entire contents of the powder to the gauging liquid, mix into a slurry. Apply by brushing thoroughly into the prepared surface, including the exposed reinforcement. The Nupatch Concrete must be applied to the repair area while the primer is tacky. Dry primer must be removed from the substrate and re-primed before the concrete is placed.

Coverage of Nupatch Primer is 2.5 - 3.5 m² per pack.

Mixing
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 all or part of the remaining gauging liquid to bring to the required consistency. Do not over mix.

Application Instructions
Whilst the primer is still tacky apply the mixed Nupatch Concrete. Compact the concrete to ensure maximum durability and finish as per normal concrete. Application to vertical surfaces will require the use of a shutter. All equipment should be cleaned immediately after use by washing with water.

Curing
Normal methods of curing should be adhered to and precautions taken to avoid frost attack. UV degradable resin based curing agents should not be used if the surface is to receive subsequent treatments.

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

Packaging
Nupatch Concrete is available in 25kg packs (yield 11litres).
Nupatch Primer is available in 3.8kg units (coverage 2.5-3.5m² per pack).

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
Minimum application temperature is 5°C, if applying below 5°C please contact Nufins technical department.

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.