

## Acropak HB40 Mortar

Lightweight Cementitious Mortar

### Description


A pre-blended polymer modified fibre-reinforced cementitious mortar which only requires the addition of clean water. The product is characterised by its excellent bond strength and high abrasion resistant surface which makes it ideal as a high-build patching and rendering mortar. Can be applied to a thickness of up to 50mm in a single application on a vertical surface and up to 30mm overhead. Acropak HB40 Mortar complies with highway standards Series 5700, BD27/86 clause 6 and DMRB CS 462. Specially formulated to achieve and surpass the performance requirements of EN 1504 Part 3 Class R3.

### Advantages

- High compressive strength
- Excellent adhesion to dense concrete & steel
- Excellent workability & finishing properties
- Good resistance to water, frost & salt permeation
- Suitable for sections from 10mm upwards
- Only requires the addition of water
- Shrinkage compensated & low water/cement ratio
- Chloride free & low chromate (CR VI <2 ppm)
- Contains non-Alkali Silica reactive aggregate in accordance with ASTM C289
- Complies with DMRB CS 462 & EN 1504-3

### Applications

- Structural repair of concrete damaged by reinforcement corrosion, impact or fire
- Repairs to spalled columns, beams & soffits
- Suitable for use in harsh environments such as industrial, coastal & water treatment works
- Hand-placed pointing mortar
- Rendering concrete, brickwork & block work

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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 (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
Carbonation resistance	Passes
Elastic modulus	≥15 GPa
Dangerous substances	Complies with 5.4



## Technical Properties of Acropak HB40 Mortar

Properties	Standard	Performance Requirements	Declared Value
Appearance			Grey Powder
Chloride-ion Content	EN 1015-17	≤0.05 %	≤0.05 %
Maximum aggregate size			2 mm
Cement content			>400 kg/m <sup>3</sup>
Minimum layer thickness			10 mm
Maximum layer thickness			50 mm*
Working time @ 20°C			20-30 minutes
Initial Set			2-4 hours
Final Set			4-6 hours
Application temperature			5-30°C
Density			1750-1900 kg/m <sup>3</sup>
Compressive strength @ 20°C	EN 12190	≥25 MPa	14 MPa @ 24 hours 33 MPa @ 7 days 45 MPa @ 28 days
Flexural strength	BS 6319-3		6 MPa
Modulus of elasticity in flexure	BS 6319-3		15 GPa
Modulus of elasticity in compression	EN 13412	≥15 GPa	16 GPa
Direct tensile strength	BS 6319-7		3.2 MPa
Adhesion to concrete	EN 1542	≥1.5 MPa	≥2.0 MPa
Adhesion after:			
freeze/thaw	EN 13687-1	≥1.5 MPa	≥1.5 MPa
thunder/shower	EN 13687 -2	≥1.5 MPa	≥1.5 MPa
dry cycling	EN 13687 -4	≥1.5 MPa	≥1.5 MPa
Carbonation resistance	EN 13295	$d_k \leq \text{ref. Concrete}$	Passes
Capillary absorption	EN 13057	$\leq 0.5 \text{ kg/m}^2/\text{H}^{0.5}$	$\leq 0.5 \text{ kg/m}^2/\text{H}^{0.5}$
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.

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

\*When rendered over large area. For sections greater than 50mm please contact Nufins technical department.

## Surface Preparation

Preparation shall be such as to leave clean, sound exposed surfaces, free from all contamination, oil, grease, dirt, loose particles, debris and dust.

Saw-cut the perimeter of damaged or spalled areas, forming good shoulders and break out defective concrete to the required depth, using mechanical equipment or high pressure water-jetting to expose sound concrete. Patches should be recessed to 10mm minimum.

Remove damaged concrete and where spalling has been caused by reinforcement corrosion, the reinforcement steel must be exposed. Reinforcement should be cleaned beyond its corrosion length and around its full circumference, enabling mortar to be compacted behind it. All rust and scale should be removed from any exposed steel preferably by grit-blasting. If reinforcement has corroded, so reducing of bar diameter and volume, consideration should be given to replacement.

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

## Priming

For concrete repairs the prepared surface should be thoroughly wetted with clean water and any excess removed prior to the application of Nucem Emulsion Primer using a stiff brush to ensure it is thoroughly worked into the surface.

Nucem Emulsion Primer coverage 5 - 8m<sup>2</sup> per litre.

Alternatively, for renders, repairs to poor substrates or exposed reinforcement, Nucem Primer should be used to provide optimum bond and protection. 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.

Nucem Primer coverage 3 - 5m<sup>2</sup> per kg.

## Cleaning

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

## Mixing

Acropak HB40 Mortar should be mixed mechanically with clean water in a forced action mixer. Prior to mixing, wet out the mixer drum and discard water. Repeat regularly at breaks and meal times.

Mixing water addition should be typically 4 litres per bag, up to a maximum of 4.2 litres. Measure out 4 litres of clean water and pour  $\frac{3}{4}$  into the rotating mixer drum then gradually add the entire contents of Acropak HB40 Mortar. Add sufficient of the remaining water, to achieve the desired consistency. Do not allow unmixed material to remain at the bottom of the mixer drum. Mixing time is 2 - 3 minutes till the product is thoroughly mixed.

Acropak HB40 Mortar is now ready to use and should be placed immediately. Do not allow mixed mortar to stand more than 5 minutes before using.

## Application Instructions

Apply Acropak HB40 Mortar whilst the primer remains tacky. If the primer dries before application of mortar, the substrate should be re-primed. Depending on the location to be repaired, material should be applied by hand or trowel, ensuring that thorough compaction is achieved onto the primed substrate and around the reinforcement. Finish surfaces as required with a plastic or steel float.

Acropak HB40 Mortar may require build-up in layers and in this case it is recommended to heavily score intermediate layers, producing a physical key and leaving to harden, then re-primed in order to ensure maximum adhesion. The final layer should be finished as required with a plastic or steel float.

## Curing

Curing should be employed immediately after finishing, as work progresses. Acropak HB40 Mortar 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 to receive subsequent treatments.

## Packaging

Acropak HB40 Mortar is available in 22 kg packs (yield 14 litres approximately).

Nucem Primer is available in 1 kg & 5 kg units.

Nucem Emulsion Primer is available in 5 & 25 litre units.

## Overcoating

Acropak HB40 Mortar is extremely durable and provides excellent protection to the embedded steel reinforcement. However, areas which have not been repaired will benefit from the application of a protective decorative coating, such as *Covercrete*.

## 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 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 very 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

Excessive mixing water will reduce strength and possibly induce shrinkage cracking.

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 necessary, the work area should be tented and heated during and after placement. Please contact Nufins technical department for further advice.

Where application of mortar is in situations of continuous or prolonged immersion, surfaces should be protected with an appropriate sealer or coating.

## 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.