

Unimatch

Class R1, Colour Matched, Rapid Setting Cosmetic Repair Mortar

Product Overview

Cosmetic grade, polymer modified cementitious repair mortar. CE-marked in accordance with BS EN 1504-3 Class R1.

Uses

For rapid cosmetic repairs to in-situ and pre-cast concrete where repairs need to be colour matched to the parent concrete to provide a highly aesthetic finish. Suitable for repair methods 3.1 as defined by BS EN 1504-3.

UNIMATCH is not suitable for repairs deeper than 25mm.

Advantages

- Pre-packaged material requiring mixing with clean water on-site. No special primers are necessary.
- Supplied in Grey and White grades which can be blended easily for perfect colour match. Coloured aggregates can also be blended in, as well as concrete pigments if necessary.
- Physical properties of cured materials similar to base concrete.
- Low shrinkage and high bond strength ensure monolithic performance of the repair.
- Polymer modified to enhance adhesion with low permeability giving excellent protection from acid gases, moisture ingress and chlorides.
- Rapid strength development, achieving over 9MPa in 2 hours.
- Very low alkali content ensures low hazard in use and negligible risk of alkali silica reactions. Chloride-free.

Description

UNIMATCH is a single component, cosmetic grade, polymer modified cementitious mortar suitable for the repair of damaged, honeycombed or spalled concrete. It is highly waterproof and exhibits good build characteristics. It can be used in vertical, overhead and other difficult areas of repair without the need for primers or supports. Colour and texture matching is easily achieved by mixing Grey and White grades at different ratios using trial mixes. Coloured aggregates and concrete pigments can also be blended in.

Compliance

- CE-marked in accordance with BS EN 1504-3 Class R1. Suitable for repair methods 3.1 as defined by BS EN 1504-3.

Specification Clause

The repair mortar shall be a single component, cosmetic grade repair mortar, incorporating polymer technology. It shall be CE-marked in accordance with BS EN 1504-3 Class R1, and comply with the following performance specification:

- Suitable for use in vertical and overhead areas without the need for primers, special lightweight aggregates or support.
- Compressive strength at 20°C. of at least 9MPa in 2 hours and 41.5MPa in 28 days.
- Flexural strength at 28 days (20°C. & 65% R.H) of at least 6.5 MPa in accordance with EN196-1.

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EN1504-3: Concrete repair product for non-structural repair
PCC mortar (based on hydraulic cement polymer modified)

Compressive Strength	: Class R1 ≥ 10MPa
Adhesive Bond	: Class R4 ≥ 0.8MPa
Chloride Ion Content	: ≤ 0.05%
Dangerous Substances	: Complies with 5.4
Reaction to Fire	: Class F

Technical Data / Mechanical Characteristics

Property	Standard	BS EN1504 R1 Requirement	Result	
			Grey	White
Compressive Strength	EN12190	$\geq 10\text{MPa @28 days}$	42.0MPa	48.0MPa
Compressive Strength Development @ 20°C.	BS 4551		2 Hours 15 MPa 24 hours 20 MPa 7 days 28 MPa 28days 41.5MPa	2 Hours 9 MPa 24 hours 23.5 MPa 7 days 37 MPa 28 days 41.5 MPa
Adhesive Bond	EN 1542	$\geq 0.8\text{MPa (Class R1)}$	1.15MPa Class R2 $\geq 0.8\text{Mpa}$	1.98MPa Class R3 $\geq 1.5\text{MPa}$
Chloride Ion Content	EN 1015-17	$\leq 0.05\%$		
Flexural Strength	EN196-1		Grey 6.5MPa	White 8.0MPa
Tensile Strength	BS 6319: 7		2.668MPa	
Coefficient of Thermal Expansion	BS EN 1770	Declared Value	Grey $1.67 \times 10^{-5} \text{ }^{\circ}\text{C}^{-1}$	White $1.36 \times 10^{-5} \text{ }^{\circ}\text{C}^{-1}$
Water Permeability	BS 1882: Part 5		Grey 10 mins Zero 2 Hours Zero	White 10 mins Zero 2 Hours Zero
Mixed Density			2100 kg/m ³	
Mixed Colour			Grey or white	
Min Application Thickness			5mm	
Max Application Thickness			25mm per layer	
Min Application Temperature			5°C.	
Max Application Temperature			35°C.	
Working Life (approx.)			5 - 10 minutes at 20°C.	
Reaction to Fire	EN13501-1	Euroclass	Euroclass F	

The properties given above are obtained from laboratory tests: results obtained from on-site testing may vary according to site conditions

Application Instructions

Preparation

Mechanically remove all damaged concrete back to a sound core. Wherever possible the full circumference of the steel reinforcement should be exposed and should, if necessary, extend along the length of the corroding bar for at least 50mm beyond the point at which corrosion is visible. On cutting back, feather edges must be avoided. The perimeter of the repair area should be stepped to a depth of 10mm by means of saw, disc cutting or preferably using a power chisel.

The areas to be repaired must be free from all unsound material, i.e. dust, oil, grease, corrosion by-products and organic growth. Smooth surfaces should be roughened, all loose material and surface laitance removed and reinforcement cleaned to bright steel. The prepared substrate should be thoroughly soaked with clean water until uniformly saturated without any standing water.

Treatment of Steel Reinforcement

All exposed steel reinforcement should be treated with 2 x 1mm coats of **STEEL REINFORCEMENT PROTECTOR**

841 applied by brush (See separate Data Sheet for full details).

Please Note: When carrying out repairs in new construction, it is not necessary to fully expose any reinforcing bars.

Priming of Concrete

UNIMATCH is highly polymer modified and as a result concrete surfaces do not generally require a primer. Highly porous substrates should be primed with **BONDING BRIDGE 842** prior to the application of the repair mortars (See separate Data Sheet for full details).

Mixing

UNIMATCH should be mechanically mixed using a forced action pan mixer or in a clean drum using a slow speed (240 rpm) drill and paddle. A normal concrete mixer is **NOT** suitable.

Mix **UNIMATCH** with clean water in the ratio of 12-13% by weight or 5 - 6 parts to 1 water by volume. Mix only sufficient material for use within the working life of the material. Adding powder to water ensures easy hand mixing of small quantities to produce a smooth mortar

consistency. Do not attempt to re-mix by the addition of more water after the initial mixing process is completed.

Please Note: It is vital to the success of the application that these instructions are strictly adhered to. Flexcrete cannot be held responsible for any product failures due to incorrect mixing.

Placing

For small repairs and the initial layer (25mm maximum) of deep repairs, use **UNIMATCH** mortars as supplied to ensure maximum bond and protection. Trowel the mortar firmly into place on the dampened surface, completely covering any exposed steel. Allow to stiffen for 4-5 minutes (dependent upon temperature and water content) before working the surface with a clean, damp trowel which enables the repair to be trimmed, arrises cut and a final profile of a high quality achieved.

The required texture can be easily obtained with either a steel spatula or a polystyrene block. Do not "wet down" the patch repair during this period. For larger repairs (above 25mm), use the layer technique (25mm maximum per layer) to minimise heat generation. Score the surface of each layer lightly and allow to cure for 25-30 minutes before lightly damping down and applying subsequent layers. The addition of aggregates, up to 50% by weight, in subsequent layers will give economy and strength without affecting the monolithic state of the repair.

Should temporary shuttering or other specialised applications be necessary, then please contact the Technical Department.

Curing

Normal concreting procedures should be strictly adhered to. It is important that the surface of the mortar is protected from strong sunlight and drying winds with **FLEXCRETE CURING MEMBRANE WB**, polythene sheeting, damp hessian or similar (See separate Data Sheet for full details).

Cleaning and Storage

All tools should be cleaned with water immediately after use.

Materials can be stored for 12 months in dry, frost free conditions with unopened bags at 20°C.

Packaging

UNIMATCH is supplied in 25kg bags.

Yield and Coverage

13.5 litres per 25kg bag.

A 25kg bag covers 1.35m² at 10mm thickness.

Limitations

Do not use **UNIMATCH** when the temperature is below 5°C and falling. Do not use **UNIMATCH** on waterproof concrete without referring to the Flexcrete Technical Department. Not suitable for use on trafficked areas.

Health and Safety

Safety Data Sheets are available on request.

Application Top Tips

1. Experiment with blends of Grey and White to provide a colour match before undertaking repairs.
2. Coloured aggregates and concrete pigments can also be used to colour match where blends of Grey and White are unacceptable.
3. **DO NOT WET OUT OR PRIME** between layers.
4. For deeper repairs after placement of the initial 25mm as supplied, **UNIMATCH** can be bulked out with aggregates to give economy and strength without affecting the monolithic state of the repair
5. **DO NOT OVER TROWEL.** If the mortar begins to slump, allow to stabilise and refinish.
6. When finishing, trowel from centre out towards the perimeter working into the edges of the tie hole.
7. Due to the rapid set of **UNIMATCH**, only mix as much material as can be used within the working life of the mortar.
8. Cold Weather Working (See separate Guide)
 - ≥3°C. on a rising thermometer.
 - ≥5°C. on a falling thermometer.
9. Hot Weather Working (See separate Guide)
 - Store material in cool conditions to maximise working life.
 - Shade applied material from strong sunlight.
 - Spray apply a second coat of **CURING MEMBRANE WB.**
 - If possible, avoid extreme temperatures by working at night.

The information herein is correct to the best of our knowledge, but it does not necessarily refer to the particular requirements of the customer. If the customer has any particular requirements it should make them known in writing to Flexcrete Technologies Limited, and obtain further advice accordingly.



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