

#### MATERIAL SPECIFICATION

Unless otherwise shown on Engineering Drawings, a medium-weight, hand applied, structural repair mortar meeting the requirements of a Class R3 mortar per EN 1504-3 shall be used for:

- Vertical and overhead concrete repairs up to 40mm deep.
- Repairs requiring low permeability and dimensional stability.
- Repair of reinforced concrete requiring 28-day compressive strengths of up to 45MPa.
- Repairs incorporating galvanic anodes.

The concrete repair material shall be a blended, pre-packaged cement-based mortar requiring only the addition of potable water.

The concrete repair material shall meet all the following typical performance criteria when tested at 21°C:

TYPICAL PHYSICAL PERFORMANCE			
PERFORMANCE TEST		TEST METHOD	TYPICAL VALUES
Determination of compressive strength:	24 Hours	UNE-EN 12190:1999	31.4 MPa
	7 Days		36.3 MPa
	28 Days		44.5 MPa
Measurement of bond strength by pull-off	Without Primer	UNE-EN 1542:1999	3.4 MPa
	With Primer		3.6 MPa
Determination of retraction and expansion	Shrinkage	UNE-EN 12617-4:2002 Controlled movements method	3.3 MPa
	Expansion	UNE-EN 12617-4:2002. Controlled movements method	2.3 MPa
Determination of resistance to carbonation		UNE-EN 13295:2005	Dk ≤ reference concrete MC(0.45)
Determination of the module of elasticity in compression		UNE-EN 13412:2008	19.7 GPa
Chloride ion content		UNE-EN 1015-17:2000	<0.01%
Determination of resistance of capillary absorption		UNE-EN 13057:2002	0.3 kg/ (m <sup>2</sup> x h0.5)
Determination of the coefficient of thermal expansion		UNE-EN 1770:1990	9.9 μm/m °C

#### A repair material that meets the requirements is:

- Eucocrete RM – Available from: TREMCO CPG – [www.tremco.com.au](http://www.tremco.com.au)

#### Ancillary products from Tremco Include:

- Eucocrete Zincrich Primer – Primer for steel reinforcing
- Evancure AC or Evancure XDS-NXGEN – Curing Compound
- Sentinel Galvanic Anodes – Galvanic Anodes

#### SURFACE PREPARATION

##### Concrete Surfaces

- All areas to be repaired are to be clearly marked out by the client's representative in rectangular, or square shapes.
- Saw-cut concrete around the outlines of the marked-up areas to a minimum depth of 10mm, ensuring all cuts are perpendicular to the surface, to avoiding featheredging.
- Long narrow repair areas shall be avoided.
- Side edges of the saw cuts must be mechanically roughened to create adequate mechanical bond.
- The perimeter of the repair shall be kept to a simple shape and sharp angles avoided.
- Completely remove all loose, delaminated and weak concrete to the required depth up to the saw cut edge. Avoid abrupt changes in depth.
- Clean the surface and remove any dust, oil, grease, paint and / or other contaminants.
- Prepare concrete using acceptable mechanical means and concrete cleaners and degreasers as necessary to obtain clean, sound and rough surfaces. Coarse aggregate shall be exposed.

- All cracks shall be brought to the attention of the engineer and a determination made of whether the cracks are subject to movement.
- The cracks shall be repaired as directed by the engineer prior to application of the repair material.
- Soak concrete thoroughly with potable water for a minimum of 2 hours prior to placement.
- Concrete shall be saturated and free of standing water at time of repair material placement (surface saturated dry). Any free-standing water should be vacuumed up immediately before application of the repair mortar takes place.
- Clean damp substrate must be primed with the specified primer leaving the substrate with a damp, puddle free and non-glistening appearance prior to application of the repair material.

#### STEEL REINFORCEMENT

- All reinforcing steel that has lost bond with the concrete must be fully exposed around the entire perimeter of the bar to a minimum of two times the maximum aggregate size.
- Continue to remove concrete along all exposed reinforcing bars to at least 50mm beyond the point of corrosion.
- All steel reinforcing bars must be securely anchored, with an appropriate lap length as directed by the engineer.
- If more than 10% of the diameter of a reinforcing bar has been deteriorated, the bar will require replacement or will need to be spliced as directed by the engineer.
- Corroded steel should be mechanically cleaned to remove all signs of oxidation and thoroughly high pressure washed with clean water to ensure removal of debris and residual contamination.
- All exposed steel reinforcing bars shall be free of all loose scale, rust and other contaminants around the entire perimeter of the bar to achieve a surface preparation at least equivalent to Class SA 2.5 "near white metal" as per AS 1627.4
- Particular attention is to be paid to the back of the exposed steel reinforcing bars.
- The minimum cover over reinforcement shall be in accordance with job specifications.
- If required, any additional protective treatments, and electrochemical protection for the steel reinforcement shall be undertaken as directed by the engineer, as soon as practically possible after the steel reinforcement has been appropriately prepared.

#### ENVIRONMENTAL CONDITIONS

- Repair material & surfaces to be repaired should be pre-conditioned to between 4°C and 35°C.
- Optimum temperatures will be between 12°C & 25°C.
- Shade the material from direct sunlight as necessary.
- Store material in an area that is clean, dry & protected from the elements.

#### MIXING

##### (Drill and Paddle Mixer)

- Place the minimum amount of premeasured potable water into a clean mixing bucket.
- While mixing at a slow speed, slowly add repair material and mix to a uniform consistency.
- Add remaining water to achieve desired workability.
- Do not exceed maximum water content as printed on product packaging or an amount that will cause segregation.
- Total mixing time should be between 4 to 5 minutes.
- Do not mix more material than can be placed within the working time of the repair material.
- Do not re-activate the mix by adding additional water.
- Avoid splitting kits of repair materials i.e., only mix full units for all applications.
- Place material immediately after mixing.

#### PLACEMENT

##### Trowel / Hand (For vertical & overhead repairs)

- Substrate shall be properly prepared, saturated, free of standing water and primed prior to application of the repair mortar.
- Apply a first thin layer / scrub coat or repair material and press / compact into the prepared substrate to ensure that all voids are properly filled.
- The scrub coat must only be applied over the area that can be immediately covered with repair material.
- Immediately and firmly apply next layer of repair material up to 40mm thick over scrub coat.
- Overhead repair layers may require thinner applications and multiple lifts to prevent sagging.
- For multiple lift applications, scratch the surface of initial lift using a trowel in a checkerboard pattern to create a mechanical key for the next lift of repair material.
- Lifts that have set should be dampened with water just prior to applying the subsequent lift.

- ❑ Each lift should be compacted firmly into the previous lift and placement shall proceed continuously until the area to be repaired is completely filled.
- ❑ Finish the repair material to the desired texture when it offers stiff resistance. A float, brush, or trowel may be used for finishing.

### CURING

- ❑ Correct curing is essential to ensure optimum performance.
- ❑ Once the repair material has reached its initial set, the repaired areas should be coated with an approved liquid curing membrane.
- ❑ In extreme weather conditions, supplementary curing with polyethylene sheeting should be considered.

### DISCLAIMER

Tremco CPG Australia Pty Ltd products are manufactured to rigid standards of quality. Any product which has been applied (a) in accordance with Tremco CPG Australia written instructions and (b) in any application recommended by Tremco CPG Australia, but which is proved to be defective, will be replaced free of charge.

Any information provided by Tremco CPG Australia in this document in relation to Tremco CPG Australia's goods or their use is given in good faith and is believed by Tremco CPG Australia to be appropriate and reliable. However, the information is provided as a guide only, as the actual use and application will vary with application conditions which are beyond our control. Tremco CPG Australia makes no representation, guarantee or warranty relating to the accuracy or reliability of the information and assumes no obligation or liability in connection with the information. To the extent permitted by law, all warranties, expressed or implied are excluded.

### CONTACT OUR TEAM

Tremco CPG Australia Pty Ltd  
ABN: 25 000 024 064  
Unit 12, 4 Southridge Street  
Eastern Creek, NSW 2766

P: (02) 9638 2755  
F: (02) 9638 2955  
E: [tremco@tremco.com.au](mailto:tremco@tremco.com.au)