MasterCrete CI 5100

Cementitious trowel applied lightweight polymer modified repair mortar with active corrosion inhibition

Material Description

MasterCrete CI 5100 is a non-structural, single component, polymer modified, repair and re-profiling mortar. MasterCrete CI 5100 when mixed with water is a mortar that contains special cements, graded sands, selected polymers to allow the mortar to be hand or trowel applied in thicknesses from 5mm to 100 mm.

Areas of Application

- Non-structural repair of concrete elements like balconies edges, building facades, parapet walls, precast panels, and beam edges.
- General, non-structural patch repairs where high build properties allowing up to 100 mm thickness in one layer are required.
- Can be applied as a smoothing or levelling coat at only 5 mm thick on large vertical and overhead areas to achieve a more aesthetic finish e.g. prior to painting.
- MasterCrete CI 5100 has active corrosion inhibition to prevent incipient anodes forming and to preserve the reinforcing steel in the immediate area of the patch.

Characteristics and Benefits

- Shrinkage compensation and corrosion inhibition - to minimise crack tendency and extend life of repair.
- Smooth, creamy, non-slump mortar - easy to create profiles and corners without formwork.
- High build capacity - can be applied 80 - 100 mm in vertical applications or up to 70 – 80 mm overhead in one layer.
- Multi-use - reprofiling and patch repair mortar in one
- Good strength development - exceeding requirement of Class R1 of EN1504 part 3
- Low modulus of elasticity - able to cope with the thermal movement of the structure
- Low chromate (Cr[VI] < 2 ppm) – reduces risk of skin allergies
- Chloride-free - does not increase chloride load on structure

Properties

Appearance	Grey powder
Layer thickness	Min. 5mm Max. 100mm (vertical & horizontal), 80mm (overhead)
Density	Approx. 1.5 g/cm3
Temperature for application (substrate and material)	Between +5°C and +35°C
Compressive strength - after 7 days - after 28 days AS 1478.2 Appendix A (Restrained)	 ≥ 20 MPa ≥ 25 MPa
Flexural strength - 7 days - 28 days	 ≥ 5.5 MPa ≥ 6 MPa
Chloride Ion diffusion (NORD test)	7.95E-12m^2/sec
Electrical resistivity (ASTM C305)	11,000 Ω.cm
Elastic Modulus (AS 1012 pt 17)	9 GPa
Permeability risk for Chlorides and Sulphates FM5-578	High Risk
VOC Content (SCAQMD 304-91)	6g/L

Hardening times are measured at 21°C ± 2°C and 60% ± 10% relative humidity. Higher temperatures will reduce these times and lower temperatures will extend them. Technical data shown are statistical results and do not correspond to guaranteed minima. Tolerances are those described in appropriate performance standards.

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Application

Surface Preparation

Concrete must be fully cured, clean and sound to ensure good adhesion. All loose traces of concrete or mortar, dust, grease oil, etc. must be removed. Damaged or contaminated concrete should be removed to obtain a keyed surface. A surface profile of CSP 5 or above is desired.

Non-impact/ vibrating cleaning methods, e.g. grit or high water pressure blasting are recommended. Aggregate should be clearly visible on the surface of the concrete structure after surface preparation.

Cut the edges of the repair vertically to a minimum depth of 5 mm. If reinforcing steel is visible, clean to a minimum grade of SA 2 according to ISO 8501-1 / ISO 12944-4. For extra protection, or when the steel is left exposed before repair work is completed, apply **MasterCrete PRI 5000** active protection cement based primer.

Priming

The prepared substrate should be pre-soaked, preferably for 24 hours, but at least 2 hours before applying **MasterCrete CI 5100**. The surface must be mat-damp, but without standing water. For improved build thicknesses or when working on large areas, apply bond or contact layer of the **MasterCrete CI 5100** mortar. Alternatively a bonding coat of **MasterCrete PRI 5000** can be ap-plied. Always apply **MasterCrete CI 5100** mortar wet-in-wet onto the bond or contact layer.

Mixing

Use only full bags and damaged or opened bags should not be used. Mix **MasterCrete CI 5100** with a suitable paddle attached to a powerful, slow speed electric drill for 3 minutes until a lump free, plastic consistency is achieved. Only use clean water. Mixing water needed: 3.8 to 4.0 litres per 20kg bag depending upon consistency required. (Use stiffer consistency for overhead and vertical patching application and softer more creamy consistency for use as a levelling coat at 5mm thick). Allow the mortar to rest for 2 - 3 minutes and then remix briefly, adjusting the consistency as required. NB: Never exceed the maximum water demand.

Mortar Application

The minimum temperatures must be maintained during application and for at least 12 hours thereafter for optimum curing of the product. **MasterCrete CI 5100** can be hand or trowel applied. Apply mixed product directly to the prepared damp substrate, or wet on wet onto the primed surface. A thin scrape coat or contact layer before building up to the required thickness, wet on wet, will improve the wet adhesion and cohesion of the mortar. Apply to the desired layer thickness of 5mm to max. 100 mm.

Smoothing with a trowel or finishing by float or sponge can be done as soon as the mortar has begun to stiffen, typically after approximately 45 - 60 minutes at 20°C.

In these environmental conditions, **MasterCrete CI 5100** can be over-coated, after 7 days, with **MasterShield AC 150** or **MasterShield 160** as required.

NB: At lower temperatures and/or higher humidity these times will be extended.

Curing

MasterCrete CI 5100 has been formulated to withstand too rapid water loss under normal conditions. In high temperatures with low humidity and windy conditions, repairs should be cured by application of a suitable Master Builers Solutions curing compound such as **MasterKure 250** or cover with plastic sheeting in order to avoid plastic shrinkage cracking.

Estimating Data

One 20kg bag mixed with 4 L or water has a volume of approximately 16L.

MasterCrete CI 5100				
L	Thickness in mm /m^2	m^3	bags /m^3	m^2/mm thickness
16	16mm	(0.016)	63	16 m^2

Packaging

MasterCrete CI 5100 is available in 20kg bags.

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Storage & Shelf Life

MasterCrete CI 5100 has a shelf life of 12 months. Store inside and protect from contact with water.

Precautions

For the full health and safety hazard information and how to safely handle and use this product, make sure that you obtain a copy of the Safety Data Sheet (SDS) from our office or website.

Disclaimer

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