MasterCrete CI 5300 (formerly MasterEmaco 5300CI)

Lightweight, mid strength, polymer modified, fibre reinforced, structural repair mortar with active corrosion inhibition

Material Description

MasterCrete CI 5300 is a single component, lightweight, polymer modified, high build structural repair mortar with active corrosion inhibition. **MasterCrete CI 5300** has been specifically formulated to produce a mortar with the compressive strength and modulus characteristics defined in class R3 of EN 1504 part 3.

Areas of Application

MasterCrete CI 5300 is used for the structural repair of lower strength concrete elements such as balcony edges, soffits and decks, window ledges, lintels and beams or anywhere where concrete structures need to be repaired or re-profiled by hand.

Characteristics and Benefits

- Shrinkage compensation and fibre reinforcement - minimise crack tendency creating a longer lasting repair
- Medium strengths and lower modulus of elasticity - allows the repair of medium strength concrete without problems of differential movement
- Highly thixotropic and lightweight - allows single high build layers
- High build - applied up to 75 mm in vertical applications and 50 mm overhead
- Outstanding workability - easy to create profiles and corners without formwork
- Very low shrinkage - excellent crack resistance
- Durable and weather resistant - Good water and chloride impermeability
- Low chromate (Cr[VI] < 2 ppm) - low risk of skin irritation
- Chloride-free - does not add to chloride load of contaminated structures
- Active corrosion inhibition – suitable for extreme environments.
- Approved to AS/NZS 4020:2018 (tested to the maximum exposure level) - suitable for contact with potable water.

Properties

Appearance	Grey powder
Layer thickness	5mm to75mm
Density	Approx. 2.0 g/cm^3
Mixing water per 20kg bag	Approx. 3.8 – 4.2litres
Working time	45 – 60 minutes
Temperature for application (support and material)	Between +5 and +35°C
VOC Content SCAQMD 304-91	21g/L

Compressive strength - after 1 day - after 7 days - after 28 days	AS 1478.2 Appendix A (Restrained)	 ≥15 MPa ≥ 30 MPa ≥ 45 MPa
E-Modulus (28 days)	prEN13412	≥ 1.0 GPa
Chloride Ion diffusion	NORD test	3.85E-12m^2/sec
Permeability risk for Chlorides and Sulphates	FM5-578	Low
Capillary absorption	EN 13057	≤ 0.5 kg/m^{2}h$^{0.5}$
Cracking tendency (I)	Coutinho type ring	No cracking after 180 days
Resistivity		22600 Ω.cm
Potable water contact	AS4020:2018	Passed
Shrinkage	AS 1012-13 56 days	690 microstrain

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 minimal. Tolerances are those described in appropriate perfor-mance standards.

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Application

Surface Preparation

Concrete must be fully cured with a minimum direct tensile strength of 1.0 MPa. All loose concrete or mortar, dust, grease, oil and curing compounds must be mechanically removed. Aggregate should be clearly visible on the surface of the concrete structure after preparation.

Non-impact/vibrating cleaning methods, e.g. grit or high water pressure blasting are recommended to obtain a CSP 5 or greater profile. Cut the edges of the repair vertically to a minimum depth of 5 mm. Clean all exposed reinforcement to a minimum grade of Sa 2 according to ISO 8501-1 / ISO 12944-4. In case of chloride contamination of the concrete, when depth of cover is less than 5 mm or when the steel is left exposed before the repair work is completed, the reinforcement should be protected by using MasterCrete PRI 5000.

Mixing

Only full bags are mixed. Damaged or opened bags should not be used. Mix MasterCrete CI 5300 with clean water only, in a forced action pan mixer, or with a helical paddle attached to a slow speed (300-600 rpm) mixer for 3 minutes until the required lump-free, plastic consistency is achieved. Mixing water needed: 3.8 to 4.2 litres per 20kg bag depending upon consistency required. Allow the mortar to rest for 2 - 3 minutes and then remix briefly, adjusting the consistency as required, without exceeding the maximum water demand.

Priming Concrete

The prepared substrate should be pre-soaked, preferably for 24 hours, but at least 2 hours before applying MasterCrete CI 5300. The surface must be saturated surface dry, but without standing water. To obtain extra strong bonding, the damp substrate can be primed with a slurry brush coat of MasterCrete CI 5400 (2 parts powder to 1 part water) or MasterCrete PRI 157 Alternatively, MasterCrete PRI 5000 can also be applied as the bonding slurry.

Mortar Application

The minimum temperatures must be maintained during application and for at least 24 hours thereafter for optimum curing of the product. MasterCrete CI 5300 can be hand, trowel or spray applied. Apply mixed product directly to the prepared damp substrate, or wet in 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, especially in case of hand application. Apply to the desired layer thickness of 5 to max 75 mm and level using a screeding beam, trowel or wooden board. Can be applied in thicker layers in smaller patches or where additional reinforcement is present. Smoothing with a trowel or finishing by float or sponge can be done as soon as the mortar has begun to stiffen.

Curing

The following curing methods are advised - polyethylene film, damp cloths, MasterKure curing agent.

Estimating Data

One 20kg bag will yield approximately 12.4 litres of mortar. Approx. 2.0 kg of mixed product per m^2 and mm layer thickness (approx. 1.8 kg of dry powder per m^2 and mm layer thickness).

MasterCrete CI 5300				
L	Thickness in mm /m^2	m^3	bags /m^3	m^2/mm thickness
12.4	12.4mm	(0.0124)	81	12.4 m^2

Packaging

MasterCrete CI 5300 is available in 20kg bags.

Storage & Shelf Life

Store in cool and dry warehouse conditions. Shelf life in these conditions is 12 months in unopened original bags.

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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

MB Solutions Australia Pty Ltd	MB Solutions New Zealand Ltd	Emergency Advice:
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