

MasterCrete CI 5488

Cementitious structural repair mortar with shrinkage compensation and active corrosion inhibitor

Material Description

MasterCrete CI 5488 is a ready-to-use, high-strength repair mortar containing an active corrosion inhibitor. When mixed with water, it produces a rheoplastic, non-segregating, thixotropic mortar with excellent bond to both steel reinforcement and concrete substrates.

MasterCrete CI 5488 is fiber-reinforced with synthetic fibers, contains no metallic aggregates, and is chloride free.

In addition to achieving high mechanical strength and excellent bond performance, **MasterCrete CI 5488** provides exceptional durability by significantly reducing the ingress of chlorides, carbon dioxide and other aggressive agents, thereby helping to protect embedded reinforcement and extend the service life of repaired structures in demanding infrastructure and marine environments.

Areas of Application

MasterCrete CI 5488 is suitable for structural repairs requiring mortar layers up to 40 mm thickness, including:

- Vertical, overhead and horizontal concrete repairs
- Repair of damaged or deteriorated concrete members
- Repairs to elements subjected to repetitive or dynamic loading
- Structural members such as reinforced or prestressed beams (normal or eccentric stress)
- Repair of concrete exposed to aggressive environments (sulphates, sulfides, chlorides, etc)
- Maintenance and repair works in marine, port and tidal structures
- Industrial environments where mineral oils and lubricants are present
- Potable water tanks and water-retaining structures

Characteristics and Benefits

- Excellent adhesion – forms a permanent bond to prepared concrete substrates
- High durability- Enhanced long-term protection of embedded reinforcement due to exceptional resistance to chloride ingress in addition to outstanding resistance to carbonation.

- Shrinkage-compensated in both plastic and hardened stages
- Easy to apply – can be trowelled or spray-applied on vertical, overhead and horizontal surfaces
- R4 classification – In compliance with EN1504-3 requirements.
- AS/NZS 4020:2018 compliant (maximum exposure level) – suitable for potable water contact

Properties

All data provided in technical characteristics table verified through testing conducted by NATA-accredited independent laboratories, in full accordance with the specified test methods.

Technical Characteristics	Test Method	Test results
Bond Strength-MPa	AS 1012.24	≥2MPa
Compressive Strength-MPa	AS 1478.2 App. A	1 day: 30 7 days: 60 28 days: 85
Modulus of Elasticity-GPa	AS1012.17	28 days: 33
Capillary absorption	EN 13057	≤ 0.5
Chloride Content	AS1012.20	0.012%
Chloride Diffusion Coefficient*- m ² /s	NT Build 443	0.4x10 ⁻¹²
Carbonation Depth*- mm	EN 13295 (fib 34)	0.04
Inverse Carbonation Resistant*- (m ² /s)(kg/m ³)	EN 13295 (fib 34)	Exceptionally high
Fresh Wet Density -kg/m ³	AS1012.5	2150
Indirect Tensile Strength -MPa	AS1012.18	28 days: 6.0
Flexural Strength -MPa	ASTM C348	28 days: 7.4
Setting time-hr	AS1012.18	Initial: <4hr Final: <5.5hr
Sulphate content	AS1012.20.1	0.55%
Electrical Resistivity -KΩ·cm	AASHTO T358	28 days: 69

** Based on testing results in accordance to EN 13295 (fib Bulletin 34) as well as NT BUILD 443 report, MCrete CI 5488 exhibited extremely high results as ULTRA LOW permeability while ULTRA HIGH resistance repair mortar to increase the service life of assets up to 5 times compared with a conventional repair mortar.*



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Application

For detailed application methodology, please refer to "[Cementitious concrete repair MasterCrete repair mortars](#)" application guide.

Surface Preparation

Concrete must be fully cured with a minimum direct tensile strength of 1.5 MPa. All loose traces of concrete or mortar, dust, grease oil, etc. must be removed. Damaged or contaminated concrete shall be removed to obtain a keyed aggregate exposed surface. Non-impact/ vibrating cleaning methods, e.g. grit or high-pressure water blasting are recommended. Scabble to a surface profile of ICRI CSP 5 or greater. Cut the edges of the repair vertically to a minimum depth of 15 mm.

Clean all exposed reinforcement to a minimum grade of Sa 2.5 according to ISO 8501-1 / ISO 2944-4. Ensure back of rebar is also clean.

Mixing

Pour minimum required water into a suitable mixer (low speed drill with suitable helical paddle (jiffy) or by pan mixer and add **MasterCrete CI 5488** rapidly and continuously while mixing. Mix for 3-4 minutes or until a lump free, homogeneous mortar is obtained. Hand mixing of MasterCrete CI 5488 is not recommended to avoid the introduction of excessive amounts of water.

Add extra water, if necessary, until the required consistency is obtained and mix again for 2 - 3 minutes.

The amount of water to be added is highly dependent on ambient temperature and relative humidity. In hot and dry climates, slightly higher amounts of water may be necessary, the contrary in cold and humid climates.

Priming

No special primer is required. To obtain extra strong bonding, the damp substrate can be primed with a slurry brush coat of **MasterCrete CI 5488** (2 parts of powder to 1 part of water). However, several layers can be applied in quick succession. If thicker layers are applied, suitable formwork has to be used.

Application

MasterCrete CI 5488 can either be sprayed or trowelled. If necessary, a wooden float may be used to level the surface. The final surface may be smoothed as desired by a wooden, plastic or synthetic sponge trowel. Trowelling after the spray application may start only when the mortar has set, that is, when fingers do not sink beneath the surface, but mark it lightly.

Curing

In normal ambient conditions, even without traditional curing, **MasterCrete CI 5488** will not craze or crack due to plastic shrinkage, as often occurs with mortars, which are not protected adequately in the first 24 hours of curing. Cover with plastic sheet for 24 hours or apply **MasterKure 404** or **MasterKure 250** liberally to surface to achieve optimum results. Do not immerse in water to cure.

Estimating Data

A 20kg bag of **MasterCrete CI 5488** mixed with 3.2 litres of water yields 10.5 litres (0.0105m³), therefore material requirement is 19.1kg/m² at 10mm thickness.

MasterCrete CI 5488				
20kg	Thickness in mm /m ²	m ³	bags /m ³	m ² /mm thickness
10.5L	10.5mm	0.0105	95	10.5 m ²

Packaging

MasterCrete CI 5488 is available in 100% biodegradable 20kg bags.

Storage & Shelf Life

MasterCrete CI 5488 can be stored in tightly sealed original bags for 12 months, if kept dry and at moderate temperature.



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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) [AU](#) or [NZ](#) from our office or website.

Disclaimer

MasterCrete-CI 5488-ANZ-V7-0626

STATEMENT OF RESPONSIBILITY

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