

# MasterCrete FC 545

Rapid setting trafficable repair mortar

## Material Description

**MasterCrete FC 545** is a one component concrete repair and anchoring material which sets in 15 minutes and will accommodate rubber-tyre traffic 45 minutes after placement. This product bonds to both concrete and masonry and can be used indoors and outdoors for highway and heavy industrial repair jobs.

## Areas of Application

- Bridge deck and highway overlays
- Concrete pavement joint repairs
- Airport runway light installations
- Full depth structural repairs
- Expansion device nosings
- Anchoring steel bridge and balcony railings
- Commercial freezer room repairs
- Loading dock repairs
- Parking deck and ramp repairs
- Heavy industrial repairs

## Characteristics and Benefits

- Wide temperature application range – suitable for climates from very hot to very cold.
- Rapid strength gain – fast return to service only 45 minutes.
- Chemically bonds to concrete – long life of patches in trafficked areas.
- Thermal expansion/contraction rate similar to concrete – suitable for freeze thaw conditions.
- Minimal drying shrinkage - long term volume stability and stability of patch
- Cement colour - patches have texture and look of concrete.

## Properties

Typical Compressive Strengths – MPa AS2073 Part 10 (Modified)		
	2°C	22°C
<b>1 hour</b>	-	20
<b>1 day</b>	10	40
<b>28 days</b>	48	48

	7 days	28 days
Modulus of Elasticity (ASTM C469)	28.8 GPa	31.4 GPa
	33.8 GPa	36.2 GPa
<b>Freeze/Thaw Durability Test</b> (ASTM C 666, Procedure A modified)	Normal Relative Dynamic Modulus greater than 80% after 300 cycles.	
<b>Sulfate Resistance</b> (ASTM C 1012)	Length change after 52 weeks – 0.9%.	
<b>Typical Setting Times</b> (Gilmore ASTM C 266 modified) 22°C	Initial – 10 to 15 minutes Final – 12 to 20 minutes.	
<b>Coefficient of Thermal Expansion</b> (CRD-C 39-81)	12.8 x 10 <sup>-6</sup> /°C.	

<b>Flexural Strength</b> (ASTM C 78 modified) 75mm x 100mm x 406mm prisms at 1 day strength	
<b>MasterCrete FC 545</b> mortar	3.8MPa
<b>MasterCrete FC 545</b> mortar with (10mm) pea gravel	4.2MPa
<b>MasterCrete FC 545</b> mortar with (10mm) crushed angular non-calcareous hard aggregate	4.5MPa

*The performance data is typical and based upon controlled laboratory conditions. Actual performance on the job site may vary from these values based on actual site conditions.*

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## Application

### Surface Preparation

Surfaces should be structurally sound, clean, and free from loose particles, oil, grease, cement laitance, mould release agents, curing membranes, and other contaminants must be removed by wet grit blasting, high pressure water jetting (approx. 150 bars) or such other effective methods. A surface profile of CSP 5 or greater is desired.

Surface carbonation inhibits chemical bond. Apply an indicator to the prepared surface to determine if carbonation is present. To obtain permanent repairs the edge of the patch should be square cut to a depth of not less than 10mm.

### Mixing

Add all the water to a clean bucket and add the **MasterCrete FC 545** and mix for approximately 1 to 1½ minutes and place. Use neat material for patches less than 25mm in depth. Do not use **MasterCrete FC 545** for patches less than 13mm deep. For deeper patches, **MasterCrete FC 545** must be extended by adding up to 12kg of properly graded, dust-free, hard, rounded aggregate. (Do not use calcareous aggregate made from soft limestone. Test aggregate for fizzing with 10% HCl. If fizzing occurs, aggregate is unsuitable for use with **MasterCrete FC 545**). Do not add sand, fine aggregate or Portland cement to **MasterCrete FC 545**. **MasterCrete FC 545** gives off ammonia fumes when mixed with water and care should be taken to provide adequate ventilation. **MasterCrete FC 545** is slightly acidic once mixed with water and will mark aluminium, galvanized metals and glass so care should be taken to avoid contact. **MasterCrete FC 545** will not freeze at temperatures above -7°C.

## Estimating Data

### Note: WATER CONTENT IS CRITICAL

A 20kg bag of **MasterCrete FC 545** mixed with a maximum 1.4 litres of water produces a volume of approximately 0.01m<sup>3</sup>(10L).

A 60% extension (12kg/bag) using 14mm, rounded, sound aggregate produces a volume of approximately 0.014m<sup>3</sup>(14L).

MasterCrete FC 545				
L	Thickness in mm /m <sup>2</sup>	m <sup>3</sup>	bags /m <sup>3</sup>	m <sup>2</sup> /mm thickness
10	10mm	(0.01)	100	10 m <sup>2</sup>

## Curing

**MasterCrete FC 545** should air dry for proper cure. In hot and dry conditions prevention of moisture loss should be done by covering with plastic sheeting. Never wet cure **MasterCrete FC 545**.

## Cleaning

Clean tools and equipment with water, before the **MasterCrete FC 545** hardens.

## Packaging

**MasterCrete FC 545** is packaged in 20kg moisture resistant bags.

## Storage & Shelf Life

**MasterCrete FC 545** has a shelf life of 12 months. Store out of direct sunlight, clear of the ground on pallets protected from rainfall.

## 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.



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## Disclaimer

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### STATEMENT OF RESPONSIBILITY

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