MasterCrete™ S88 C

Structural Repair Mortar

Material Description

MasterCrete™ S88 C is cement based one part, polymer modified, fibre reinforced, thixotrophic structural repair mortar.

Complies with EN 1504-3/R4

Areas of Application

- Structural repairs of deep segregations on reinforced concrete members
- Protection of the concrete against sulphate and chloride attacks
- Repair of the marine structures
- Repair of the underground structures
- Structural and non-structural repairs of high strength concrete elements
- Surface repair of the RC elements before polymer coating applications
- Repair of the tie-rod, test and cone holes

Characteristics and Benefits

- Mixed with only water and can be applied easily
- Perfect bonding to the concrete and steel.
- High strength
- Thixotropic and can be used in over-head applications
- Waterproof
- Resistant to freeze-thaw cycle
- Resistant to sulphate and chloride attacks
- Resistant to oils
- Shrinkage compensated

Processing Method

(A) Preparation of Substrate

The concrete surfaces must be sound, clean and dry. It shouldn't be weakened by overtroweling and lack of curing. The concrete should be free of frost, curing membranes, waterproofing treatments, oil stains, laitance, friable material and dust. The perimeters of

Technical Properties		
Structure of the Material	Mineral Fillers, Fibre and Polymer Modified Cement	
Color	Grey	
Compressive Strength TS EN 12190 (1 day) (7 day) (28 days)	 >25 N/mm^2 >40 N/mm^2 >60 N/mm^2	
Flexural Strength TS EN 196 (28 days)	>8 N/mm^2	
Bonding Strength to concrete (28 days)	>2,0 N/mm^2	
Elasticity Modulus (28 days)	>20,000 N/mm^2	MK
Capillary Water Absorption (TS EN 13057)	<0,5 kg.m^{-2}.hour$^{-0,5}$	
Application Thickness	Min. 10 mm Max. 50 mm	
Application Temperature	+5^{0}C + 30^{0}C	
Service Temperature	-20^{0}C + 400^{0}C	
Pot Life (+20^{0}C)	30 minutes	
Walkability Time (+20^{0}C)	24 hour	
Fully Cured (+20^{0}C)	28 days	

Typical values are obtained from the test results of 4x4x16 mortar prism in 23°C and 50% relative humidity conditions. High temperatures shortens the curing and working time, lower temperatures extends the durations.

MasterCrete™ S88 C

Structural Repair Mortar

repairs to concrete that involve concrete removal and subsequent materials replacement shall be saw cut perpendicular to the repair surface, corroded reinforcements should be cleaned and if needed replaced with new ones. The surfaces should be wetted before application. If there is a water leakage it must be drained or properly plugged.

(B) Mixing

Add enough water into a clean mixing bucket by using a proper water gauge. Add the powder into the bucket slowly and continously. Mix the fresh mortar with a proper electrical mixer (300-600 rpm) for 4 minutes until having a homogenous consistency. Let the mortar have rest for 4 minutes and re-mix for 30 seconds.

Mixing Ratio

MasterCrete™ S88 C	Amount of Mixture Water	Density of Mixture
For 1 kg Powder	<0,16 liter	~2,25 kg/liter
For 25 kg Bag	<4,00 liter	

(C) Processing

MasterCrete™ S88 C should be applied to the prepared surface by using a steel trowel. Application thickness should be between 1-5 cm. For thicker applications second layer of the mortar should be applied after 24 hours in same way. After the mortar finishes its first setting, some water should be sprayed onto the mortar and the surface should be finished with using steel or wooden trowel.
Open areas should be protected from the rain, wind, etc. aggressive whether conditions during the first 24-48 hours after finishing repair by using wet clothes, curing membranes etc.

Consumption

19.20 kg/m^2 for obtaining 1 cm thick layer.

Point to Consider

- Repair mortar should be applied in 30 minutes in 20ºC.
- Open areas should be protected from the rain, wind, etc. aggressive whether conditions during the first 24 hours after finishing repair.
- Cement based materials' pot life and curing times vary depending on the relative humidity, substrate and ambient temperature. Reaction gets slow in low temperatures and it causes to extension on pot life and working time. On the other hand high temperatures speed up the reaction, which results to short pot life and working time. For full curing of material, both the substrate and ambient temperature shouldn't be under allowed application temperature.
- Do not use **MasterCrete™ S88 C** in case of contacting to liquids with a pH under 5.5.
- Do not use as a screed or concrete topping in wide areas.

Cleaning of Tools

All the tools and equipments must be cleaned by water after the application. After **MasterCrete™ S88 C** is hardened, it can only be removed from the surface mechanically.

Packaging

MasterCrete™ S88 C is available in 25 kg polyethylene reinforced kraft bag.

Shelf Life

12 months after the production date under appropriate storing conditions.Opened packages have to be stored by tightly sealing the bag/cover and must be used in one week.

Storage

Must be stored in unopened original packing, and in cool and dry environment protected from freezing. In short-term storing, maximum 3 palettes can be stowed on top of each other and delivery has to be

MasterCrete™ S88 C

Structural Repair Mortar

according to first in first out system. In long-term storing, the palettes must not be stowed on top of each other.

Health and Safety

It is dangerous to approach the application sites. During the application, a protective apparel, protective gloves, goggles and masks which comply with the Occupational Health and Safety Rules should be used. Due to the irritation effect of the uncured materials, the mixture should not come into contact with skin and eyes; in case of a contact, the affected area should be washed with plenty of water and soap; in case of swallowing, a physician should be consulted immediately. No food or beverages should be brought to the application area. The product should be stored and kept out of reach of children. For detailed information please consult the Material Safety Data Sheet.

Disclaimer

The technical information given in this publication is based on the present state of our best scientific and practical knowledge. **MBT Teknik Yapı Kimyasalları Sanayi ve Ticaret A.Ş.** is only responsible for the quality of the product **MBT Teknik Yapı Kimyasalları Sanayi ve Ticaret A.Ş.** is not responsible for results that may occur because the product is used other than advised and/or out of instructions regarding the place and the method of use. This technical form is valid only till a new version is implemented and nullifies the old ones.

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25

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MasterCrete™ S88 C

TS EN 1504-3
Yapısal Tamir (Structural Repair Mortar) R4

3.1 Elle harç uygulaması / *Concrete restoration by applying mortar by hand*
3.2 Yeniden Beton Dökülmesi / *Concrete restoration by recasting with concrete*
4.4 Harç ve Beton İlavesi / *Structural strengthening by adding mortar or concrete*
7.2 Bozunmuş Betonun Yenilenmesi / *Replacing contaminated or carbonated concrete*

Basınç Dayanımı (Compressive Strength)	≥ 45 N/mm^2
Klorür içeriği (Chloride ion Content)	≤ % 0,05
Adezyon Dayanımı (Adhesive Bond)	≥ 2,0 N/mm^2
Kontrollü Büzülme / Genleşme (Restrained Shrinkage/Expansion)	≥ 2,0 N/mm^2
Karbonatlaşma Direnci (Carbonation Resistance)	Geçer/*Pass*
Elastisite Modülü (Elastic Modulus)	≥ 20 Gpa
Yangına tepki (Reaction to fire)	A1
Tehlikeli maddeler (Dangerous substances)	Madde 5.4'e uygun (Comply with clause 5.4)