MasterStrength® ER 1420 (Concresive® 1420)

Epoxy Based, Flowable Adhesive

Material Description

MasterStrength® ER 1420 is epoxy based, solvent free, moisture tolerant, flowable adhesive with two parts for bonding freshly mixed and hardened concrete.

Complies with EN 1504-4 and EN 1504-6

Areas of Application

- Bonding freshly mixed concrete and hardened concrete
- Corrosion protection of reinforcement in structural repairs
- Priming the concrete substrates under repair mortars
- Bonding various building materials to each other, concrete, stone, metals etc.

Technical Properties

Structure of the Material **MasterStrength® ER 1420** Part A **MasterStrength® ER 1420** Part B	 Epoxy Resin Epoxy Hardener	
Color	Grey-Fume	
Solid Content	100%	
Mixed Density	1,55 ± 0,07 kg/liter	
Viscosity	6500 mPa.s	
Compressive Strength TS EN 196 (1 day) (7 days)	 >50 N/mm² >80 N/mm²	
Flexural Strength TS EN 196 (1 day) (7 days)	 >20 N/mm² >30 N/mm²	
Tensile Strength BS 6319-7 (7 days) (28 days)	 >20 N/mm² >30 N/mm²	
Shear Strength TS EN 12003 (1 day)	>14 N/mm²	
Elastictiy Modulus TS EN 13412 (Under Compression) (28 days)	>5000 N/mm²	LX
Bonding Strength (7 days) To concrete To steel	 >3,0 N/mm² >3,5 N/mm²	
Application Thickness	Min. 0,5 mm Max. 30 mm	
Application Temperature	+10°C +30°C	
Service Temperature	-30°C +80°C	
Pot Life	45 minutes	
Covering with Feshly Mixed Concrete	Min. 5 minutes Max. 75 minutes	
Fully Cured (20°C)	7 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

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- Chemical anchoring

Characteristics and Benefits

- Easy to apply with brush, roller or directly pouring
- Perfect adhesion between the freshly mixed and hardened concrete
- Provides a corrosion protection barrier on the reinforcement
- Provides perfect adhesion even on damp surfaces

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. If there is a water leakage it must be drained or properly plugged. Steel surfaces should be cleaned from rust by sand blasting and if needed new reinforcement should be installed. The edges of the broken surfaces should be saw cut.

(B) Mixing

MasterStrength® ER 1420 has two parts in pails, produced according to right mixing ratio. Material temperature should be between +15 - +25°C before mixing. Part B should be added into the Part A without any remaining material in the pail. It should be mixed with using a proper mixer (~300rpm) for polymer mixing. Mix the parts at least 3 minutes to have a homogenous mixture.

Mixing Ratio

MasterStrength® ER 1420	Part A	Part B
Quantity	3,33 kg	1,67 kg
Mixed Density	1,55 kg/liter	

(C) Processing

MasterStrength® ER 1420 should be applied to the prepared surface by using a paint brush, roller or can be sprayed with proper equipment. Freshly mixed concrete should be cast when the epoxy is still wet. Time interval for concrete casting can be changed depending on the weather conditions. The concrete should be cast in 40 minutes after priming the hardened concrete. For anchoring the anchor holes should be drilled 6mm wide than anchor bar's diameter and in designed depth. The holes should be cleaned by using steel brush and air guns. Mixed material should be put in a mortar gun with a proper nozzle and start to fill the holes into half depth. Install the anchor bar into the hole slowly by screwing and do not drive the bars.

Consumption

1.60 kg/m^2 for obtaining 1 mm thick layer.

Point to Consider

- During the application the substrate and ambient temperature should be between +5°C - +30°C.
- Resinous 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.
- MasterStrength® ER 1420 is provided in ready to mix pails. Do not add any solvent etc. İnto the mixture during the application.
- Mixing should be made with proper mixers and do not allow mixing by hand.

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Cleaning of Tools

After the application all tools should be cleaned with a proper detergent or solvent such as thinner. **MasterStrength® ER 1420** can be cleaned with only mechanical abrasion after hardening.

Packaging

5 kg set
MasterStrength® ER 1420 Part A: 3.33 kg pail
MasterStrength® ER 1420 Part B: 1.67 kg pail

Shelf Life

18 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 (+5°C - +25°C) 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 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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MasterStrength™ ER 1420 (Concresive® 1420)

TS EN 1504-6:2006
Çelik Donatı Çubuğunun Ankrajlanması
(Anchoring of reinforcing steel bar)

Çekip Çıkma Dayanımı : 75kN yük etkisiyle yerdeğiştirme (Pull out strength displacement: at load of 75kN)	≤ 0,6 mm
Klorür İçeriği (Chloride ion Content)	≤ % 0,05
Camsıya geçiş sıcaklığı (Glass transition temperatures)	≥ 45°C
Çekme yükü etkisiyle sünme (Creep under tensile load displacement)	≤ 0,6 mm
Yangına karşı tepki (Reaction to fire)	C-s1,d0
Tehlikeli maddeler (Dangerous substances)	Madde 5.3 'e uygun (Comply with clause 5.3)

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MasterStrength® ER 1420 (Concresive® 1420)

TS EN 1504-4:2005
Bölüm 4: Yapısal Bağ
Part 4: Structural Bonding
Tamir yöntemi 4.4: Bağlanmış harç veya beton
(Repair method 4.4: Bonded mortar or concrete)

Islak Alt Tabaka Kayma Dayanımı (Slant Shear Strength)	≥ 6,0 N/mm^2
Adezyon : Serteşmiş beton ile sertleşmiş beton arasında (Adhesion concrete to concrete : Hardened concrete to hardened concrete)	Beton kopar (Deformation should be from concrete)
Adezyon : Taze beton ile sertleşmiş beton arasında (Adhesion concrete to concrete : Wet concrete to hardened concrete)	Beton kopar (Deformation should be from concrete)
Dayanıklılık (Durability)	Uygun (Pass)
İşlenebilirlik Süresi (Workable life)	40 dakika / minute (23°C)
Elastisite Modülü (Elastic Modulus)	≥ 2000 N/mm^2
Basınç Dayanımı (Compressive Strength)	≥ 30 N/mm^2
Kesme Dayanımı (Shear Strength)	≥ 6,0 N/mm^2
Camsıya geçiş sıcaklığı (Glass transition temperatures)	≥ 40°C
Isıl genleşme katsayısı (Coefficient of thermal expansion)	≤ 100 x 10^6/ °C
Büzülme / Genleşme (Linear Shrinkage)	≤ % 0,1
Reaction to fire (Yangına Tepki)	C-s1,d0
Tehlikeli maddeler (Dangerous substances)	Madde 5.4'e uygun (Comply with clause 5.4)