

FMörtel[®] S1 (MasterFlux[™] TIL Flex S1)

Cement Based Polymer Modified Flexible and High Performance Ceramic and Granite Adhesive

Material Description

FMörtel[®] S1 is a cement based polymer modified highly stable high performance flexible adhesive used in adhesion of ceramics, granites, marbles, natural stones, glass mosaics, and press bricks.

Complies with the EN 12004 -C2TES1 class.

C2= Cement based adhesive with improved additional properties

T= With reduced sliding

E= Extendent open time

S1= Deformable

- In the adhesion of ceramics, granites, marbles, natural stones, and glass mosaics on surfaces effected from temperature differences such as; plasterboard, gypsum-plaster, heat insulation sheets, gas concrete, after priming with **Astar[®] A**.
- In wet volumes like swimming pools, water tanks, bathrooms, etc. In underfloor heating surfaces, heated pools, thermal pools, swimming pools that are not emptied in winters. In the wall and floor tiles of cold storage houses. In ceramic and granite applications and repairs of building exteriors, in adhesion of ceramic on to ceramic.


Areas of Application

- In inner and outer areas for vertical and horizontal applications.
- In the adhesion of ceramics, granites, marbles, natural stones, glass mosaics, and press bricks to cement based surfaces exposed to temperature differences.

Characteristics and Benefits

- Easy to prepare and apply.
- Long process time. (30 minutes)
- No sliding in vertical applications.
- Resistant to freezing-thawing cycle. Resistant against tensions and vibrations rooting from temperature differences.

Technical Properties

Structure of the Material	Mineral sealants, synthetic additives, powder polymer and special cement.	
Color	Gray,White	
Tensile Adhesion Strength	≥1,00 N/mm ² (28 days)	
Application Thickness	Min. 3 mm Max. 8 mm	
Joint Sealant Period	24 hours	
Application Ground Temperature	+5°C +25°C	<div>WK</div> 
Service Teemperature	-40°C +80°C	
Maturity Period	3-5 minutes	
Usage Period	2 hours	
Period of Open Waiting	~30 minutes	
Slide	≤ 0,5 mm	
Wetting Ability	Min. 90 %	
Walkable After	24 hours	
Open to Full Traffic After	3 days	

The above values are given for +23°C and 50% relative humidity. High temperatures shorten the time, low temperatures lengthen the time.

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Processing Method

(A) Preparation of Substrate

Application surface has to be strong, dry, bearing, dustless, clean, and also in balance. Surface must be cleaned off all kinds of oil, grease, rust, and paraffin traces that can weaken adherence and no loose particles must be present. Disordered surface with 5 to 20 mm depth must be repaired with **MasterCrete™ S88 C** repair mortars two days before the application. If the application surface is over +25°C, then it must be moisturized.

Gypsum Based Surfaces

Astar A is applied on highly absorbent gypsum-plasterboard, gypsumplaster, gas concrete, lime plaster, and chipboard surfaces. After 5 minutes of **Astar A** application, adhesion process can be started.

Wooden Chip Based Surfaces (Osb and Chipboards)

Wooden chipboards must contain maximum 10% moisture. Wooden chipboard applied on floors (V100) must be 25 mm minimum, and the ones applied on walls 19 mm minimum. Plates have to be screwed to the surface with 30 cm spaces between them. Edge joints have to be at least 8 mm wide. Joints of the plates grooved and filled with suitable joint sealant.

In dry environments, wooden plates have to be primed by **Astar A**. If the plates are in humid environments (exteriors), then **Thoroseal® WP 306** has to be applied in two layers and reinforced with netting.

(B) Mixing

Necessary amount of water is poured into a clean mixing container with the help of a scale. **FMörtel® S1**, is slowly added to the water and mixed with a 400-600 RPM mixer for 3-5 minutes until a

homogenous and unlumpy mixture is obtained. After resting it for approximately 3-5 minutes and mixing again for 30 seconds, the material is ready to use.

Mixing Ratio

FMörtel® S1	Amount of Mixture Water	Density of Mixture
For 1 kg powder	~0,28 liter	~1,57 kg/liter
For 25 kg bag	~7,00 liter	

(C) Processing

1 mm **FMörtel® S1** is applied on application surface with the flat side of trowel. In an area that can be covered in 30 minutes, period of open waiting, **FMörtel® S1** is applied by serrated side of trowel in single direction in uniform thickness. In the adhesion of ceramics or granites with different thicknesses, to repair the disorder on application surface, it is suggested to apply 1 mm mortar under each ceramic or granite. When applying ceramics or granites to the place of application, ceramics or granites are floated on mortar to enable full contact of adhesion mortar. Suggested joint gap according to applied ceramic or granite dimension is left and the application is finished. To fill the left joint gaps, MBT Tech joint grouts must be used. Grouting of joints can be realized after approximately 24 hours.

Suggested Reed Dent Dimensions

Ceramic Dimensions	Ceramic Notched Trowel Dimensions	Mortar Bedding Thicjness
Up to 5 cm x 5 cm	6 mm	~ 2-3 mm
Up to 30 cm x 30 cm	8 mm	~ 3 mm
Over 30 cm x 30 cm	10 mm	~ 4 mm

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Suggested Joint Width

Up to 5 cm x 5 cm	3 mm
Up to 15 cm x 15 cm	4 mm
Over 15 cm x 15 cm	6-8 mm

Consumption

1.23 kg/m² for a thickness of 1 mm adhesive

FMörtel® S1	Ceramic Notched Trowel Dimensions and Coverage (kg/m ²)		
	6 mm	8 mm	10 mm
25 kg	3,68	4,91	6,13

Applicability Test of Adhesive (Period of Open Waiting)

Fingers are pressed on the adhesive applied surface. If the adhesive smeared on the fingers, application of ceramics or granites is continued. If the fingers are clean, it means the application time of adhesive has passed. In this case, the adhesive is scraped off the surface and new adhesive is applied.

Point to Consider

- If environmental temperature is below +5°C or over +25°C in FMörtel® S1 application, then suitable temperatures must be waited for. Also **FMörtel® S1** application should not be made in very hot, rainy or windy weathers. **FMörtel® S1's** spread thickness must not exceed 8 mm (min. 3 mm).
- Ceramics with high water absorption have to be watered well before application.
- Under no circumstances, water and new material must be added to drying **FMörtel® S1** mixture.
- In exterior surface applications, the applied surface must be protected from excessive sunlight, wind, freezing, and rain for the first 24 hours.

Cleaning of Tools

All the tools and equipments must be cleaned by water after the application. After **FMörtel® S1** is hardened, it can only be removed from the surface mechanically.

Packaging

FMörtel® S1 is available in 25 kg polyethylene reinforced kraft bag.

Shelf Life

12 months if stored according to manufacturer's instructions in unopened container. Opened packages have to be stored by tightly sealing the bag, 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 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.

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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.

Contact

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DOP NO 2201005	
TS EN 12004- C2TE S1	
FMörtel® S1 (MasterFlux™ TIL Flex S1)	
Kayma Özelliği Azaltılmış, Uzatılmış Açık Bekletme Süreli, Şekli Bozulabilen, İç ve Dış Kullanım için uygun Geliştirilmiş Çimentolu Yapıştırıcı Tip ve Sınıf; C2TES1 (Improved Cementitious Adhesive for Internal and External use with Reduced Slip Feature, Extended Open Time, Deformable Type and Class; C2TES1)	
Yangına Karşı Tepki (Reaction To Fire)	A1
Başlangıç Çekme Yapışma Kuvveti (Initial tensile adhesion strength)	≥ 1,0 N/mm²
Isı ile yaşlandırıldıktan sonra çekme yapışma kuvveti (Tensile adhesion strength after heat ageing)	≥ 1,0 N/mm²
Suya daldırıldıktan sonra çekme yapışma kuvveti (Tensile adhesion strength after water contact)	≥ 1,0 N/mm²
Donma-çözünme çevriminden sonra çekme yapışma kuvveti (Tensile adhesion strength after freeze-thaw cycles)	≥ 1,0 N/mm²
Enine şekil değiştirme (Transverse deformation)	≥ 2,5 mm and/ve < 5 mm
Kayma (Slip)	≤ 0,5 mm
Uzatılmış Açıkta Bekletme Süresi:Yapışma Mukavemeti(30 Dakika Sonra) (Extended Open Time: Tensile Adhesion Strength(After 30 Minutes))	≥ 0,5 N/mm²