MasterFlux® 940

Cementitious, High Strength Grout

Material Description

MasterFlux® 940 is cemenis a cement based, single-component, high performance, self-compacting grout that allows for thick layer applications.

Complies with EN 1504-3/R4 and EN 1504-6

Areas of Application

- For thick applications in the construction of column and shear wall heads.
- Fixing turbins in power plants.
- Fixing of the generators, compressors and pumps on the foundations
- Filling controlled voids left during reinforced concrete and steel jacketing applications.
- Fixing of the industrial machines on the foundations

Characteristics and Benefits

- Mix with water only, pour into the mold for easy application.
- High early compressive strength.
- High flowability.
- Does not bleed water.
- Expands during plastic and early hardening stages.
- Weather conditions do not alter its physical properties during service life.
- Provides high adhesion to concrete and reinforcement.
- Impervious to water.
- It is resistant to oils.
- It is resistant to freeze-thaw cycles.
- Non - shrink.

Technical Properties		
Color	Grey	
Mixed Density (EN 12190)	2,20 ± 0,05 kg/liter	
Compressive Strength (TS EN 196) 1 days 7 days 28 days	 >45 N/mm² >60 N/mm² >80 N/mm²	
*Flexural Strength (TS EN 196) (28 days)	>10,0 N/mm²	
Bonding Strength (TS EN 1542) (28 days) To Concrete To Stell	 >2,0 N/mm² >2,0 N/mm²	
Elastise Modülü (TS EN 13412) (28 days)	 >20000 N/mm²	
Capillary Water Absorption (TS EN 13057)	<0,5 kg. m^{-2} $h^{-0,5}$	MK
Aplication Thickness	Min. 10 mm Max. 300 mm	
Aplication Temperature	+5°C +30°C	
Service Temperature	-20°C +400°C	
Pot Life (+20°C)	30 min.	
Open Time to Pedastrian Traffic (+20°C)	24 hours	
Fully Cured (+20°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 work time,lower temperatures extends the durations

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Processing Method

(A) Preparation of Substrate

The concrete should be free of frost, curing membranes, waterproofing treatments, oil stains, laitance, friable material and dust.The concrete surfaces should be chipped and if there is a water leakage it must be drained or properly plugged.Base plate, rods and bolts should be free of oil stains, grease and dust.Enough number of holes should be opened on the base plate for air drain. Machine should be assembled and balanced before grouting. The concrete surfaces should be saturated with water at least 6 hours before the grouting.

Formwork Preparation

Formwork must be constructed from durable materials that do not absorb water or allow leakage, and it should be assembled to withstand all forces that may occur during the application. On the pouring side, a gap of approximately 5 cm should be left between the base plate edge and the formwork. The height of the formwork on the pouring side should be designed to provide sufficient head pressure for the grout to flow properly. For large base plates, additional precautions may be required, such as creating a pressure head of up to 1.5 m, using equipment such as pumps or pipes, or preparing the first batch of grout with 5% more water than usual to lubricate the foundation concrete surface. All formwork joints must be fully sealed to prevent leakage and loss of pressure.

(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 (400 - 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

MasterFlux® 940	1 kg Powder	25 kg Bag
Quantity of Mixing Water	< 0,12 lt	< 3,00 lt
Mixture Density	2,20 ± 0,05 kg/litre	

(C) Processing

In the case of operating neigbour machines, a glass of water should be put on the grouting base and the vibrations caused by the environment can be observed. If needed, surrounding machines should be swicthed off until (10- 12 hours in 20°C) the grout sets.
The prepared grout mortar should be poured continuously from only one side of the mold onto the surface, with a minimum thickness of 10 mm in a single layer. A thickness of 30 cm should not be exceeded in large areas, but thicker applications can be carried out in 2 or 3 layers depending on the grout pouring details. To prevent air entrapment within the formwork, avoid pouring from both sides. To ensure all voids within the formwork are filled, placement should be done using a steel wire with a hooked end; vibrators should not be used. After application, the molds should not be removed before 18-24 hours. Large surfaces exposed to the atmosphere, especially in hot, dry, or windy environments, should be protected against rapid evaporation with wet sacks, water, or special curing agents for 24-48 hours.
If the exposed edges are to be broken, they can be broken after setting has begun and the mortar has hardened enough for the formwork to be removed. Adjustment shims should not be removed before 2 days. After the machine is put into operation, the tightness of nuts and bolts should be checked and tightened if necessary.

Consumption

20 kg/m^2 powder product for 10 mm thickness

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Point to Consider

- The grout must be applied within 45 minutes at +20C.
- For exterior applications, the surface must be protected from sun, wind, rain, and frost during the first 24 hours.
- The working and reaction times of cement-based systems are affected by the ambient and substrate temperature and the relative humidity of the air. At low temperatures, hydration slows down, extending the pot life and working time. High temperatures accelerate hydration, and the times mentioned above are shortened accordingly. The ambient and substrate temperature must not fall below the allowed minimum temperature for the material to complete its setting.
- It should not be used in contact with liquids with a pH value lower than 5.5.
- A vibrator should not be used during material placement.
- The following precautions should be taken for applications at low temperatures between +5°C and +10°C
  - MasterFlux® 940 should be stored in non-cold areas.
  - Warm mixing water (between +30°C and +50 °C) should be used.
  - The grouted areas should be covered with protective blankets against cold.
- The following precautions should be taken for applications at temperatures between +25 °C and +30 °C
  - MasterFlux® 940 should be stored in cool areas.
  - Cold, even iced mixing water should be used if necessary.

Cleaning of Tools

All the tools and equipments must be cleaned by solvent after the application. After MasterFlux® 940 is hardened, it can only be removed from the surface mechanically.

Packaging

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 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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DOP NO: 2103014

2184-CPR-0462

MasterFlux® 940

TS EN 1504-3:2005
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)

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DOP NO: 2106008

2184-CPR-0453

MasterFlux® 940

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
Yangına karşı tepki (Reaction to fire)	A1
Tehlikeli maddeler (Dangerous substances)	Madde 5.3 'e uygun (Comply with clause 5.3)