

MasterEmaco[®] S 488 PG

(EMACO S88)

Shrinkage compensated, fast-hardening pourable dry mortar reinforced with polymer fiber, intended for structural repair of concrete and reinforced concrete. Application thickness is 20 to 40 mm

DESCRIPTION

MasterEmaco S 488 PG is a ready-to-use dry mortar. Maximum filler size in MasterEmaco S 488 PG is 2.5 mm. When mixed with water, it forms a rheoplastic, pourable and non-laminating mortar. The product is recommended for repair by pouring to the depth of 20 to 40 mm. MasterEmaco S 488 PG does not include metal aggregates and chlorides.

RECOMMENDED USE

- Repair of structural members (reinforced or pre-stressed beams under static and dynamic loads, floors, bridge plates, etc.);
- Repair of sea and river transport facilities;
- Repair of machine shop structures, specifically in locations exposed to mineral oils, lubricants, etc.;
- Repair of damaged elements of concrete and reinforced concrete structures;
- Repair of structural members exposed to repeated stresses;
- Grouting of sliding supports exposed to high static and dynamic loads;
- Grouting of the space between concrete floor slabs and foundation walls;
- Foundation reinforcement;
- Repair of road and airfield coatings, outdoor parking areas;
- Reinforcement of cracked rock foundation soils with steel cables and precision anchor fixtures;
- Concreting of joints of precast concrete structures.

Non-recommended use of MasterEmaco S 488 PG:

- For precision grouting (MasterFlow MasterFlow 980 or 928 are recommended in this case);
- Without additional protection in case of contact with environments with pH < 5.5.

PACKAGING

MasterEmaco S 488 PG is packed in 30kg moisture proof sacks.

COVERAGE

2000 kg of the MasterEmaco S 488 PG dry mortar are required to produce 1 m³ of the repair compound.

SHELF LIFE AND STORAGE CONDITIONS

Guaranteed shelf life of MasterEmaco S 488 PG, stored in a closed undamaged package, is 12 months.

Store in an enclosed dry room at a maximum humidity of 70% and a room temperature no lower than +5°C. Do not use the material from a damaged packaging.

TEMPERATURE CONSIDERATION

MasterEmaco S 488 PG may be used at the ambient temperatures of +5°C to +50°C. At low ambient temperatures (+5°C to +10°C), the strength tends to build-up more slowly. If high early strength is required, the following is recommended:

- Store sacks with MasterEmaco S 488 PG in cold-protected places;
- Use hot water for mixing (+30°C to +40°C);
- After pouring, cover MasterEmaco S 488 PG with heat insulating materials.

If the ambient temperature is below +5°C, use the MasterEmaco T 1000 series materials.

If the ambient temperature is very high (above +30°C), a rapid loss of fluidity by the repair compound is the only problem to be faced with.

In this case, the following is recommended:

- 1) Store sacks with the MasterEmaco S 488 PG dry mortar in a cool place;
- 2) Use cold water for mixing;
- 3) Mix the repair mortar in the coolest period of the day.

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WATER CONSUMPTION* FOR MIXING MasterEmaco S 488 PG (Table 1)

Amount of water, liters per 30kg sack	
Minimum	Maximum
4.6	4.9

*Approximate water consumption. Actual mixing water consumption is specified in the product quality datasheet

REPAIR NOTES

The following recommendations and suggestions are based on the practical experience of using MasterEmaco S 488 PG.

REPAIR SURFACE PREPARATION

Edges of the defective area shall be cut with a diamond tool to a minimum depth of 40 mm, in perpendicular to the surface. Use a light perforator, needle gun or water/ sand blasting machine to remove concrete debris. To provide good adhesion of the repair compound and the substrate, roughen the surface and provide 5mm-high furrows.

This operation is very important, since a well-prepared rough surface is required for the MasterEmaco S 488 PG application.

Furthermore, the following is required:

- 1) Remove rust from rebars and install additional reinforcement, if required. If the structure to be repaired is used in concrete and steel corrosive environments, the reinforcement is recommended to be treated with MasterEmaco P 5000 AP;
- 2) Using MasterSeal[®] 590, remove all active leaks on the surface being repaired.
- 3) Clean the surface from grease, paint, lime, dirt or dust.

REINFORCEMENT INSTALLATION

The minimum thickness of the applied MasterEmaco S 488 PG layer is 20 mm.

If the thickness of the applied layer should exceed 40 mm, fix a plastering lath by anchors and leave at least a 10mm gap between the lath and the surface. If the required thickness of the layer is less than 40mm, a lath is not required.

SURFACE IMPREGNATION WITH WATER

Prior to placing MasterEmaco S 488 PG, thoroughly impregnate the surface, being repaired, with water. Proceed with wetting every 10-15 minutes for at least 3 hours. Use compressed air or rags to remove excess water. Prior to placing MasterEmaco S 488 PG, the surface should be damp, but not wet.

FORMWORK

The formwork should be made of a durable material; it should be leak proof and securely fastened to withstand the repair compound pressure after pouring. A special opening, located atop, if vertical structural members are considered (e.g., support side), or only on one side, if horizontal structural members are considered (bottom of the beam), should be provided in the formwork. Before pouring, the formwork shall be impregnated with water so that it would not absorb water from the repair mortar, thus dehydrating it. The formwork should be sealed to prevent the repair mortar leakage. For this purpose, thick-consistency MasterEmaco S 488 PG or other suitable materials may be used. Do not use any fabric for formwork sealing, since it will be difficult to remove it after MasterEmaco S 488 PG has set or started hardening.

MIXING

Prior to mixing MasterEmaco S 488 PG with water, the following is required:

- Check whether the available amount of MasterEmaco S 488 PG is sufficient enough for work completion, considering the coverage (2000 kg of the MasterEmaco S 488 PG dry mortar for producing 1m³ of the repair mortar);
- Make sure that all necessary materials (mixers, trucks, buckets, trowels, etc.) are close at hand;
- Verify the performance of the preliminary activities described in the Repair Notes section.

For correct mixing, follow the instructions below:

- 1) Open the sacks with MasterEmaco S 488 PG, required for work performance, shortly before mixing;
- 2) Pour minimum amount of water specified in Table 1 into the mixer;

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- 3) Turn the mixer on, and quickly and continuously add MasterEmaco S 488 PG;
- 4) Once all required amount of MasterEmaco S 488 PG has been added, continue mixing for 3-4 minutes, until lumps disappear and the mix becomes homogenous;
- 5) Add water, if required (within the amounts indicated in Table 1), until the desired consistency is reached, and stir again for 2-3 minutes.

Water content may slightly differ from the one indicated in Table 1, dependent on the ambient temperature and relative humidity. More or less water may be required during hot & dry weather or cold & wet weather, respectively.

A mixer (max 300-400 rpm) with a spiral nozzle may be used for mixing small batches. Mixing MasterEmaco S 488 PG by hand is not recommended.

APPLICATION

The ready-to-use repair compound should be poured continuously, without vibration. Pour the material from one side to prevent air entrapment. Make sure MasterEmaco S 488 PG has entirely filled the space between the formwork and the old

structure. For this purpose, a mild steel strip may be used.

TREATMENT

If MasterEmaco S 488 PG was poured into formwork, the formwork may be removed not earlier than 24 hours after the completion of the pouring process.

While repairing horizontal surfaces (e.g., floors), a proper water treatment regime should be provided for the repaired areas for at least 24 hours, to be extended up to 2 days in case of hot, dry, windy weather. For this purpose, use standard cement-bearing material treatment methods (cover the surface with a film or wet burlap; spray water) or apply special film-forming compositions MasterKure[®] (MasterTop[®] C).

PRECAUTIONS

MasterEmaco S 488 PG contains cement, irritating the skin and mucous membranes. Thus, avoid eye and skin contact. In case of irritation, thoroughly wash the affected area with water and consult a doctor, providing the information about the product.

SPECIFICATIONS* (Table 2)

Index name	Index	
Maximum size of a filler, mm	2,5	
Fibre filler	Polymer	
Mortar agility by flow cone, mm	260-290	
Agility persistence, min.	minimum 30	
Enlargement in limited state, %	0,05-0,09	
Compressive strength, MPa, minimum		
	1 day	30
	28 days	60
Tensile strength at bending, MPa, minimum		
	1 day	5
	28 days	8
Bond strength to concrete, MPa, minimum	2,5	
Freeze resistance grade for concretes as roads and airfield pavements used in mineralized environment, minimum	F ₂ 300	



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Freeze resistance grade for all types of concretes, except concretes as roads and airfield pavements, used in mineralized environment, minimum	F ₁ 1000
Grade of water resistance, minimum	W16
Ratio of sulfate resistance (1 year), %	minimum 0,9

* Tests were performed according to STO 70386662-010-2014 "MasterEmaco dry repair mortars (Emaco)"

Represented information is based on our current experience. In case of various factors affecting the result, information does not mean legal responsibility. For additional information, please contact your local advisor.

As far as new materials production is periodically renewed, company has the right to change description of material without informing clients. When a new description is launched, an old one is to expire. Before the usage of a material, make sure that you have an appropriate description at the moment.

Limited company "BASF Stroitelnye Sistemy"

Office in Moscow: +7 495 225 6436

Office in St. Petersburg: +7 812 332 0412

Office in Kazan: +7 843 212 5506

Office in Krasnodar: +7 861 202 22 99

Office in Minsk: +375 17 202 2471

Office in Kiev BASF T.O.V.: +380 44 5915595

E-mail: stroysist@basf.com www.master-builders-solutions.basf.ru

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