

# Mapegrout SV-N Fiber

**Shrinkage-compensated, ultra quick-hardening, castable mortar mix containing polymer fibers, intended for repairing concrete and reinforced concrete structures at temperatures not below +5°C. The maximum aggregate size is 3 mm. The application thickness varies from 10 to 50 mm.**

## WHERE TO USE

- Repairing airfield and road surfaces with traffic to be resumed after 2-4 hours following application of the mortar.
- Repairing industrial concrete flooring, concrete floors in shopping malls and warehouses.
- Repairing concrete surfaces subject to pedestrian traffic.
- Grouting rigid joints between reinforced concrete elements.
- Installing concrete poles, road signs and fences.

## TECHNICAL CHARACTERISTICS

**Mapegrout SV-N Fiber** is a dry mix based on high-strength cement, graded sand and special admixtures, with polymer fibers. Metal fibers are supplied separately and should be added to the mortar while mixing. Use steel fibers **MAPEFIBRE SFW/A**.

**Note: Mapegrout SV-N Fiber repair mortar can be applied either with steel fibers or without them.**

When mixed with water, it forms a non-segregating mortar mix high flowability that can be poured into formwork. Once hardened, **Mapegrout SV-N Fiber** is a high-strength, abrasion-resistant mortar with good adhesion to steel and concrete, excellent frost resistance and water resistance.

The application thickness of **Mapegrout SV-N Fiber** varies from 10 to 50 mm per coat. When using a metal mesh, the coat thickness can be increased to more than 5 cm. In this case, the addition of metal fibers is not required. It should be remembered that the protective coat

above the metal mesh should be at least 2 cm thick.

For coats with minimal thickness, the use of metal fibers is not needed.

If thicker coats are required, we recommend adding larger aggregates to the mix (size up to 10 mm, 30-40% of the mix weight). For more information, please refer to the Technical Service Department of MAPEI.

At an ambient air temperature of +20°C, thanks to the rapid strength development, **Mapegrout SV-N Fiber** can withstand pedestrian traffic and rubber-tyred vehicles in 2 hours after application.

**Mapegrout SV-N Fiber** meets the main requirements of GOST R 56378-2015 (*"Products and systems for the protection and repair of concrete structures. Requirements for repair mixes and bond connections for rehabilitation of structures"*), EN 1504-3 (*"Structural and non-structural repairs"*), GOST 32016-2012 (*"Products and systems for the protection and repair of concrete structures. General requirements"*) and EN 1504-9 (*"Products and systems for the protection and repair of concrete structures"*).

## APPLICATION PROCEDURE

### PREPARATION OF THE SUBSTRATE

The edges of the defective area must be contoured with a diamond disc perpendicular to the surface, to a depth of at least 10 mm. Remove concrete from the defective area to a depth of at least 10 mm, using a light perforator or needle gun. The walls of the area must be vertical, and the substrate level and rough. For good adhesion, make the concrete surface rough, with roughness of at least 5 mm. The substrate must be cleaned of paint, grease, oils and laitance. For ideal cleaning of the surface from dirt and

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dust, we recommend using compressed air and pressurized water.

All reinforcement must be cleaned of rust. Cleaning can be done manually using metal brushes or mechanically using a sandblasting machine, depending on the surface area. When the reinforcement is fully exposed, the gap between the surface and the reinforcement must be at least 20 mm. Before casting the mix, all reinforcement rods should be treated with anticorrosion mortar **Mapefer 1K** with a thickness of 2 mm.

The surface of the defective area must be thoroughly moistened. Remove excess water with a sponge or compressed air. The substrate must be damp, but not wet. The formwork must be made of a durable waterproof material, securely fixed, sealed, preventing leakage of laitance and withstanding the mortar pressure when casting, leveling and finishing off. If the formwork is made of a conventional material (wood), before pouring, it must be saturated with water in order to prevent dehydration of the mix and subsequent crack formation.

## Preparing the mix

To prepare the mortar mix correctly, do the following:

- Just before mixing, open the required number of bags.
- Fill the mixer with the minimum amount of water, approximately 3.25 litres per 25 kg bag of **Mapegrout SV-N Fiber**.
- Turn on the mixer and continuously pour **Mapegrout SV-N Fiber**, and then add stiff steel fibers: 0.825 kg of **Mapefibre SFW/A** per 25 kg of dry mix.
- Stir for 1-2 minutes to form a homogenous, lump-free mix.
- Stop the mixer for 1 minute, remove all powder which has stuck to the walls of the mixer.
- If necessary, add water (in quantity specified in Table 1) and stir again for 2-3 minutes to form a homogenous mix.

To prepare small batches, it is allowed to use a low-speed drill with a paddle attachment. In this case, stir for 5-6 minutes until a homogeneous mix is obtained, after which stop for 1 minute and stir again for 2-3 minutes. Mixing by hand is not allowed.

## RECOMMENDATIONS

- Do not add cement or admixtures to **Mapegrout SV-N Fiber**.
- Do not use **Mapegrout SV-N Fiber** if its packaging has been damaged.
- Do not add water once the mix has started to set.
- Do not apply **Mapegrout SV-N Fiber** on asphalt surfaces or surfaces treated with bitumen.
- Do not apply **Mapegrout SV-N Fiber** on smooth surfaces, ensure a surface roughness of at least 5 mm.
- If the product has to be applied at temperatures outside the recommended application range, please contact the

Technical Assistance Department of MAPEI.

- Since **Mapegrout SV-N Fiber** hardens very quickly, we recommend preparing quantities of the product that will be consumed within 30 minutes of mixing.

## APPLICATION OF THE PRODUCT

The prepared repair mix should be evenly poured onto the prepared surface, without vibrating. Distribute it over the entire area of the surface using manual tools (trowel, float, spatula). Immediately after leveling the mix, smooth over the surface. The substrate temperature during application should be at least +5°C.

Pour **Mapegrout SV-N Fiber** into the formwork continuously from one side only to prevent air entrapment. We recommend treating the formwork walls with a form-release agent (for example **DMA 1000**) to prevent water withdrawal from **Mapegrout SV-N Fiber**.

## PRECAUTIONS TO BE OBSERVED DURING AND AFTER APPLICATION

- Only use those bags of **Mapegrout SV-N Fiber**, which have been stored on their original pallets in a covered, well-protected area (in a polyethylene film).
- In hot weather, store the product in a cool area and use cold water to prepare the mix.
- In cold weather, store the product in a closed area and protect from frost.

## PRECAUTIONS TO BE TAKEN AFTER APPLICATION

After the work is completed, create favourable conditions for the wet curing of concrete for 24 hours. In hot or windy weather, to avoid the mixing water evaporating too quickly with the subsequent formation of cracks due to plastic shrinkage, spray water on the surface 2-4 hours after applying the mortar and repeat this operation at regular intervals for at least 48 hours.

As an alternative, apply film-forming products for concrete: **Mapecure E** (water-based), **Mapecure S** (solvent-based) or **Elastocolor Primer** (solvent-based primer) for absorbent surfaces. Note that **Mapecure E** and **Mapecure S** may impede a good bond of successive layers. Therefore, if a levelling coat or paint is to be applied afterwards, **Mapecure E** and **Mapecure S** must be completely removed by sandblasting, while **Elastocolor Primer** does not require removal.

## Cleaning

After the work is completed, clean all the tools and equipment used with water. After hardening, the product can be removed only mechanically.

## CONSUMPTION

20 kg/m<sup>2</sup> of dry mix + 0.66 kg of steel fibers at a coat thickness of 1 cm.

## PACKAGING

Dry **Mapegrout SV-N Fiber** is packed in special moisture-proof 25 kg bags. Steel fibers **MAPEFIBRE SFW/A** are packed in 3.3 kg bags and supplied separately.

**Mapegrout SV-N Fiber – Repair, shrinkage-compensated, dry mortar mix in compliance with EN 1504-3, GOST 31189 «Dry building mixes. Classification»**

**TECHNICAL DATA (typical values)**

PRODUCT IDENTITY			
Class according to EN 1504-3/GOST R 56378:	R4		
Colour:	grey		
Type:	CC		
Bulk density (kg/m <sup>3</sup> ):	1,300		
Maximum aggregate size (mm):	3.0		
Dry solids content (%):	100		
Chloride ions content (minimum requirements ≤ 0.05% according to EN 1015-17) (%):	≤ 0.05		
APPLICATION DATA (at +22°C - 52% R.H.)			
Mixing ratio:	100 parts of <b>Mapegrout SV-N Fiber</b> with 13-14 parts of water (approx. 3.25-3.5 l of water per 25 kg bag) and (optional) 3.3% of <b>MAPEFIBRE SFW/A</b> (1 bag 3.3 kg per 4 bags of <b>Mapegrout SV-N Fiber</b> )		
Workability, (mm)	240-290		
Density of mortar mix (kg/m <sup>3</sup> ):	2300		
pH of mortar mix:	> 12		
Application temperature range:	from +5°C to +35°C		
Workability time (pot life of mortar mix) (min):	> 30		
FINAL PERFORMANCE (13.5% blending water and 3.3% MAPEFIBRE SFW/A)			
Performance characteristics	Test method	Minimum requirements according to EN 1504-3, GOST R 56378 for R4 class mortars	Product performance
Compressive strength (MPa):	EN 12190	≥ 45 (after 28 days)	> 30 (after 2 hours) > 45 (after 1 day) > 75 (after 28 days)
	GOST 30744		
Bending tensile strength (MPa):	EN 196/1	not required	> 10 (after 2 hours) > 15 (after 1 day) > 18 (after 28 days)
	GOST 30744		
FINAL PERFORMANCE (13.5% blending water)			
Performance characteristics	Test method	Minimum requirements according to EN 1504-3, GOST R 56378 for R4 class mortars	Product performance
Compressive strength (MPa):	EN 12190	≥ 45 (after 28 days)	> 30 (after 2 hours) > 45 (after 1 day) > 75 (after 28 days)
	GOST 30744		
Flexural strength (MPa):	EN 196/1	not required	> 4 (after 2 hours) > 6 (after 1 day) > 8 (after 28 days)
	GOST 30744		
Compressive modulus of elasticity (GPa):	GOST 24452	≥ 20 (after 28 days)	> 29 (after 28 days)
Bond strength on concrete (MPa):	GOST R 56378	≥ 2 (after 28 days)	> 2 (after 28 days)
Resistance to accelerated carbonation (measured as diffusion coefficient):	GOST 31383	D <sub>K</sub> ≤D <sub>3</sub>	Test passed
Capillary absorption (kg/m <sup>2</sup> h <sup>0.5</sup> ):	GOST R 58277	≤ 0.5	< 0.35
Thermal compatibility measured as bonding (MPa): - freeze-thaw cycles with deicing salts:	GOST R 56378	≥ 2 (after 50 cycles)	> 2
Brand on frost resistance for road and landing place concrete after 28 days, not less:	GOST 10060	not required	F <sub>2</sub> 300
Brand on water resistance after 28 days, not less:	GOST 12730.5	not required	W 16
Reaction to fire:	EN 13501	EUROCLASS	A1
Class of fire risk:	GOST 30244	not required	NF

# Mapegrout SV-N Fiber

## STORAGE

If stored in a dry, covered area in its original packaging, **Mapegrout SV-N Fiber** remains stable for 12 months from the date of manufacture.

## SAFETY INSTRUCTIONS FOR PREPARATION AND APPLICATION

Instructions for the safe use of our products can be found on the latest version of the Safety Data Sheet, available from our website [www.mapei.com](http://www.mapei.com).

PRODUCT FOR PROFESSIONAL USE.

Please refer to the current version of the **Technical Data Sheet** available from our website [www.mapei.com](http://www.mapei.com)

## WARNING

*Although the technical details and recommendations contained in this product data sheet correspond to the best of our knowledge and experience, all the above information must, in every case, be taken as*

*merely indicative and subject to confirmation after long-term practical application; for this reason, anyone who intends to use the product must ensure beforehand that it is suitable for the envisaged application. In every case, the user alone is fully responsible for any consequences deriving from the use of the product.*

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