



# Mapecem<sup>®</sup> 102



**Medium-Build,  
One-Component,  
Fast-Setting Mortar**



## DESCRIPTION

*Mapecem 102* is a one-component, shrinkage-compensated, polymer-modified, fast-setting cementitious mortar with a corrosion inhibitor and silica fume. *Mapecem 102* is intended for the renovation and topping of interior/exterior horizontal concrete surfaces, such as tunnels, bridges, overpasses, factory floors, warehouse floors and loading docks; new and existing concrete slabs; and the construction of floating or monolithic toppings where fast drying is required to allow traffic within 4 hours.

## FEATURES AND BENEFITS

- Features excellent compressive and flexural strength for concrete repair and topping applications from 1/4" to 2" (6 mm to 5 cm)
- Provides higher resistance to abrasion than ordinary cement and sand repair screeds
- Requires only the addition of water, and is prepackaged for easy field use and control
- Adheres well to existing properly prepared concrete surfaces
- Can be applied using a trowel or screed

## INDUSTRY STANDARDS AND APPROVALS

LEED Points Contribution

LEED Points

MR Credit 5, Regional Materials\* ..... Up to 2 points

*\* Using this product may help contribute to LEED certification of projects in the category shown above. Points are awarded based on contributions of all project materials.*

## WHERE TO USE

- For horizontal exterior and interior structural concrete repairs and toppings from thicknesses of 1/4" to 2" (6 mm to 5 cm). *Mapecem 102* is suitable for precast, cast-in-place, post-tensioned and pre-stressed concrete repair.
- For renovating and resurfacing interior and exterior horizontal concrete surfaces found in residential, commercial and institutional structures that are subject to foot traffic and rubber-wheel traffic
- For use as a monolithic topping where fast drying is required. *Mapecem 102* can be opened up to foot and rubber-wheel traffic within 4 hours.
- When properly mixed and installed, *Mapecem 102* has a residual moisture content of less than 2.5% at 24 hours, making it ideal for floor-covering applications in residential, commercial and institutional structures.

## LIMITATIONS

- Do not add other additives or cements to *Mapecem 102*.
- Do not use solvent-based curing compounds.
- Only use between 45°F and 95°F (7°C and 35°C). Note that cool, damp and humid conditions will slow the rate of hydration and will cause the topping to retain a higher moisture content for a longer period of time.

## SUITABLE SUBSTRATES

- Properly prepared, structurally sound, fully cured concrete substrates (at least 28 days old)

Consult MAPEI's Technical Services Department for installation recommendations regarding substrates and conditions not listed.



## SURFACE PREPARATION

- Ensure that all substrates are structurally sound, stable and solid, with all loose or unsound concrete removed.
- Thoroughly clean the surface of any substance that could affect the bond strength of *Mapecem 102*, including dirt, paint, tar, asphalt, wax, oil, grease, latex compounds, form release agents, laitance, loose toppings, foreign substances and any other residues.
- Mechanically profile and prepare concrete surfaces by shotblasting, abrasive blasting, waterjetting, scarifying or other engineer-approved methods to obtain a 1/4" (6 mm) profile amplitude. Reference ICRI CSP Standards 7 to 9 for acceptable profile height.
- Reference ICRI Technical Guideline #310.1R-2008 and ACI RAP Bulletin 7 for repair geometry, surface preparation and material application details.
- Ensure that the concrete substrate and ambient room temperatures are between 45°F and 95°F (7°C and 35°C) before application. Temperatures must be maintained within this range for at least 72 hours after the installation of *Mapecem 102*.
- Presoak the concrete surface with clean water; it must be saturated surface-dry (SSD) with no standing water.

## MIXING

Note: Choose all appropriate safety equipment before use. Refer to the Safety Data Sheet for more information.

1. Into a clean mixing pail, pour 4/5 of the recommended amount of cool, clean potable water.
2. Slowly add *Mapecem 102* to the water while mixing, using a low-speed mixer. Next, add as much of the remaining 1/5 of water as needed to achieve the desired consistency. Mix for up to 4 minutes and remix to a smooth, homogenous consistency.
3. For an extended mix, add 20% by weight (11 lbs. [4,99 kg]) of non-reactive (washed, clean and SSD) 3/8" (10 mm) pea gravel.
4. Do not overmix. Overmixing can entrap air and shorten the pot life.
5. Do not overwater the material, or *Mapecem 102* will not perform as specified.

## PRODUCT APPLICATION

1. Read all installation instructions thoroughly before installation.
2. Before application of *Mapecem 102*, mechanically roughen the concrete surface, SSD and scrub-coat to ensure a secure bond. Quickly apply the *Mapecem 102* mix while the slurry bond coat is still wet.
3. Apply with a trowel or a screed, with or without formwork (screed rail), on a horizontal surface. Neat thickness per lift can range from 1/4" to 2" (6 mm to 5 cm). Use

an extended mix of 20% by weight for deeper repair patching up to 6" (15 cm) thick.

4. Clean any exposed steel reinforcement and coat with *Mapefer™ 1K* or *Planibond® 3C* (see the respective Technical Data Sheet for details) to protect against corrosion and improve adhesion.

## CURING

- Do not wet-cure; however, protect the placed material from excessively hot or windy conditions with damp burlap during the first 4 hours of curing, to minimize shrinkage and cracking and improve physical properties. Alternatively, utilize an ASTM C309 water-based curing compound. Do not use a solvent-based curing compound. Reference ACI 308 regarding curing.

## CLEANUP

- Wash hands and tools promptly with water before material hardens. Cured material must be mechanically removed.

**Product Performance Properties**

Laboratory Tests	Results
Resistance to moisture – ASTM C642	Excellent – 1.7% water absorption
Compressive strength – ASTM C109 (CAN/CSA-A5)	
4 hours	> 2,900 psi (20 MPa)
8 hours	> 3,900 psi (26,9 MPa)
1 day	> 5,000 psi (34,5 MPa)
7 days	> 5,400 psi (37,2 MPa)
28 days	> 5,800 psi (40 MPa)
Flexural strength – ASTM C348 (CAN/CSA-A23.2-8C)	
1 day	> 750 psi (5,17 MPa)
7 days	> 1,150 psi (7,93 MPa)
28 days	> 1,350 psi (9,31 MPa)
Pull-out strength (rupture of concrete substrate) – ASTM C1583 (CAN/CSA-A23.2-6B)	
3 days	> 250 psi (1,72 MPa)
7 days	> 275 psi (1,90 MPa)
28 days	> 290 psi (2 MPa)
Volume change – ASTM C157 (modified)	
7 days, dry-cured	< -0.05%, max. 0.06% expansion
28 days, dry-cured	< -0.06%, max. 0.06% expansion
Freeze/thaw resistance – ASTM C666-A (CAN/CSA A23.2-9B)	
300 cycles	Good – 98% durability factor
500 cycles	Good – 95% durability factor
Resistance to de-icing salts – ASTM C672 (CAN/CSA A23.2-16C)	Very good – 0 rating, no scaling
Permeability to chlorides – ASTM C1202 (AASHTO T277)	Very low – in the range of 100 to 1,000 coulombs

**Shelf Life and Properties (before mixing)**

Shelf life	1 year in original bag stored in a dry, heated, covered and well-ventilated place
Physical state	Powder
Color	Gray

Protect containers from freezing in transit and storage. Provide for heated storage on site and deliver all materials at least 24 hours before work begins.

**Application Properties (mixed)**

Laboratory Tests	Results
Mixing ratio	2-3/4 U.S. qts. of water per 55-lb. bag (2,60 L per 24,9-kg bag) of <i>Mapecem 102</i>
Flow (ASTM C230)	100%
Consistency of mix	Trowel-grade mortar
Application temperature range	45°F to 95°F (7°C to 35°C)
Thickness per lift	1/4" to 2" (6 mm to 5 cm)
Pot life	30 minutes
Initial set (ASTM C266)	60 minutes
Final set (ASTM C266)	90 minutes
Open to traffic	After 4 hours

# Mapecem® 102



## CSI Division Classifications

Concrete Topping	03 53 00
Cast Underlayment	03 54 00

## Packaging

Size
Bag: 55 lbs. (24,9 kg)

## Approximate Coverage\* per 55-lb. (24,9-kg) bag

Yield	0.48 cu. ft. (0,0136 m <sup>3</sup> )
Coverage at 1/4" (6 mm) thickness	24.7 sq. ft. (2,29 m <sup>2</sup> )
Coverage at 1" (2,5 cm) thickness	5.8 sq. ft. (0,54 m <sup>2</sup> )
Coverage at 2" (5 cm) thickness	2.9 sq. ft. (0,27 m <sup>2</sup> )

\* Coverage shown is for estimating purposes only. Actual jobsite coverage may vary according to substrate conditions and setting practices.

## RELATED DOCUMENTS

MAPEI's Technical Bulletin "The Impact of Cold Weather on Repair Materials"	010810-TB*
"Spall Repair of Horizontal Concrete Surfaces."	ACI RAP Bulletin 7
"Guide for Surface Preparation for the Repair of Deteriorated Concrete Resulting from Reinforcing Steel Corrosion"	ICRI Technical Guideline #310.1R-2008 (formerly #03730)
Standard Specification for Curing Concrete	ACI 308.1

\* At [www.mapei.com](http://www.mapei.com)

Refer to the SDS for specific data related to VOCs, health and safety, and handling of product.

## STATEMENT OF RESPONSIBILITY

Before using, user shall determine the suitability of the product for its intended use and user alone assumes all risks and liability whatsoever in connection therewith.

**ANY CLAIM SHALL BE DEEMED WAIVED UNLESS MADE IN WRITING TO US WITHIN FIFTEEN (15) DAYS FROM DATE IT WAS, OR REASONABLY SHOULD HAVE BEEN, DISCOVERED.**

We proudly support the following industry organizations:



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**Services in Mexico**  
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For the most current BEST-BACKED™ product data and warranty information, visit [www.mapei.com](http://www.mapei.com).

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