



# Planitop<sup>®</sup> 18

**One-Component,  
Fast-Setting,  
High-Early-Strength  
Repair Mortar**



## DESCRIPTION

*Planitop 18* is a one-component, shrinkage-compensated, fast-setting, cementitious repair mortar with a corrosion inhibitor. *Planitop 18* gains strength rapidly and is particularly suited for all interior/exterior horizontal concrete repairs, including bridge decks, parking-garage floors, and various horizontal DOT (Department of Transportation) concrete repairs from 1/2" to 2" (12 mm to 5 cm) thickness applied neat and up to 8" (20 cm) extended. *Planitop 18* features exceptional durability and very low chloride permeability rating.

## FEATURES AND BENEFITS

- A fast-setting repair mortar that provides excellent compressive and flexural strengths
- Higher resistance to abrasion than ordinary repair mortars
- Easy to use, requiring only the addition of potable mixing water
- Easily placed and finished by screed or trowel
- Excellent bond strength and good resistance to freeze/thaw cycles and de-icing salts
- Flowable mortar can be extended up to 80% by weight with 3/8" (10 mm) pea gravel for thicknesses up to 8" (20 cm).
- Formulated with low chloride permeability to protect embedded steel against corrosion

## INDUSTRY STANDARDS AND APPROVALS

Meets or exceeds requirements for ASTM C928 R3 mortar

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 categories shown above. Points are awarded based on contributions of all project materials.*

## WHERE TO USE

- For horizontal, structural concrete repairs from 1/2" to 2" (12 mm to 5 cm) thickness applied neat and up to 8" (20 cm) extended. *Planitop 18* is suited for all horizontal concrete repair applications.
- For repairing concrete structures such as airport runways, balconies, bridge decks, warehouse and production floors, parking-garage floors and tunnels
- For repairing concrete surfaces subject to extreme exposure and heavy vehicular traffic, including roads, industrial floors, piers, sidewalks and canals
- If applied at 73°F (23°C), *Planitop 18* can be opened to vehicular traffic within 1 hour of application.

## LIMITATIONS

- Use at ambient temperatures at between 32°F and 95°F (0°C and 35°C). For temperatures above 95°F (35°C), use hot-weather guidelines from the American Concrete Institute (ACI). For temperatures below 32°F (0°C), use the ACI's guidelines for cold-weather applications.
- When using *Planibond<sup>®</sup> 3C* as a bonding agent for horizontal repairs using



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*Planitop 18*, mix and apply *Planibond 3C*, and then let it cure for 24 hours before mixing and applying the repair mortar.

- Protect from freeze/thaw for 12 hours after application.
- For vehicular traffic, maintain a minimum repair depth of 1/2" (12 mm).
- For applications over 8" (20 cm) thickness, contact MAPEI's Technical Services Department.

## SUITABLE SUBSTRATES

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

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

## SURFACE PREPARATION

- Ensure that all substrates are clean, structurally sound and stable.
- Thoroughly clean surfaces of substances that could affect the bond strength of *Planitop 18*, including dust, dirt, paint, tar, asphalt, wax, oil, grease, sealers, primers, form-release agents, laitance, loose particles, foreign substances and any other residues that could reduce or impair adhesion.
- Mechanically profile and prepare concrete surfaces by shotblasting, abrasive blasting, water-jetting, scarifying or other engineer-approved methods, allowing a minimum clearance of 3/4" (19 mm) behind reinforcing steel. Reference ICRI CSP Standards  $\geq 5$  for acceptable profile height.
- Reference International Concrete Repair Institute (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, material and ambient temperatures are between 45°F and 95°F (7°C and 35°C) before application. Maintain temperatures within this range for at least 12 hours after installation of *Planitop 18*.
- Ensure that the concrete substrate is SSD (saturated surface-dry) before installation of *Planitop 18*. The concrete surface should be free of any standing water.

## MIXING

Note: Choose all appropriate safety equipment before use. Refer to Material Safety Data Sheet (MSDS) for more information.

1. Into a clean mixing container, pour between 2.5 to 3 U.S. qts. (2,37 to 2,84 L) of cool, clean potable water per 50-lb. (22,7-kg) bag to achieve desired consistency.
2. For best results, mix *Planitop 18* by drill mixing or in a mortar mixer. Slowly add *Planitop 18* to water while mixing. For drill mixing, use a low-speed drill and a Jiffy mixer. Mix for 2 to 3 minutes to a smooth, homogenous consistency.

3. For an extended mix, add up to 80% by weight (40 lbs. [18,1 kg]) of clean, washed, SSD 3/8" (10 mm) pea gravel per 50-lb. (22,7-kg) bag.
4. Overmixing, or moving the mixer up and down during the mixing process, should be avoided, as it could trap air and shorten pot life.
5. Mix only the amount of material that can be applied within 15 minutes.

## PRODUCT APPLICATION

1. Read all application instructions thoroughly before installation.
2. Apply with a trowel, without formwork, on horizontal surfaces to a maximum thickness of 2" (5 cm) neat per lift and up to 8" (20 cm) extended.
3. Clean all exposed reinforcement steel and coat with *Mapefer™ 1K* or *Planibond 3C* to protect against corrosion (see Technical Data Sheet for details).
4. Place *Planitop 18* within the established pot life, which is about 15 minutes at 73°F (23°C). Application times will vary depending on climatic conditions.

## CURING

1. During curing, protect *Planitop 18* from high wind conditions and keep ambient temperatures at between 32°F and 95°F (0°C and 35°C).
2. *Planitop 18* is self-curing, although damp burlap, white polyethylene sheeting or a suitable water-based curing compound may be used in hot, windy conditions. Do not use a solvent-based curing compound. Note: Remove form-release agent and/or curing compound before covering the surface with a coating.

## CLEANUP

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

## Product Performance Properties

Laboratory Tests	Results
Compressive strength – ASTM C109 (CAN/CSA-A5) 1 hour 2 hours 1 day 28 days	> 2,500 psi (17,2 MPa) > 5,500 psi (37,9 MPa) > 7,800 psi (53,8 MPa) > 9,400 psi (64,8 MPa)
Compressive strength – ASTM C39 (CAN/CSA-A23.2-9C) with 60% extension (pea gravel) 1 hour 1 day 28 days	> 2,500 psi (17,2 MPa) > 6,450 psi (44,5 MPa) > 9,200 psi (63,4 MPa)
Flexural strength – ASTM C348 (CAN/CSA-A23.2-8C) 1 day 28 days	> 900 psi (6,21 MPa) > 1,480 psi (10,2 MPa)
Modulus of elasticity – ASTM C469 28 days	> 3.71 x 10 <sup>6</sup> psi (25,6 GPa)
Slant/shear bond strength – ASTM C882 (modified) 1 day 28 days	> 2,400 psi (16,6 MPa) > 3,000 psi (20,7 MPa)
Tensile bond strength – ASTM C1583 (CAN/CSA A23.2-6B)	Greater than concrete (rupture of concrete substrate)
Volume change – ASTM C157 (modified) 28 days, dry-cured 28 days, wet-cured	-0.06% +0.05%
Freeze/thaw resistance – ASTM C666-A (CAN/CSA A23.2-9B) 300 cycles	> 99% durability factor
Resistance to de-icing salts – ASTM C672 (CAN/CSA A23.2-16C)	0 rating, no scaling (50 cycles)
Permeability to chlorides – ASTM C1202 (AASHTO T277)	Very low – in the range of 100 to 1,000 coulombs

## Shelf Life and Application Properties (before mixing)

Shelf life	1 year in original bag, in dry, heated and covered place
Physical state	Powder and latex additive
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
Color	Gray
Mixing ratio	2.5 to 3 U.S. qts. (2,37 to 2,84 L) per 50-lb. (22,7-kg) bag
Consistency of mix	Flowable mortar
Pot life	About 15 minutes
Initial set	> 10 minutes
Final set	< 35 minutes
Thickness per lift	1/2" to 2" (12 mm to 5 cm) neat, 8" (20 cm) extended
ASTM C928	Meets or exceeds R3 requirements

## CSI Division Classifications

Name of Classification	
Cast-in-Place Concrete	033000
Cementitious Decks and Underlayment	035000
Concrete Restoration and Cleaning	039000

## Packaging

Product Code	Size
17950000	Bag: 50 lbs. (22,7 kg)

## Approximate Product Coverage\*

Size	Yield
50-lb. (22,7-kg) bag, neat	0.41 cu. ft. (0,0116 m <sup>3</sup> )
50-lb. (22,7-kg) bag extended with 40 lbs. (18,1 kg) of 3/8" (10 mm) pea gravel	0.58 cu. ft. (0,0164 m <sup>3</sup> )

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

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## 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
Standard Specification for Curing Concrete	ACI 308.1
Surface Preparation for the Repair of Deteriorated Concrete Resulting from Reinforcing Steel Corrosion	ICRI Technical Guideline #310.1R-2008 (formerly #03730)

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

Refer to the Material Safety Data Sheet (MSDS) 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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For the most current BEST-BACKED<sup>SM</sup> product data and warranty information, visit [www.mapei.com](http://www.mapei.com).

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