



Planitop[®] 23

Vertical and Overhead Two-Component Repair Mortar



DESCRIPTION

Planitop 23 is a pre-proportioned, two-component, fast-setting, polymer-modified, thixotropic, cementitious fiber-reinforced mortar, with a corrosion inhibitor. *Planitop 23* is intended for vertical and overhead repairs, and contains silica fume to provide a durable, high-strength concrete in these applications.

FEATURES AND BENEFITS

- Reinforced with fiber, *Planitop 23* provides greater tensile strength and control of cracking.
- Requires only the addition of its polymer and is pre-proportioned for easy field use and control
- Can be applied using a trowel or a screw/rotostator pump
- Strong bond to old concrete surfaces and exceptional resistance to freeze/thaw conditions and de-icing salts
- Features high early strengths at 1 day

WHERE TO USE

- For vertical and overhead structural concrete repairs and restoration up to a thickness of 4" (10 cm), placed in two lifts. *Planitop 23* is suitable for pre-cast, cast-in-place, post-tensioned or pre-stressed concrete repair.
- For renovating and resurfacing concrete structures such as tunnels, bridges, overpasses, retaining walls, pools, fountains, beams, building facades, ceilings, balconies and more
- For treating blemishes and defects in concrete surfaces and for filling honeycombs, voids, cavities and rigid (static) joints

- For renovating concrete surfaces subject to moderately aggressive pollutants

LIMITATIONS

- Do not add other additives, cement or aggregates to *Planitop 23*.
- Minimum application thickness is 1/4" (6 mm).
- Do not use solvent-based curing compounds.
- Repair configuration must be carefully considered and consistent with practices recommended by ACI (see "Related Documents" section).
- When using *Planibond 3C* as a bonding agent for vertical/overhead repairs performed with *Planitop 23*, mix and apply *Planibond 3C*, and then let cure for 24 hours before mixing and applying the repair mortar.
- Surface and ambient temperatures must be between 45°F and 95°F (7°C and 35°C) at time of installation. For temperatures above 95°F (35°C), use ACI hot-weather guidelines.
- Do not use damaged or open bags or containers.

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

- All substrates must be structurally sound, stable and solid.
- Thoroughly clean the surface of substances that could affect the bond strength of *Planitop 23*, 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 profile amplitude of 1/4" (6 mm). Reference ICRI CSP Standards 7 to 9 for acceptable profile height.
- Reference ICRI Technical Guideline #310.1R-2008 and ACI RAP Bulletins 3 & 6 for repair geometry, surface preparation and material application details.
- Ensure that the concrete substrate 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 72 hours after installation of *Planitop 23*.
- Do not apply over standing water or wet surfaces.

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 4/5 of the required amount of cool, latex additive (Part B).
2. Slowly add *Planitop 23* powder (Part A) to latex additive (Part B) while mixing, using a low-speed mixer. Next, add the remaining 1/5 of latex additive (Part B) to achieve the desired consistency. Mix for up to 4 minutes, removing any unmixed powder, and remix to a smooth, homogenous consistency.
3. Overmixing, or moving the mixer up and down during the mixing process, can entrap air and shorten pot life.

PRODUCT APPLICATION

1. Read all installation instructions thoroughly before installation.
2. Apply *Planitop 23* as a scrubcoat to the prepared surface. Quickly apply *Planitop 23* while the scrubcoat is still wet. If scrubcoat dries before placement of mortar, it could become a bond breaker and the repair could fail.
3. Apply by trowel, or spray using a low-pressure screw/rotostator pump, without formwork, on vertical and overhead surfaces. The maximum thickness per lift is 2" (5 cm).
4. Clean any exposed steel reinforcement and coat with *Mapofer™ 1K* or *Planibond 3C* (see respective Technical Data Sheet for details) to prevent corrosion.

5. When applying additional coats of *Planitop 23*, wait for previous coat to fully set (after 3 hours at 73°F [23°C]). Leave surface rough to promote adhesion of additional coats. The maximum application thickness of *Planitop 23* without formwork is up to 4" (10 cm), based on two lifts, for vertical and overhead repairs.

CURING

1. During curing, protect *Planitop 23* from excessive heat or draft conditions.
2. Use damp burlap, white polyethylene sheet or a suitable water-based curing compound. Do not use a curing compound if surface is to be covered with a coating. Do not use solvent-based curing compounds. 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
Compressive strength – ASTM C109 (CAN/CSA-A5)	
1 day	> 4,060 psi (28 MPa)
3 days	> 4,800 psi (33.1 MPa)
7 days	> 5,540 psi (38.2 MPa)
28 days	> 7,975 psi (55 MPa)
Flexural strength – ASTM C348 (CAN/CSA-A23.2-8C)	
1 day	> 780 psi (5.40 MPa)
7 days	> 1,300 psi (8.97 MPa)
28 days	> 1,680 psi (11.6 MPa)
Slant/shear bond strength – ASTM C882 (modified)	
1 day	> 1,700 psi (11.7 MPa)
7 days	> 2,030 psi (14 MPa)
28 days	> 3,400 psi (23.4 MPa)
Pull-off bond strength – ASTM C1583	
3 days	Greater than concrete (rupture of concrete substrate)
7 days	> 290 psi (2 MPa)
28 days	> 290 psi (2 MPa)
28 days	> 435 psi (3 MPa)
Volume change – ASTM C157 (modified)	
28 days, dry-cured	-0.07%
28 days, wet-cured	+0.03%
Freeze/thaw resistance – ASTM C666-A (CAN/CSA A23.2-9B) 300 cycles	
	Good – 97% durability factor
Resistance to de-icing salts – ASTM C672 (CAN/CSA A23.2-16C)	
	Rating 1 – very slight scaling
Permeability to chlorides – ASTM C1202 @ 28 days	
	Very low – in the range of 100 to 1000 coulombs
Modulus of elasticity (MOE) – ASTM C469 @ 28 days	
	3.15 x 10 ⁶ psi (21.7 GPa)
Splitting tensile strength – ASTM 496 @ 28 days	
	829 psi (5.72 MPa)

Shelf Life and Application Properties (before mixing)

Shelf life	1 year in original, unopened packaging, stored in a dry, heated and covered place. Protect liquid from freezing. If liquid is frozen, discard properly.
Physical state	Powder and latex additive

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	Mix 1:1 Part A:Part B
Consistency of mix	Thixotropic mortar
Flow (ASTM C230)	130%
Density	127.9 lbs. per cu. ft. (2.05 kg per L)
pH	12
Application temperature range	45°F to 95°F (7°C to 35°C)
Pot life	20 to 30 minutes
Initial set	50 minutes
Final set	70 minutes
Wait time before application of second lift	After 3 hours
Thickness per lift	1/4" to 2" (6 mm to 5 cm)

Packaging

Product Code	Size
4023026	Part A, Powder: 57.3 lbs. (26.0 kg)
4024004	Part B, Latex: 1.05 U.S. gals. (3.97 L)

Approximate Product Coverage* per 66.5-lb. (30,2-kg) kit

Thickness	Yield
1/4" (6 mm)	25.5 sq. ft. (2.37 m ²)
1" (2,5 cm)	6.1 sq. ft. (0.57 m ²)
2" (5 cm)	3.05 sq. ft. (0.28 m ²)

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

Planitop® 23



RELATED DOCUMENTS

MAPEI's Technical Bulletin "The Impact of Cold Weather on Repair Materials"	010810-TB*
Spall Repair Using Low-Pressure Spraying	ACI RAP Bulletin 3
Vertical and Overhead Spall Repair by Hand Application	ACI RAP Bulletin 6
Standard Specification for Curing Concrete	ACI 308.1
Guide for 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

Refer to MAPEI's 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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