



Planitop[®] FD

Full-Depth Repair Mortar



DESCRIPTION

Planitop FD is a one-part, shrinkage-compensated, cementitious, flowable mortar for a variety of repairs. *Planitop FD* contains a corrosion inhibitor and is suited for form-and-pour applications as well as flatwork.

FEATURES AND BENEFITS

- Accelerated cure allows for a faster return to service on repair areas.
- Variable water ratio allows for consistencies ranging from slopeable to pumpable.
- Use for both flatwork repairs and traditional form-and-pour applications.
- Pumpable
- Modified with a corrosion inhibitor
- Can be used for preplaced aggregate repairs

WHERE TO USE

- Interior/exterior use
- Use for concrete repairs and restoration from 1/2" to 4" (12 mm to 10 cm) in thickness.
- Use for concrete repairs requiring form-and-pour.
- Use for horizontal, vertical and overhead applications (when properly formed).

Consult MAPEI's Technical Services Department for installation recommendations regarding uses not listed.

SURFACE PREPARATION

- Concrete surface must be clean, sound and free of loose particles, efflorescence, paints, tar, grease, asphaltic materials, bond breakers, curing compounds, wax, and any foreign substance or any conditions

that may affect proper bonding of the product and result in cracking, discoloration or changes in overall product performance.

- Saw-cut the perimeter of the repair area into a square to a minimum depth of 1/2" (12 mm).
- Mechanically profile and prepare concrete surfaces by engineer-approved methods in accordance with International Concrete Repair Institute (ICRI) Technical Guideline #310.2R concrete surface profile (CSP) #7 to #9.
- Ensure that all exposed reinforcing steel is prepared in accordance with the most current ICRI 310.1 guideline and coated with either *Planibond*[®] 3C or *Mapefer*[™] 1K.
- Ensure that the prepared concrete surface is saturated surface-dry (SSD) before installation of *Planitop FD*.
- Pretreat formwork with a form-release agent.

MIXING

Before product use, take appropriate safety precautions. Refer to the Safety Data Sheet for details.

1. For 50 lbs. (22.7 kg) of *Planitop FD*, mix with 2.5 to 3.25 U.S. qts. (2.37 to 3.08 L) of clean potable water or with 2.5 to 3.12 U.S. qts. (2.37 to 2.95 L) of diluted *Planicrete*[®] AC (diluted 1-to-1 with water). Pour 3/4 of the required amount of mixing liquid into a clean mixing container.
2. Slowly add *Planitop FD* to the mixing container and mix for 2 to 3 minutes with a drill and appropriate mixing paddle. To extend the mix, add aggregate before mixing and utilize a rotary drum mixer.
3. Add as much of the remaining 1/4 mixing liquid as required while mixing and continue to mix to a homogenous consistency.

PRODUCT APPLICATION

Placement as a form-and-pour application

1. *Planitop FD* can be applied via form-and-pour or form-and-pump into formwork on horizontal, vertical and overhead surfaces.
2. The formwork should be rigid, sealed and tight to prevent material loss and water absorption into the formwork. Formwork should be pre-treated with an appropriate, environmentally friendly form-release agent to provide ease of form removal. Ensure that formwork has drainage outlets to remove pre-flooded water (24 hours before placement of *Planitop FD*) and leave the surface SSD.
3. After draining forms and immediately after mixing, pour or pump *Planitop FD* into the formed area. Reference ACI 304R, "Guide for Measuring, Mixing, Transporting and Placing Concrete."

Placement as a bonded, horizontal topping

1. Place a scrubcoat of *Planitop FD* onto the SSD prepared concrete.
2. Immediately pour or pump the mixed *Planitop FD* onto the scrubcoat before it dries out.
3. Move the *Planitop FD* with a rake or trowel to the desired thickness and finish. For large placements in hot and windy areas, use *Mapecrete™ Film* as an evaporation retarder.
4. Ensure that all joints are honored through the *Planitop FD* application.

CURING

- Cure *Planitop FD* with wet burlap or plastic sheeting for the first 4 hours of curing. Alternatively, apply a water-based curing compound conforming to ASTM C309.

CLEANUP

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

LIMITATIONS

- *Planitop FD* requires only the addition of water. For exterior environments subject to freeze/thaw conditions, use *Planicrete AC* diluted 1-to-1 with potable water.
- Applications from 1/2" to 4" (12 mm to 10 cm) may be applied by using *Planitop FD* neat.
- *Planitop FD* can be extended up to 50% by weight for repairs beyond 4" (10 cm).
- *Planitop FD* is recommended for use at temperatures between 45°F to 95°F (7°C to 35°C). Follow hot- and cold-weather ACI guidelines when installing at below 45°F (7°C) or above 85°F (29°C).
- For installations involving preplaced aggregate, follow the standard practices defined by ACI 304.1R-92, "Guide for the Use of Preplaced Aggregate Concrete for Structural and Mass Concrete Applications."

Product Performance Properties – mixture with 3.25 U.S. qts. (3.08 L) of water

Laboratory Tests	Results
Compressive strength – ASTM C109 (CAN/CSA-A5)	
1 day	> 3,200 psi (22.1 MPa)
7 days	> 7,100 psi (49.0 MPa)
28 days	> 8,100 psi (55.9 MPa)
Flexural strength – ASTM C348 (CAN/CSA-A23.2-8C)	
1 day	> 570 psi (3.93 MPa)
7 days	> 640 psi (4.41 MPa)
28 days	> 1,500 psi (10.3 MPa)
Direct tensile strength – CRD C164	
28 days	> 280 psi (1.93 MPa)
Slant/shear bond strength – ASTM C882 (modified)	
7 days	> 1,550 psi (10.7 MPa)
28 days	> 1,700 psi (11.7 MPa)
Length change – ASTM C157 (modified), typical results	
28 days, wet-cured	+0.03%
28 days, dry-cured	-0.08%

Product Performance Properties – mixture with 3.12 U.S. qts. (2.95 L) of *Planicrete AC*

Laboratory Tests	Results
Compressive strength – ASTM C109 (CAN/CSA-A5)	
1 day	> 2,700 psi (18.6 MPa)
7 days	> 6,600 psi (45.5 MPa)
28 days	> 7,500 psi (51.7 MPa)
Flexural strength – ASTM C348 (CAN/CSA-A23.2-8C)	
1 day	> 630 psi (4.34 MPa)
7 days	> 980 psi (6.76 MPa)
28 days	> 1,720 psi (11.9 MPa)
Direct tensile strength – CRD C164	
28 days	> 362 psi (2.50 MPa)
Slant/shear bond strength – ASTM C882 (modified)	
7 days	> 2,850 psi (19.7 MPa)
28 days	> 3,020 psi (20.8 MPa)
Length change – ASTM C157 (modified), typical results	
28 days, wet-cured	+0.03%
28 days, dry-cured	-0.12%

Product Performance Properties – mixture with extension of 25 lbs. (11.3 kg) of 3/8" (10 mm) aggregate

Laboratory Tests	Results
Compressive strength – ASTM C39	
1 day	> 2,100 psi (14.5 MPa)
7 days	> 6,000 psi (41.4 MPa)
28 days	> 6,600 psi (45.5 MPa)
Flexural strength – ASTM C293	
7 days	> 730 psi (5.03 MPa)
28 days	> 1,500 psi (10.3 MPa)
Splitting tensile strength – ASTM C496	
7 days	> 630 psi (4.34 MPa)
28 days	> 640 psi (4.41 MPa)

Application Properties

Mixing ratio for water with 50 lbs. (22.7 kg) of product	2.5 to 3.25 U.S. qts. (2.37 to 3.08 L) of water; 10.5% to 13.5% water by weight
Mixing ratio for <i>Planicrete AC</i> with 50 lbs. (22.7 kg) of product	2.5 to 3.12 U.S. qts. (2.37 to 2.95 L) of <i>Planicrete AC</i> diluted 1:1 with water
Application temperature range	45°F to 95°F (7°C to 35°C)
Pot life at 73°F (23°C)	30 minutes
VOCs (Rule #1168 of California's SCAQMD)	0 g per L
Consistency of mix	Flowable mortar
Initial set at 73°F (23°C)	60 minutes
Final set at 73°F (23°C)	120 minutes
Application of self-levelers permitted	After 24 hours*
Application of epoxy coatings permitted	After 72 hours*
Flammability	Flame spread: 0 Fuel contribution: 0 Smoke development: 0

* In high-volume placements and in temperatures below 70°F (21°C), increase the time allowed before applying a covering.

Planitop[®] FD



Shelf Life and Product Characteristics before mixing

Shelf life	1 year when stored in original, unopened packaging at 73°F (23°C) in a dry area
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.

CSI Division Classification

Maintenance of Concrete	03 01 00
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Packaging

Size	Bag: 50 lbs. (22.7 kg)
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Approximate Coverage*

Amount of Product	Coverage
50 lbs. (22.7 kg)	5.1 sq. ft. (0.48 m ²) at 1" (2.5 cm) thickness

Amount of Product	Yield
50 lbs. (22.7 kg)	0.43 cu. ft. (0.0122 m ³)
50 lbs. (22.7 kg) mixed and extended with 25 lbs. (11.3 kg) of 3/8" (10 mm) aggregate	0.55 cu. ft. (0.0156 m ³)

* Coverage shown is for estimating purposes only. Actual jobsite coverage may vary according to substrate conditions, type of equipment, thickness applied and application methods used.

Refer to the SDS for specific data related to health and safety as well as product handling.

For information on MAPEI's commitment to sustainability and transparency, as well as how MAPEI products may contribute to green building standards and certification systems, contact sustainability_USA@mapei.com (USA) or sustainability-durabilite@mapei.com (Canada).

LEGAL NOTICE

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and the user alone assumes all risks and liability. **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.**

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