

Planitop Shotcrete

Silica-Fume-Enhanced Shotcrete Mix



FOR PROFESSIONAL USE ONLY

DESCRIPTION

Planitop® Shotcrete is a silica-fume-enhanced, cementitious mortar designed to be machine-applied on horizontal, vertical and overhead concrete surfaces, using the dry- or wet-mix spray process. *Planitop Shotcrete* is a special blend of hydraulic binders, silica fume and well-graded aggregates.

FEATURES AND BENEFITS

- One-component product
- Low rebound
- Silica-fume-enhanced
- Can be used for dry or wet shotcrete applications

WHERE TO USE

- Interior and exterior use
- Parking garages and bridge structures
- Retaining walls, mines and tunnels
- Marine applications
- Vertical, overhead and horizontal concrete surfaces
- For slope stabilization
- For construction of swimming pools

SURFACE PREPARATION

- Concrete surfaces must be clean and free of loose particles, efflorescence, paints, tars, grease, asphaltic materials, bond breakers, curing compounds, wax, and any foreign substance or any conditions that may affect product performance or proper bonding.
- For repair applications, sawcut the perimeter of the repair area into a square to a minimum depth of 3/8" (10 mm).
- Mechanically profile and prepare concrete surfaces by engineer-approved methods in accordance with the most current ICRI 310.2R Guidelines.
- 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 concrete substrate is saturated surface-dry (SSD) before installation of *Planitop Shotcrete*.

MIXING

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

Dry process

1. Set up dry-process shotcrete equipment convenient to the placement site.
2. Gauge water at the nozzle and adjust to the desired consistency, typically 2.91 to 3.43 U.S. qts. (2.75 to 3.25 L) per 55 lbs. (24.9 kg) of *Planitop Shotcrete*.

Wet process

1. Set up conventional wet-process spray equipment and add water – about 2.91 to 3.43 U.S. qts. (2.75 to 3.25 L) per 55 lbs. (24.9 kg) of *Planitop Shotcrete* – directly into the mixer.
2. With the mixer running, add *Planitop Shotcrete* and mix to a uniform consistency for about 3 minutes.

PRODUCT APPLICATION

Read all applicable instructions thoroughly before installation. Refer to ACI 506-R85, "Guide to Shotcrete," for shotcreting procedures.

Dry process

1. Use conventional dry-process shotcrete equipment and spray at a distance of 2 to 6 feet (0.61 to 1.83 m) from the repair area.
2. Hold the nozzle perpendicular to the surface.
3. Monitor mortar consistency by adjusting water at the nozzle to desired consistency.
4. While spraying, move the nozzle in a circular motion to evenly apply *Planitop Shotcrete* to the repair area.
5. Allow *Planitop Shotcrete* to stiffen for about 5 to 10 minutes and then smooth out any uneven areas with a trowel or a vertical screed/darby.
6. Before applying a second layer, ensure that the material has reached initial set, typically 2 to 4 hours depending on jobsite conditions.
7. Ensure that the surface of the initial layer is cross-hatched.

Wet process

1. Use conventional wet-process shotcrete equipment and spray at a distance of 18" to 24" (46 to 61 cm) from the repair area.
2. Hold the nozzle perpendicular to the surface to minimize rebound.
3. While spraying, move the nozzle in a circular motion to evenly apply *Planitop Shotcrete* to the repair area.
4. Allow *Planitop Shotcrete* to stiffen for about 5 to 10 minutes and then smooth out any uneven areas with a trowel or a vertical screed/darby.
5. Before applying a second layer, ensure that the material has reached initial set, typically 2 to 4 hours depending on jobsite conditions.
6. Ensure that the surface of the initial layer is cross-hatched.

CURING

- Cure with wet burlap or polyethelene sheet during the first 3 days of curing. Alternatively, apply a water-based curing compound conforming to ASTM C309.

CLEANUP

- Clean tools and equipment with water before *Planitop Shotcrete* hardens. Hardened material must be mechanically removed.

LIMITATIONS

- Do not install over substrates containing asbestos.
- The minimum ambient and surface temperatures are from 45°F (7°C) and rising at the time of application, up to 95°F (35°C).
- For best results, condition *Planitop Shotcrete* from 65°F to 85°F (18°C to 29°C) at least 24 hours before use.
- Use only potable water at the nozzle in a dry shotcreting application and when mixing for wet shotcreting.
- *Planitop Shotcrete* can be applied at thicknesses between 3/8" and 1-9/16" (10 mm to 4 cm) per lift, and up to 6" (15 cm) in multiple lifts.
- For temperatures below 45°F (7°C) and above 85°F (29°C), refer to the American Concrete Institute (ACI) for hot/cold weather application guidelines.

Product Performance Properties

Laboratory Tests	Results
Specific gravity	2.15 g per cc
pH	> 12.5
Dry solids content	100%
Compressive strength – ASTM C109 (CAN/CSA-A5)	
1 day	3,000 psi (20.7 MPa)
7 days	6,000 psi (41.4 MPa)
28 days	7,500 psi (51.7 MPa)
Flexural strength – ASTM C348	
7 days	775 psi (5.34 MPa)
28 days	1,100 psi (7.59 MPa)
Splitting tensile strength – ASTM C496	
28 days	500 psi (3.45 MPa)

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	Concrete 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

Consistency of mix	Thixotropic
Mixing ratio	2.91 to 3.43 U.S. qts. (2.75 to 3.25 L) of water per 55 lbs. (24.9 kg) of <i>Planitop Shotcrete</i>
Application temperature range	45°F to 95°F (7°C to 35°C)
Initial set at 73°F (23°C)	2 to 4 hours

CSI Division Classification

Maintenance of Concrete	03 01 00

Packaging

Size

Bag: 55 lbs. (24.9 kg)

Approximate Coverage*

per 55 lbs. (24.9 kg)

0.48 cu. ft. (0.0136 m³)

** Coverage varies depending on the amount of water utilized.*

ADDITIONAL INFORMATION

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

The contents of this Technical Data Sheet ("TDS") may be copied into another project-related document, but the resulting document shall not supplement nor replace requirements per the TDS in effect at the time of the MAPEI product installation. For the most up-to-date TDS and warranty information, please visit our website at www.mapei.com. **ANY ALTERATIONS TO THE WORDING OR REQUIREMENTS CONTAINED IN OR DERIVED FROM THIS TDS SHALL VOID ALL RELATED MAPEI WARRANTIES.**

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For the most current product data and BEST-BACKEDSM warranty information,
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