



# Uncoupling Membrane Mortar

**Premium, Large-and-Heavy-Tile and Thin-Set Mortar**



## DESCRIPTION

*Uncoupling Membrane Mortar* is a dry-set mortar for use in large-and-heavy-tile and thin-set applications for installing tile on floors and walls.

## FEATURES AND BENEFITS

- For use with uncoupling membranes
- An economical large-and-heavy-tile and thin-set mortar for installing ceramic tile and select natural stone on floors and walls
- Can be mixed with MAPEI's *Polymer Additive* (instead of water) for enhanced performance, and for setting a wider range of tile and stone over additional substrates
- Approved for use with large-format tile larger than 15" (38 cm) and for bond coats up to 1/2" (12 mm) in embedded thickness

## INDUSTRY STANDARDS AND APPROVALS

When mixed with water

- ANSI: Exceeds A118.1HT bond strength requirements

When mixed with *Polymer Additive*

- ANSI: Exceeds A118.4H and A118.11 bond strength requirements

## SUITABLE TILE OR STONE OVER RECOMMENDED SUBSTRATES

When mixed with water

- Ceramic tile, quarry tile, pavers, Saltillo tile, large-format tile and most types of marble, granite and natural stone

When mixed with *Polymer Additive*

- All the above, plus porcelain tile

## SUITABLE TILE OR STONE OVER UNCOUPLING MEMBRANE

When mixed with water

- Ceramic tile, quarry tile, pavers, Saltillo tile, porcelain tile, large-format tile and most types of marble, granite and natural stone

## SUITABLE SUBSTRATES FOR UNCOUPLING MEMBRANES AND WATERPROOFING MEMBRANES

- (For the bond coat of the membrane, follow the uncoupling or waterproofing membrane manufacturer's recommendations for unmodified mortars mixed with water or modified mortars mixed with latex additive per their system warranty.) Read the instructions completely and contact the membrane manufacturer with any questions regarding construction of the tile assembly.

## SUITABLE SUBSTRATES FOR DIRECT TILE INSTALLATIONS (without uncoupling/waterproofing membranes)

When mixed with water

- Concrete (cured at least 28 days)
- Masonry cement block and brick
- Cement mortars and leveling coats

When mixed with MAPEI's *Polymer Additive* (see *Polymer Additive's* Technical Data Sheet for details)

- All the substrates above
- Gypsum wallboard – plaster – for interior walls in dry areas only (priming may be required). See the "Surface preparation requirements" reference guide



in the Tile & Stone Installation Systems section of MAPEI's Website.

- Vinyl composition tile (VCT), plastic laminate countertops, non-cushioned sheet vinyl and cutback residue (interior installations)
- Existing ceramic and porcelain tile, cement terrazzo, quarry tile and pavers (interior in dry conditions only)
- MAPEI waterproofing, crack-isolation and sound-reduction membranes
- Installations subject to water immersion, such as pools and spas
- Cement backer units (CBUs) — see manufacturer's installation guidelines
- Plywood underlayments must be a Group 1 exterior-grade plywood CC-plugged or better, conforming to APA classification and U.S. Product Standard PS 1-95 or a "SELECT" or (SEL-TF) CANPLY classified exterior-grade plywood conforming to CSA-0121 standard for Douglas fir for direct-bond applications (interior, residential and light commercial floors and countertops in dry conditions only).

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

## WHERE TO USE

### When mixed with water

- Most interior/exterior residential and light commercial installations on floors and walls

### When mixed with Polymer Additive

- All the uses listed above
- Most exterior commercial installations
- Installations subject to water immersion, such as pools and spas
- Areas subject to severe freeze/thaw conditions

## LIMITATIONS

- Install only at temperatures between 40°F and 95°F (4°C and 35°C).
- Do not use for moisture-sensitive stone (green marble; some limestone and granite), agglomerate tiles or resin-backed tiles. Instead, use suitable epoxy or urethane adhesives (see respective Technical Data Sheets for more information).
- Consult building code requirements for use on exterior commercial facades.
- Do not use over gypsum underlayments or oriented strand board (OSB).
- For light-colored and translucent natural stone, a white mortar is recommended.
- For areas subject to severe freeze/thaw conditions, mix with MAPEI's *Polymer Additive* instead of water.

## SURFACE PREPARATION

- All substrates should be structurally sound, stable, dry, clean, and free of any substance or condition that may reduce or prevent proper adhesion.

- See the "Surface preparation requirements" reference guide in the Tile & Stone Installation Systems section of MAPEI's Website.

## MIXING

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

1. Pour clean, potable water into a clean mixing container. For non-sag/nonslump applications, use about 6.5 to 7.5 U.S. qts. (6.15 to 7.10 L) of water. For MAPEI uncoupling and peel-and-stick membranes, use about 7.5 to 8 U.S. qts. (7.10 to 7.57 L) of water. Or, when needed instead of water, use 2 U.S. gals. (7.57 L) of *Polymer Additive*.
2. Gradually add 50 lbs. (22,7 kg) of powder while slowly mixing.
3. Use a low-speed mixing drill (at about 300 rpm), with an angled cross-blade mixer or spiral mixer. Mix thoroughly until mixture becomes a smooth, homogenous, lump-free paste. Avoid prolonged mixing.
4. Let the mixture stand for 5 minutes.
5. Remix for 1 minute.
6. If the mixture becomes heavy or stiff, remix it without adding more liquid.

## APPLYING FOR DIRECT TILE INSTALLATIONS (without uncoupling membranes)

1. Choose a notched trowel (see the "Approximate Coverage" chart below), with sufficient depth to achieve greater than 80% mortar contact with both the tile and substrate for all interior applications, and greater than 95% for exterior installations, commercial floor applications and wet applications. It may be necessary to back-butter tiles in order to meet these requirements. (Refer to ANSI A108.5 specifications and TCNA Handbook guidelines.)
2. With pressure, apply a coat by using the trowel's flat side to key mortar into the substrate.
3. Apply mortar to the substrate, combing it in a single direction parallel to the tiles' shortest dimension with the trowel's notched side.
4. Spread only as much mortar as can be tiled before the product skins over. Open time can vary with jobsite conditions.
5. Place the tiles firmly into the wet mortar. Push the tiles back and forth in a direction perpendicular to the trowel lines, to collapse the mortar ridges and to help achieve maximum coverage. Ensure proper contact between the mortar, tile and substrate by periodically lifting a few tiles to check for acceptable coverage.
6. Remove excess mortar from the joint areas so that at least 2/3 of the tile depth is available for grouting (see ANSI A108.10 guidelines).

## APPLYING BOND COAT FOR UNCOUPLING MEMBRANE INSTALLATION

1. Refer to the membrane manufacturer's guidelines for installation instructions and trowel recommendations.

**ANSI Specification** when mixed with water

Test Method	Specification Standard	Test Results
ANSI A118.1 – shear strength, impervious ceramic (porcelain) mosaics	> 150 psi (1.03 MPa) at 28 days	175 to 225 psi (1.21 to 1.55 MPa)
ANSI A118.1 – shear strength, glazed wall tile	> 250 psi (1.72 MPa) at 7 days	275 to 330 psi (1.90 to 2.28 MPa)
ANSI A118.1 – shear strength, quarry tile to quarry tile	> 100 psi (0.69 MPa) at 28 days	225 to 300 psi (1.55 to 2.07 MPa)
ANSI A118.1H – mortar for large and heavy tile	ASTM C627 Robinson Floor Test, lippage change < 1/64" (0.4 mm)	Pass
ANSI A118.1T – sag on vertical surfaces	≤ 0.02" (0.5 mm)	Pass

**ANSI Specification** when mixed with *Polymer Additive*

Test Method	Specification Standard	Test Results
ANSI A118.4 – shear strength, impervious ceramic (porcelain) mosaics	> 200 psi (1.38 MPa) at 28 days	200 to 300 psi (1.38 to 2.07 MPa)
ANSI A118.4 – shear strength, glazed wall tile	> 300 psi (2.07 MPa) at 7 days	300 to 400 psi (2.07 to 2.76 MPa)
ANSI A118.4 – shear strength, quarry tile to quarry tile	> 150 psi (1.03 MPa) at 28 days	200 to 300 psi (1.38 to 2.07 MPa)
ANSI A118.4H – mortar for large and heavy tile	ASTM C627 Robinson Floor Test Lippage change < 1/64" (0.4 mm)	Pass
ANSI A118.11 – shear strength, quarry tile to plywood	> 150 psi (1.03 MPa) at 28 days	150 to 250 psi (1.03 to 1.72 MPa)

**Shelf Life and Application Properties\*** at 73°F (23°C) and 50% relative humidity

Shelf life	1 year when stored in original, unopened packaging
Open time*	20 to 30 minutes
Pot life*	> 2 hours
Time before grouting*	24 to 48 hours
VOCs (Rule #1168 of California's SCAQMD)	0 g per L

\* Open time, pot life and time before grouting vary based on jobsite conditions.

**Packaging**

Size and Color
50 lbs. (22.7 kg), gray

**Approximate Coverage\*\*** per 50 lbs. (22.7 kg)

Typical Trowel	Coverage
1/4" x 1/4" x 1/4" (6 x 6 x 6 mm)	85 to 95 sq. ft. (7.90 to 8.83 m <sup>2</sup> )
1/4" x 3/8" x 1/4" (6 x 10 x 6 mm)	65 to 75 sq. ft. (6.04 to 6.97 m <sup>2</sup> )
1/2" x 1/2" x 1/2" (12 x 12 x 12 mm)	40 to 50 sq. ft. (3.72 to 4.65 m <sup>2</sup> )
3/4" x 9/16" x 3/8" (19 x 14 x 10 mm)	35 to 40 sq. ft. (3.25 to 3.72 m <sup>2</sup> )

\*\* Coverage estimates are for flat substrates; use over a membrane will significantly reduce coverage rate as a result of filling voids in the membrane. Trowel dimensions are width/depth/space. Actual coverage will also vary according to tile type.

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2. Spread only as much mortar as can be covered with the uncoupling membrane before the product skins over. Open time can vary with jobsite conditions.

## APPLYING FOR TILE INSTALLATION OVER UNCOUPLING MEMBRANES

1. Follow the uncoupling membrane manufacturer's installation guidelines.
2. Choose a notched trowel (see the "Approximate Coverage" chart below), with sufficient depth to achieve greater than 80% mortar contact with both the tile and substrate for all interior applications, and greater than 95% for exterior installations, commercial floor applications and wet applications. It may be necessary to back-butter tiles in order to meet these requirements. (Refer to ANSI A108.5 specifications and TCNA Handbook guidelines.)
3. With pressure, apply a coat by using the trowel's flat side to completely fill the cavities on the surface of the membrane and achieve a mechanical bond to the membrane.
4. Apply additional mortar, combing it in a single direction with the trowel's notched side.
5. Spread only as much mortar as can be tiled before the product skins over. Open time can vary with jobsite conditions.
6. Place the tiles firmly into the wet mortar. Push the tiles back and forth in a direction perpendicular to the trowel lines, to collapse the mortar ridges and to help achieve maximum coverage. Ensure proper contact between the mortar, tile and substrate by periodically lifting a few tiles to check for acceptable coverage.
7. Remove excess mortar from the joint areas so that at least 2/3 of the tile depth is available for grouting (see ANSI A108.10 guidelines).

8. Prevent traffic over the tiles before grouting.

## EXPANSION AND CONTROL JOINTS

- Provide for expansion and control joints as specified per TCNA Detail EJ171. Do not cover expansion joints with mortars.

## CLEANUP

- Clean tools and tile while the mortar is fresh, using only water.

## PROTECTION

- Protect installation from traffic and wait to grout for 24 to 48 hours.
- Protect from heavy traffic for 7 days.
- Protect from rain or frost for 7 days.
- Large-format tile and low-absorption tile may require a longer time to fully set before tiles can be grouted.

## RELATED DOCUMENTS

Reference guide: "Surface preparation requirements" for tile and stone installation systems\*

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

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](mailto:sustainability_USA@mapei.com) (USA).

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