



Full Set Plus® Unmodified Thin Set Mortar

Updated December 2023

1. PRODUCT NAME

TEC® Full Set Plus® Unmodified Thin Set Mortar
(380/381)

2. MANUFACTURER

H.B. Fuller Construction Products Inc.
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Aurora, IL 60504-6451 U.S.A.
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3. DESCRIPTION

Full Set Plus mortar is a high strength, quick grab formulation, ideal for floor and wall installations.

Key Features and Benefits

- Extended pot life and tile adjustability
- Mixed with water, exceeds ANSI A118.1 specifications. Mixed with TEC® XtraFlex™ additive, *exceeds* ANSI A118.4 and A118.11 specifications. Mixed with TEC® Acrylbond® AMA additive, *meets* ANSI A118.4 and A118.11 specifications.
- Contributes to LEED® project points
- Zero VOC

Packaging

50 lb. (22.68 kg) moisture-resistant bags	
Gray	Product #15035019
White	Product #15035021
50 lb. (22.68 kg) plastic bags	
Gray	Product #15030013
White	Product #15030011

Coverage

Coverage will vary with condition of substrate. Required trowel size will vary with the tile size, type and substrate uniformity. Select the trowel size that will ensure 100% coverage. Figures below are presented only as guidelines.

Trowel Size	Approximate Coverage per 50 lbs. (22.68 kg)
¼" x ¼" x ¼" (6 x 6 x 6 mm) square-notched trowel	95-105 sq. ft. (8.8-9.8 m ²)
¼" x ¾" x ¼" (6 x 9 x 6 mm) square-notch trowel	65-75 sq. ft. (6-7 m ²)

*Thin set mortar must be mixed with a TEC acrylic latex mortar additive for installing impervious porcelain.

Suitable Substrates

When properly prepared per TCNA guidelines, acceptable substrates include:

- Cured concrete, cured mortar beds, brick and masonry (**Interior and exterior installations subjected to freeze/thaw conditions require use with TEC Acrylbond AMA or XtraFlex Additive**)
- APA Grade Trademarked Exposure 1 Plywood underlayment grade or better. **Requires use with TEC Acrylbond AMA or XtraFlex Additive.**
- Gypsum wallboard (dry interior wall areas only)
- Water resistant gypsum wallboard (e.g.: greenboard, interior walls only, dry to intermittent water exposure only)
- Cementitious backer units (CBU) or coated glass mat backerboard
- Existing ceramic tile and natural stone, provided existing flooring is well-bonded to an approved substrate. **Requires use with TEC Acrylbond AMA or XtraFlex Additive.**

- Vinyl composition tile, asphalt tile, linoleum or non-cushioned vinyl sheet goods, provided such surfaces are single-layered, well-bonded to an approved substrate and properly prepared. **Requires use with TEC Acrylbond AMA or XtraFlex Additive.**
- Adhesive residue (except tacky or pressure-sensitive adhesive). **Requires use with TEC Acrylbond AMA or XtraFlex Additive.**

Substrate Preparation

All substrates must be dry, structurally sound with maximum deflection per industry standards of 1/360 for ceramic tile installations and 1/720 for natural stone installations; and free from oil, grease, dust, paint, sealers or concrete curing compounds. All contaminants must be removed prior to installation of tile. Surface protrusions and tile glazes shall be removed by sanding, scraping or scarifying. After preparation, remove all dust by vacuuming.

Notes: Vinyl asbestos tile or any substrate containing asbestos must not be sanded, scored or scarified because of the potential health hazard of breathing dust. Any substrate containing asbestos must be handled in accordance with existing EPA regulations. Contact your local EPA office.

Expansion joints must be provided in the tile work over all construction, control and expansion joints in the backing and where backing materials change. Follow ANSI A108.01 Section 3.7 Requirements for Expansion Joints.

Maximum variations in all substrates must not exceed ¼" in 10 ft. (6 mm in 3 m) or 1/16" in 1 ft. (1.6 mm in 0.3 m) from the required plane. For non-level, interior floors use an approved TEC Self-Leveling Underlayment.

For best results over plywood and other suitable porous substrates, wipe the surface clean with a damp sponge just prior to application of mortar.

Storage

Store in cool, dry location. Do not store open bags.

Shelf Life

Maximum 1 year from date of manufacture in properly stored, unopened package.

Limitations

- Only install when the temperature is between 50°F (10°C) - 90°F (32°C).
- Not for installing green marble, other moisture-sensitive stone tile or resin-backed marble; use TEC® AccuColor EFX® Epoxy Grout and Mortar.
- For non-green marble tile applications, use white thin set mortars.
- Not for use over rubber, strip wood floors, oriented strand board, particle board, tempered hardboard (e.g. Masonite), lauan or CDX plywood.
- Do not apply over single layer wood floors.
- Substrate temperature should be a minimum of 43°F (6°C) during application and air temperature maintained above 50°F (10°C) during installation and for 72 hours after installation.
- Certain natural stone tiles may be affected by mortar shadowing or staining. Test a small area prior to use to determine suitability.
- Do not use for exterior applications unless mixed with TEC Acrylbond AMA or XtraFlex Additive.

Cautions

Read complete cautionary information printed on product container prior to use. For medical emergency information, call 1-888-853-1758.

This Product Data Sheet has been prepared in good faith on the basis of information available at the time of publication. It is intended to provide users with information about and guidelines for the proper use and application of the covered TEC® brand product(s) under normal environmental and working conditions. Because each project is different, H.B. Fuller Construction Products Inc. cannot be responsible for the consequences of variations in such conditions, or for unforeseen conditions.

4. TECHNICAL DATA

Applicable Standard

Full Set Plus Premium Unmodified Mortar (380/381)		
Description	ANSI Requirement	Typical Results
<i>Tested in accordance with ANSI A118.1 Specifications for Dry Set Mortars</i>		
28 Day Shear Strength Glazed Wall Tile Impervious Ceramic Tile (Porcelain) Quarry Tile	> 250 psi (1.7 MPa) > 150 psi (1.0 MPa) > 100 psi (0.7 MPa)	250-325 psi (1.7-2.2 MPa) 150-200 psi (1.0-1.4 MPa) 300-400 psi (2.1-2.8 MPa)
Sag on Vertical Surfaces	≤ 1/16" (1.6 mm)	0-1/16" (0-1.6 mm)
Open Time at Room Temperature	≥ 50 minutes	50-60 minutes
Adjustability at Room Temperature	≥ 30 minutes	30-40 minutes
Final Set	9-15 hours	9-15 hours

Description	ANSI Requirement	Typical Results when mixed with XtraFlex
<i>Tested in accordance with ANSI A118.4 Specifications for Latex-Modified Dry Set Mortars over Exterior Grade Plywood</i>		
28 Day Shear Strength Glazed Wall Tile Impervious Ceramic Tile (Porcelain) Quarry Tile	> 300 psi (2.1 MPa) > 200 psi (1.4 MPa) > 150 psi (1.0 MPa)	> 600 psi* (4.1 MPa) 375-450 psi (2.6-3.1 MPa) 450-600 psi (3.1-4.1 MPa) <small>*ANSI-specified glazed wall tile failed at 600 psi (4.1 MPa)</small>
Sag on Vertical Surfaces	≤ 1/16" (1.6 mm)	1/16" (1.6 mm)
Open Time at Room Temperature	≥ 50 minutes	90-120 minutes
Adjustability at Room Temperature	≥ 30 minutes	50-70 minutes
Final Set	9-15 hours	13-15 hours
Flexibility (movement absorbed before shear) Porcelain to Concrete	No ANSI spec currently available	1/16" (1.6 mm)

Description	ANSI Requirement	Typical Results when mixed with Acrylbond AMA
<i>Tested in accordance with ANSI A118.11 Specifications for Latex-Modified Dry Set Mortars over Exterior Grade Plywood</i>		
28 Day Shear Strength Quarry Tile	No ANSI spec currently available	> 250 psi (1.7 MPa)

Description	ANSI Requirement	Typical Results when mixed with Acrylbond AMA
<i>Tested in accordance with ANSI A118.4 Specifications for Latex-Modified Dry Set Mortars over Exterior Grade Plywood</i>		
28 Day Shear Strength Glazed Wall Tile Impervious Ceramic Tile (Porcelain) Quarry Tile	> 300 psi (2.1 MPa) > 200 psi (1.4 MPa) > 150 psi (1.0 MPa)	> 600 psi* (4.1 MPa) 250-325 psi (1.7-2.2 MPa) 400-500 psi (2.8-3.4 MPa) <small>*ANSI-specified glazed wall tile failed at 600 psi (4.1 MPa)</small>
Sag on Vertical Surfaces	≤ 1/16" (1.6 mm)	1/16" (1.6 mm)
Open Time at Room Temperature	≥ 50 minutes	60-80 minutes
Adjustability at Room Temperature	≥ 30 minutes	30-40 minutes
Final Set	9-15 hours	9-15 hours
Flexibility (movement absorbed before shear) Porcelain to Concrete	No ANSI spec currently available	1/16" (1.6 mm)

<i>Tested in accordance with ANSI A118.11 Specifications for Latex-Modified Dry Set Mortars over Exterior Grade Plywood</i>		
28 Day Shear Strength Quarry Tile	150 psi (1.0 MPa)	> 150 psi (1.0 MPa)

Greater than: > Greater than or equal to: ≥ Less than: < Less than or equal to: ≤

Physical Properties

Description	
Physical State	Dry powder
Color	Available in white and gray
Pot Life	4 to 5 hours*
Initial Cure [at 72°F (22°C)]	16 to 24 hours*
Final Cure	21 days
Foot Traffic Rating (ASTM C627)	Residential to Extra Heavy Commercial (depending on substrate)

Storage	Store in cool, dry location. Do not store open bags.
Shelf Life	Maximum 1 year from date of manufacture in properly stored, unopened package.

*Temperature and humidity will affect pot life and cure time

5. INSTALLATION INSTRUCTIONS

Mixing—With Water

For best results, maintain all tiling materials, substrates, room and mortar at 50°-70°F (10-21°C) for 24 hours before and 48 hours after installation. Thoroughly mix 50 lbs. (22.68 kg) Full Set Plus with 5 to 6 quarts (4.7-5.7 L) clean, cool water. Add powder to liquid for ease of mixing. Mix material to a thick creamy consistency, then allow the mortar to stand for 10 minutes. Remix and apply. Avoid breathing dust and contact with eyes and skin. Avoid using high speed mixing, not to exceed 300 rpm, to prevent entraining air.

Mixing—With Latex Additive

For improved performance in any application, use a TEC acrylic latex mortar additive in place of water. For installations subjected to freeze/thaw conditions; bonding over most non-cementitious substrates; bonding porcelain and other difficult-to-bond tile; or any ANSI A118.4 or A118.11 latex mortar project, the use of an additive is required.

When using a mortar additive, always follow label directions for detailed mixing and substrate recommendations.

Application

Key in mortar using flat side of trowel to promote better substrate contact, then comb in one direction with the notched side of the trowel. Spread only an area that can be tiled while surface is still tacky (typically 20-30 minutes). Press tiles into setting bed, then push in a direction perpendicular to the notched trowel ridges to achieve optimum coverage. Apply mortar in a heavy enough layer so that complete contact (no voids) between mortar and tile is accomplished when tile is positioned. It may be necessary to "back-butter" large tiles to achieve complete coverage and firm support. Periodically remove and check a tile to assure proper coverage. Keep a minimum of 2/3 of the joint depth between tiles for grouting.

Open time and tile hand adjustability may vary with job site conditions. Stir occasionally during use to maintain the smooth, creamy consistency of the product. **Do not add additional water.**

Note: It is the sole responsibility of the installer to determine the suitability and compatibility of the product for the intended application.

Clean-up

Clean tools, hands, and excess materials from face of tile, while mortar is still fresh, with warm soapy water.

Grouting/Curing

Grouting may be accomplished when tiles are held firmly in place, typically 16 to 24 hours after installation is completed. No traffic is permitted over the tiles prior to grouting. Cold temperatures or high humidity may extend curing time, working time, and pot life. Hot temperatures or low humidity may decrease curing time, working time, and pot life. Some tiles may require sealing prior to grouting so discolorations will not occur. The use of TEC brand grouts is highly recommended.

6. AVAILABILITY

TEC premium surface preparation, tile, stone, carpet, wood and resilient floor covering installation products are available nationwide. To locate TEC products in your area, please contact:

Phone: 800-832-9002

Website: tecspecialty.com

7. LIMITED WARRANTY

The product(s) covered by this Product Data Sheet are sold subject to a Limited Warranty and related terms. **H.B. Fuller Construction Products disclaims the implied warranties of merchantability and fitness for a particular purpose and all incidental and consequential damages arising out of the sale, purchase or use of this product.** For Limited Warranty details visit tecspecialty.com. To obtain a hard copy of the Limited Warranty call H.B. Fuller Construction Products at 800-832-9023 or mail a written request to the address in Section 2 of this Product Data Sheet.

8. MAINTENANCE

Not applicable

9. TECHNICAL SERVICES

Technical and safety literature

To acquire technical and safety literature, please visit our website at tecspecialty.com.

10. FILING SYSTEM

Division 9



Conforms with LEED v4 low emitting interiors.
Compliant with (CDPH) Standard Method v1.2 VOC Emissions.



To learn more, visit TECSpecialty.com



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