



Full Flex® Premium Thin Set Mortar

Updated September 2025

1. PRODUCT NAME

TEC® Full Flex® Premium Thin Set Mortar
(390/391)

2. MANUFACTURER

TEC Specialty Products LLC
1105 South Frontenac Street
Aurora, IL 60504-6451 U.S.A.
800.832.9002 Customer Service
800.832.9023 Technical Support
tecspecialty.com

3. DESCRIPTION

Known for superior handling and engineered for dependability, Full Flex Premium Thin Set Mortar is a contractor favorite. Designed for use over a wide range of interior or exterior new or renovation substrates in residential to extra heavy duty commercial applications, it offers one step mixing, smooth and easy spreadability, prolonged pot-life, extended adjustability time and excellent coverage, making Full Flex a practical, real value.

Key Features and Benefits

- Superior handling characteristics; just add water
- Approved for setting under and tiling over uncoupling membranes
- Exceeds ANSI A118.4 and A118.11 specifications
- Ideal for remodeling or commercial applications
- Better for bonding porcelain tile
- Interior/exterior use
- Contributes to LEED® project points
- Zero VOC

Packaging

50 lb. (22.68 kg) moisture-resistant bags	
Gray	Product #15035023
White	Product #15035025
50 lb. (22.68 kg) plastic bags	
Gray	Product #15030004
White	Product #15030001
25 lb. (11.34 kg) moisture-resistant bags	
Gray	Product #15035022
White	Product #15035024
9.75 lb. Pure Pak* container (4.42 kg)	
White	Product #15035027

*Registered trademark of Excello Corporation

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)	25 lbs. (11.34 kg)	9.75 lbs. (4.42 kg)
¼" x ¼" x ¼" (6 x 6 x 6 mm) square-notch trowel	100-110 sq. ft. (9.3-10.2 m²)	50-55 sq. ft. (4.6-5.1 m²)	20-22 sq. ft. (1.86-2.0 m²)
¼" x ⅜" x ¼" (6 x 9 x 6 mm) square-notch trowel	80-85 sq. ft. (7.4-7.9 m²)	40-43 sq. ft. (3.7-4.0 m²)	16-17 sq. ft. (4.5-4.6 m²)

Suitable Substrates

When properly prepared, suitable substrates include:

- Uncoupling membrane
- Cured concrete, cured mortar beds, brick and masonry (interior and exterior installations)
- APA Grade Trademarked Exposure 1 Plywood [Underlayment grade or better, two layers, 1½" (28 mm) total minimum thickness for joists 16" (40 cm) o.c., interior floors only].
- Gypsum wallboard (dry interior wall areas only)
- Water resistant gypsum wallboard (i.e.: greenboard, interior walls only, dry to

intermittent water exposure only)

- Cementitious backer units (CBU) or glass mat backerboard
- Existing ceramic tile and natural stone, provided existing flooring is well-bonded to an approved substrate.
- Vinyl composition tile, asphalt tile, linoleum or non-cushioned vinyl sheetgoods provided such surfaces are single layered, well-bonded to an approved substrate and properly prepared.
- Plastic laminate (interior countertops only) provided the counter is structurally sound and level.
- Adhesive residue (except tacky or pressure-sensitive adhesive).
- Extruded foam waterproof tile board
- Uncoupling membranes

Substrate Preparation

All substrates must be dry, structurally sound with maximum deflection per industry standards of $\frac{1}{360}$ for ceramic tile installations and $\frac{1}{720}$ 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 ⅛" in 1 ft. (1.6 mm in 0.3 m) from the required plane. For non-level, interior surfaces use an appropriate TEC Self-Leveling Underlayment.

Storage

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

Shelf Life

Maximum shelf life is from date of manufacture in unopened package.

Moisture-resistant bag: 1 year Pure Pak: 1 year

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, lauan plywood.
- For CDX plywood, use TEC® Super Flex™ mortar or TEC® XtraFlex™ acrylic mortar additive with TEC® Full Set Plus® thin set mortar.
- 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.

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, TEC Specialty Products LLC cannot be responsible for the consequences of variations in such conditions, or for unforeseen conditions.

4. TECHNICAL DATA

Product Data

Applicable Standard

Exceeds ANSI A118.4 and A118.11 specifications

Full Flex Premium Thin Set Mortar (390/391)		
Description	ANSI Requirement	Typical Results
28 Day Shear Strength Glazed Wall Tile Impervious Ceramic Tile (Porcelain)	> 300 psi (2.1 MPa) > 200 psi (1.4 MPa)	> 600 psi* (4.1 MPa) 400-425 psi (2.7-2.9 MPa)
Quarry Tile	> 150 psi (1.0 MPa)	475 psi (3.2 MPa) * ANSI-specified glazed wall tile failed at 600 psi (4.1 MPa)
Sag on Vertical Surfaces	≤ 1/16" (1.6 mm)	0-1/32" (0-0.8 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	13-15 hours
<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 to Plywood	150 psi (1.0 MPa)	265 psi (1.8 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	2 to 3 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 containers.
Shelf Life	Maximum 1 year from date of manufacture in properly stored, unopened package. Moisture-resistant bag: 1 year Pure Pak: 1 year

5. INSTALLATION INSTRUCTIONS

Mixing

For best results, maintain all tiling materials, substrates, room and adhesives at 50°-70°F (10-21°C) for 24 hours before installation. Maintain recommended room temperature for 48 hours after installation. In a clean mixing container, add Full Flex® mortar to clean, cool water as specified in the chart.

Size	Water
50 lbs. (22.68 kg)	6 - 7 quarts (5.7 - 6.2 L)
25 lbs. (11.34 kg)	3 - 3.5 quarts (2.8 - 3.3 L)
9.75 lbs. (4.42 kg)	1.25 to 1.5 quarts (1.2 to 1.4 L)

Mix material for 2 to 3 minutes. Avoid breathing dust and contact with eyes and skin. Allow the mortar to stand for 10 minutes. Remix and apply. Avoid using high speed mixing, not to exceed 300 rpm, to prevent entraining air.

Application

Apply 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.**

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. **TEC Specialty Products LLC 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 TEC Specialty 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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