



3N1™ Performance Mortar

1. PRODUCT NAME

TEC® 3N1™ Performance Mortar
(384/385)

2. MANUFACTURER

H.B. Fuller Construction Products Inc.
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Aurora, IL 60504-6451 U.S.A.
800.552.6225 Office
800.832.9023 Technical Support
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3. DESCRIPTION

TEC® exclusive nanotechnology formula with microspheres and ZS-100 patented bonding technology* provides three in one functionality—*latex modified, medium bed and non-sag*—all in one without sacrificing performance in any installation.

* ZS-100 is covered under US patent number 5,366,550.

Key Features and Benefits

- Easiest troweling mortar—smooth, non-porous, ceramic microspheres roll over each other creating a ball bearing effect that improves workability and reduces tile setter fatigue
- Superior bonds for porcelain tile applications
- Exceeds ANSI A118.4TE, A118.11 and A118.15TE specifications
- Non-slip for heavy tile and stone floor applications
- Non-slip for large tile and stone weighing up to 6 pounds per square foot used in wall applications
- Extended open time for maximum adjustability
- Mortar resists mold and mildew growth
- Light Weight—30 pound bag provides same coverage as 50 pounds of traditional latex modified mortar.
- Zero VOC
- Contains recycled materials*

* Gray formula contains 6% pre-consumer recycled material.
White formula contains 6% pre-consumer recycled material.

Packaging

30 lb. (13.6 kg) moisture-resistant bags

Gray
White

Product #7010103611

Product #7011353611

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 30 lbs. (13.6 kg)
1/4" x 1/4" x 1/4" (6 x 6 x 6 mm) square-notch trowel	80-90 sq. ft. (7.4-8.4 m ²)
1/4" x 3/8" x 1/4" (6 x 9 x 6 mm) square-notch trowel	55-65 sq. ft. (5.1-6 m ²)
1/2" x 1/2" x 1/2" (12 x 12 x 12 mm) square-notch trowel	40-50 sq. ft. (3.7-4.6 m ²)
3/4" (19 mm) rounded-notch trowel	30-40 sq. ft. (2.8-3.7 m ²)

Suitable Substrates

When properly prepared, suitable substrates include:

- Cured concrete, cured mortar beds, brick and masonry (interior and exterior installations)
- APA Grade Trademarked Exposure 1 Plywood [Underlayment grade or better, two layers, 1 1/8" (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 sheet goods 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) scraped down to a thin semi-transparent layer.

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 1/4" in 10 ft. (6 mm in 3 m) and 1/16" in 1 ft. (1.6 mm in 0.3 m) from the required plane. For non-level, interior surfaces use TEC® EZ Level® Premium Self Leveling Underlayment.

Storage

Store in a well-ventilated place. Keep container tightly closed. Store locked up.

Shelf Life

Maximum of 1 year from date of manufacture in unopened package.

Limitations

- Not for installing green marble and 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 3N1™ Performance Mortar.
- Not for use over rubber, strip wood floors, oriented strand board, particle board, lauan plywood.
- For CDX plywood, use TEC® Super Flex™ mortar.
- Do not apply over single layer wood floors.
- Temperature of area to be tiled must remain above 50°F (10°C) for 72 hours.
- 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, H.B. Fuller Construction Products Inc. cannot be responsible for the consequences of variations in such conditions, or for unforeseen conditions.

Applicable Standard

Exceeds ANSI A118.4TE, A118.11 and A118.15TE specifications
ISO 13007: Classification C2TES1P2

TEC® 3N1™ Performance Mortar (384/385)						
ANSI Standard	Test	Section	Test Duration/Conditions	ANSI Specification	Typical Results	
A118.15TE	Open Time	5.3.6	30 minute (E)	75 psi (0.5 MPa) at 30 minutes	190	
	Sag	6.1.5	Optional Test	0.02 in (0.5 mm)		
	Ceramic Tile Shear Strength	7.1.2	7 day	>300 psi (2.07 MPa)	490	
		7.1.4	Heat Aging	>450 psi (3.10 MPa)	735	
	Porcelain Mosaic Tile Shear Strength	7.2.5	28 day	>400 psi (2.76 MPa)	440	
Quarry Tile Shear Strength	7.3.2	28 day	150 psi (1.03 MPa)	400		
A118.11	Shear Strength to Quarry Tile	4.1.2	28 day plywood	>150 psi (10.5 kg/cm ²)	285	

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

4. TECHNICAL DATA**Physical Properties**

Description	
Physical State	Dry powder
Color	Available in white and gray
Open Time	80-90 minutes
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 a well-ventilated place. Keep container tightly closed. Store locked up.
Shelf Life	Maximum 1 year from date of manufacture in properly stored, unopened package.

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 and 48 hours after installation. In a clean mixing container, pour 6-6½ quarts (5.7-6.1 L) clean, cool water. Add ½ bag of 3N1™ Performance Mortar and mix until all powder is consumed. Add ¼ bag and mix until powder is consumed. Add final ¼ bag and mix to a thick creamy consistency. 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 ⅓ 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. Unglazed 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 Tile and Stone 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.



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