1. PRODUCT NAME
TEC® 3N1™ Performance Mortar (384/385)

2. MANUFACTURER
H.B. Fuller Construction Products Inc.
1105 South Frontenac Street
Aurora, IL 60504-6451 U.S.A.
800.552.6225 Office
800.952.2368 Fax
tecspecialty.com

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-slump for heavy tile and stone floor 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 Product #7010103611
White 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.

<table>
<thead>
<tr>
<th>Trowel Size</th>
<th>Approximate Coverage per 30 lbs. (13.6 kg)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1/4&quot; x 1/4&quot; x 1/16&quot; (6 x 6 x 6 mm) square-notch trowel</td>
<td>80-90 sq. ft. (7.4-8.4 m²)</td>
</tr>
<tr>
<td>1/4&quot; x 3/16&quot; x 1/16&quot; (6 x 9 x 6 mm) square-notch trowel</td>
<td>55-65 sq. ft. (5.1-6.6 m²)</td>
</tr>
<tr>
<td>1/8&quot; x 1/8&quot; x 1/16&quot; (12 x 12 x 12 mm) square-notch trowel</td>
<td>40-50 sq. ft. (3.7-6.6 m²)</td>
</tr>
<tr>
<td>1/8&quot; (19 mm) rounded-notch trowel</td>
<td>30-40 sq. ft. (2.8-3.7 m²)</td>
</tr>
</tbody>
</table>

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 laminate (interior countertops only) provided the counter is structurally sound and level.

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 1/8" 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 or 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.
4. TECHNICAL DATA

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

<table>
<thead>
<tr>
<th>Description</th>
<th>ANSI Requirement</th>
<th>Typical Results</th>
</tr>
</thead>
<tbody>
<tr>
<td>28 Day Shear Strength</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ceramic</td>
<td>&gt; 300 psi (2.1 MPa)</td>
<td>711 psi (4.86 MPa)</td>
</tr>
<tr>
<td>Porcelain</td>
<td>&gt; 200 psi (1.4 MPa)</td>
<td>425 psi (2.91 MPa)</td>
</tr>
<tr>
<td>Quarry Tile</td>
<td>&gt; 150 psi (1.0 MPa)</td>
<td>426 psi (2.91 MPa)</td>
</tr>
<tr>
<td>28 Day Shear Strength</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Quarry Tile to Plywood</td>
<td>150 psi (1.0 MPa)</td>
<td>275 psi (1.88 MPa)</td>
</tr>
</tbody>
</table>

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

Physical Properties

<table>
<thead>
<tr>
<th>Description</th>
<th>Physical State</th>
<th>Color</th>
<th>Open Time</th>
<th>Pot Life</th>
<th>Initial Cure (at 72°F (22°C))</th>
<th>Final Cure</th>
<th>Foot Traffic Rating (ASTM C627)</th>
<th>Storage</th>
<th>Shelf Life</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Dry powder</td>
<td>Available in white and gray</td>
<td>80-90 minutes</td>
<td>2 to 3 hours</td>
<td>16 to 24 hours</td>
<td>21 days</td>
<td>Residential to Extra Heavy Commercial (depending on substrate)</td>
<td>Store in a well-ventilated place. Keep container tightly closed. Store locked up.</td>
<td>Maximum 1 year from date of manufacture in properly stored, unopened package.</td>
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</tbody>
</table>

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 6-6 1/2 quarts (5.7-6.1 L) clean, cool water. Add 1/2 bag of 3N1™ Performance Mortar and mix until all powder is consumed. Add 1/4 bag and mix until powder is consumed. Add final 1/4 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 1/2 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. WARRANTY
For warranty details, see your sales associate or visit tecspecialty.com.

8. MAINTENANCE
Not applicable

9. TECHNICAL SERVICES
Technical assistance
Information is available by calling the Technical Support Hotline.
Toll Free: 800-832-9023
Fax: 630-952-1235

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

10. FILING SYSTEM
Division 9