1. PRODUCT NAME

TEC® Ultimate 6 Plus Mortar
(487)

2. MANUFACTURER

H.B. Fuller Construction Products Inc.
1105 South Frontenac Street
Aurora, IL 60504-6451 U.S.A.
800.552.6225 Office
800.832.9023 Technical Support
800.952.2368 Fax
tecspecialty.com

3. DESCRIPTION

TEC® Ultimate 6 Plus is a high performance, polymer modified, full contact (full coverage) mortar designed for the installation of ceramic, porcelain and natural stone tile. Unlike other mortars, Ultimate 6 Plus has a unique combination of features that allow grouting in 6 hours while providing extended open time. It is ideal for all gauged porcelain tile panels/slabs and large heavy tile (LHT) installations. Ultimate 6 plus significantly reduces the need for back buttering and has exceptional non-sag / non-slump characteristics for wall and floor applications.

Key Features and Benefits

• Ideal for all Gauged Porcelain Tile Panels/Slabs and LHT installations
• NEW – Approved for indoor glass applications with intermittent water exposure (see page 2)
• NEW – Approved for setting and tiling under and over uncoupling membranes
• Extended open time and pot life
• Grout in as little as 6 hours
• Superior transfer - full coverage with minimum effort
• Non-sag for wall applications and non-slump for floor applications
• Mixes to an extremely smooth, creamy consistency providing superior handling
• Exceeds ANSI A118.4TE and A118.11 specifications
• Interior/exterior use

Packaging

40 lb. (18.14 kg) moisture-resistant bags   Product #15036116
40 lb. (18.14 kg) plastic bags   Product #15030010

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 40 lbs. (18.14 kg)
¼" x ³/₁₆" (6 x 4.7 mm) V-notch trowel	182-204 sq. ft. (16.9-19.0 m²)
¼" x ¼" x ¼" (6 x 6 x 6 mm) square-notch trowel	91-102 sq. ft. (8.4-9.5 m²)
¼" x ³/₈" x ¼" (6 x 9 x 6 mm) square-notch trowel	75-85 sq. ft. (7.0-7.9 m²)
³/₈" x ³/₈" x ³/₈" (9 x 9 x 9 mm) square-notch trowel	60-68 sq. ft. (5.6-6.3 m²)
½" x ½" x ½" (12 x 12 x 12 mm) square-notch trowel	45-51 sq. ft. (4.2-4.7 m²)
¾" x ⁹/₁₆" x ³/₈" (19 x 14 x 9 mm) rounded-notch trowel	30-34 sq. ft. (2.8-3.2 m²)
Euro-notch trowel	26-33.5 sq. ft. (2.4-3.1 m²)*
¼" (6 mm) slant-notch trowel	25-30 sq. ft. (2.3-2.8 m²)*

*Based on application to both the substrate and tile back

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, 1⅛" (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
• Adhesive residue (except tacky or pressure-sensitive adhesive). Mechanically remove the adhesive to expose at least 80% of the concrete surface. Random specks of adhesive and the appearance of a brown surface stain are acceptable
• Extruded foam waterproof board
• Uncoupling membranes

H.B. Fuller Construction Products Inc. ("HBF-CP") will warrant Ultimate 6 Plus with the use of ¾" floor-rated underlayment OSB as an approved substrate for the installation of uncoupling membranes.

For gypsum underlayments, TEC® Multipurpose Primer must be applied directly to the gypsum underlayments prior to application of Ultimate 6 Plus for bonding of the uncoupling membrane. Please see the Multipurpose Primer product data sheet for dilution ratios and application instructions.

Substrate Preparation

All substrates must be dry, structurally sound with maximum deflection per industry standards of L/360 for ceramic tile installations and L/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.

For Gauged Porcelain Tile Panels/Slabs installation, reference the TEC® Thin Porcelain Panel Installation Guide on tecspecialty.com.

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) and ¹/₁₆" in 1 ft. (1.6 mm in 0.3 m) from the required plane for tile less than 15" (381 mm) on all sides. Maximum variations in all substrates **must not exceed** ⅛" in 10 ft. (3 mm in 3 m) and ¹/₁₆" in 2 ft. (1.6 mm in 0.6 m) from the required plane for tile 15" (381 mm) or greater on any one side. For large non-level, interior surfaces use TEC® Level Set® 300 Self-Leveling Underlayment. For exterior surfaces or smaller areas of rough uneven substrates, use a scratch coat of TEC® Ultimate 6 Plus up to ¼" (6 mm) thick. Allow to cure to walkable hardness before applying mortar bond coat.

Applicable Standard

Exceeds ANSI A118.4E and A118.11 specifications
ISO 13007: Classification C2TEP1

TEC® Ultimate 6 Plus (487)					
ANSI Standard	**Test**	**Section**	**Test Duration/Conditions**	**ANSI Specification**	**Typical Results**
A118.11	Shear Strength to Quarry Tile	4.1.2	28 day plywood	>150 psi (10.5 kg/cm³)	220
A118.4	Glazed Wall Tile Shear Strength	7.1.2	7 day	>300 psi (2.07 MPa)	545
	Porcelain Mosaic Tile Shear Strength	7.2.5	28 day	>200 psi (1.38 MPa)	480
	Quarry Tile Shear Strength	7.3.2	28 day	150 psi (1.03 MPa)	400
A118.4E	Open Time	5.3.6	30 minute	75 psi (0.5 MPa) at 30 minutes	185

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

Glass Tile Installation

TEC® Ultimate 6 plus, with its proprietary formulation, has been tested and approved to be used with glass tile for the following applications:

1. Indoor applications only

2. Wall applications only

3. Intermittent water exposure (not for use with submerged applications).
   Example such as:

   a. Kitchen Backsplash

   b. Shower wall accents

Note: When installing clear glass tile over waterproof membranes, visible mortar shadowing may occur.

The Materials approved are as follows

1. Clear Glass tiles with no backing with maximum area of 16 in²

2. 12" x 12" Matted Mosaic Tiles with clear or painted Mesh backing

3. 12" x 12" Matted Subway Tiles with Mesh backing

4. Glass tiles with painted backing up to 16 in²

NOTE: Not all coatings used to colorize the back of glass tile are compatible with Portland cement based mortars. Please check with the manufacturer to determine if it will be compatible. For any questions on this, please call our Technical Support Hotline at 1-800-832-9023 for additional support.

Also, if you are looking to install a specific tile not listed in the above material list and would like to use Ultimate 6 plus Mortar, please contact our Technical Support Hotline at 800-832-9023 for additional support.

In specifying a setting system for the bonding of glass tile, the following issues must be taken into consideration:

Glass Tile Type: Glass tile can be manufactured in a number of different ways such as clear, translucent with a colored body, or translucent with a colored backing. Each type has a different aesthetic appearance. The color and composition of the mortar can have an effect on the final appearance, especially with clear or translucent tile

Storage

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

Shelf Life

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

Limitations

• Only install when the temperature is between 40-95°F (4-35ºC).

• Not for installing green marble or other moisture-sensitive stone tile; use TEC® AccuColor EFX® Epoxy Grout and Mortar.

• For resin-backed marble see the TEC® Technical Bulletin "Installation Of Resin Backed Stone Tiles" at tecspecialty.com.

• 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.

• Temperature of area to be tiled must remain above 40°F (4°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

Physical Properties

Description	
Physical State	Dry powder
Color	White
Pot Life	2 to 3 hours
Initial Cure [at 72°F (22°C)]	6 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.

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, add TEC® Ultimate 6 Plus to clean, cool water as specified in the chart.

Application	Water
LHT, Gauged Porcelain Tile Panels/Slabs or Wall Applications	6 to 6½ quarts (5.6 to 6.1 L)
Thin Set Floor Applications	6½ to 6¾ quarts (6.1 to 6.4 L)

Add clean, cool water to a clean mixing container. Add ²/₃ bag of TEC® Ultimate 6 Plus and mix until all powder is consumed. Add final ¹/₃ bag and mix until powder is consumed. Be cautious not to over-water. Consistency will loosen during mixing process. Mix material for two (2) minutes to a smooth and 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. Irregularities in substrate may require "back-buttering" of large tiles to achieve complete coverage and firm support. Periodically remove and check a tile to assure proper coverage. Keep a minimum of ⅔ 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.**

For Gauged Porcelain Tile Panels/Slabs installation, reference the TEC® Thin Porcelain Panel Installation Guide on tecspecialty.com.

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 6 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. 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.

To learn more, visit TECspecialty.com

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