

# SHOP DRAWING REVIEW FORM AND TRANSMITTAL

**DATE:** November 5, 2021

**TO:** Carl Hendrickson  
Project Manager  
Veolia Water  
825 West Water Street  
Taunton, MA 02780

**FROM:** Michael Andrus, P.E.  
Project Manager  
BETA Group, Inc.  
701 George Washington Hwy  
Lincoln, Rhode Island 02865

**RE:** City of Taunton, MA  
WWTF Phase 1 Improvements  
Contract S-2021-1

Shop Drawing No. 09001-01      Tile and Flooring

---

## **BETA COMMENTS:**

<u>Item</u>	<u>Action Code</u>	<u>Description/Comments</u>
1	1	<b>Tile and Flooring</b> 1. Acceptable as submitted

### Action Codes

- 1 - No Exception Taken
- 2 - Make Corrections Noted
- 3 - Amend and Resubmit
- 4 - Rejected, See Remarks

- a. Installation shall proceed only when Action Code is '1' or '2'.
- b. Submittals action coded '3' shall be resubmitted within time limit set in Contract.
- c. Review does not relieve Contractor from responsibility of compliance with the Contract Documents.



PROJECT: 9900. - Veolia/Taunton WWTF Phase 1 Improvements

DATE: 10/05/2021

SUBMITTAL: 09001-01 - Tile and Flooring
REVISION: 0
STATUS: Eng
SPEC #: 09001

TO: Michael Andrus
Beta Group Inc.
6 Blackstone Place
Lincoln, RI 02865
MAndrus@BETA-Inc.com

FROM: Ryan Murphy
Hart Engineering Corporation
800 Scenic View Drive
Cumberland, RI 02864
rmurphy@hartcompanies.com

Table with 6 columns: Item, Revision, Description, Status, Date Sent, Date Returned. Row 1: 09001-01, 0, Tile and Flooring, Eng, 10/05/2021, (blank). Row 2: Notes: (blank)

SHOP DRAWING REVIEW
[ ] 1 - Approved [ ] 2 - Approved as Noted
[ ] 3 - Revise and Resubmit [ ] 4 - Rejected
[ ] 5 - Record File Only - No Action Taken
(Above Check Designates Action Code - See Review Comments)
IMPORTANT NOTE FOR CONTRACTOR
Review is only for general compliance with the design concept and information provided in Contract Documents. Corrections and comments made on the Shop Drawings during review do not relieve the Contractor from compliance with the requirements of the plans and specifications. Review and/or approval of a specific item shall not include review or approval of an assembly of which the item is a component. No approval or correction of a Shop Drawing shall be construed as an order for extra work. The Contractor is responsible for: all quantities and dimensions to be confirmed and correlated; information that pertains solely to the fabrication processes or to the means, methods, techniques, sequences and procedures of construction; coordination of the Work with that of all trades and subcontractors; and performing all Work in a safe and satisfactory manner.
BETA GROUP, INC. Checked By: AR (GHD)
By: ML A Date: 11/5/21

Additional Notes:

Status Codes

- 1-APP - No Exceptions Taken
2-ANR - Make Corrections Noted
3-R&R - Revise and Resubmit
4-REJ - Rejected
5-IPO - For Information Purposes Only
6-NRR - Not Required for Review
ENG - Submitted to Engineer

Sincerely,
Hart Engineering Corporation

DATE: 10/05/2021



# SUBMITTAL REVIEW COMMENT SHEET

<b>PROJECT TITLE:</b>	Taunton WWTG Phase 1 Improvements		
<b>OWNER:</b>	Town of Taunton, MA		
<b>CONTRACT NO.:</b>		<b>PROJECT NO.:</b>	11186884

<b>SUBMITTAL NO. AND TITLE:</b>	09001-01-Tile and Flooring	<input checked="" type="checkbox"/> ACCEPTED <input type="checkbox"/> ACCEPTED AS CORRECTED (NO RESUBMITTAL REQUIRED) <input type="checkbox"/> ACCEPTED AS CORRECTED (RESUBMITTAL REQUIRED) <input type="checkbox"/> ACCEPTED AS CORRECTED (PROVIDE REQUESTED INFORMATION ONLY)
<b>SPECIFICATION SECTION NO. AND TITLE:</b>	11186884-SPC1	
<input checked="" type="checkbox"/> <b>SHOP DRAWING</b> <input type="checkbox"/> <b>O&amp;M MANUAL</b> <input type="checkbox"/> <b>PRODUCT SAMPLE</b> <input type="checkbox"/> <b>OTHER:</b>	Reviewed only for conformance with the design concept of the project and with information given in the Contract Documents. The Contractor is responsible for: 1) verifying that dimensions are confirmed and correlated at the job site; 2) obtaining information that pertains to the fabrication processes or to techniques of construction; and 3) coordinating the work of all subcontractors.	<input type="checkbox"/> <b>REVISE AND RESUBMIT</b> <input type="checkbox"/> <b>NOT APPROVED</b> <input type="checkbox"/> <b>NOT REVIEWED</b> <input type="checkbox"/> <b>FOR INFORMATION PURPOSES ONLY</b>

By: KNH/EVR

Date: 11/3/2021

**Comments:**

- No comments.



Commercial Flooring Contractors since 1949



110 Comstock Parkway  
Cranston, RI 02921  
Phone: 401-463-9100  
Fax: 401-463-7922  
www.ruggieribros.com

# SUBMITTAL

To: Hart Engineering Corp.  
800 Scenic View Drive  
Cumberland, RI 02864

Date 10/1/21  
Quote # 191800

Subject: Taunton WWTF – Restroom Floor & Wall Tile

We are sending you:

#	Copies	Description	Action Required	Literature
01	001	<b>SCOPE: FLOOR TILE</b> MFCTR: DAL TILE PRODUCT: KEYSTONES 2X2 MOSAIC COLOR: TBD	REVIEW/SELECT COLOR	1. PRODUCT DATA
02	001	<b>SCOPE: WALL TILE</b> MFCTR: DAL TILE PRODUCT: COLOR WHEEL CLASSIC 6X6 COLOR: TBD	REVIEW/SELECT COLOR	1. PRODUCT DATA
03	001	<b>SCOPE: TILE GROUT</b> MFCTR: MAPEI PRODUCT: ULTRACOLOR PLUS FA COLOR: TBD	REVIEW/SELECT COLOR	1. PRODUCT DATA
04	001	<b>SCOPE: TILE MORTAR</b> MFCTR: MAPEI PRODUCT: KERAFLEX PLUS	REVIEW/APPROVE	1. PRODUCT DATA
05	001	<b>SCOPE: WATERPROOFING</b> MFCTR: MAPEI PRODUCT: AQUADEFENSE	REVIEW/APPROVE	1. PRODUCT DATA

Note: Physical samples to follow

Signature: \_\_\_\_\_

Jessie Marsland, Project Administrator

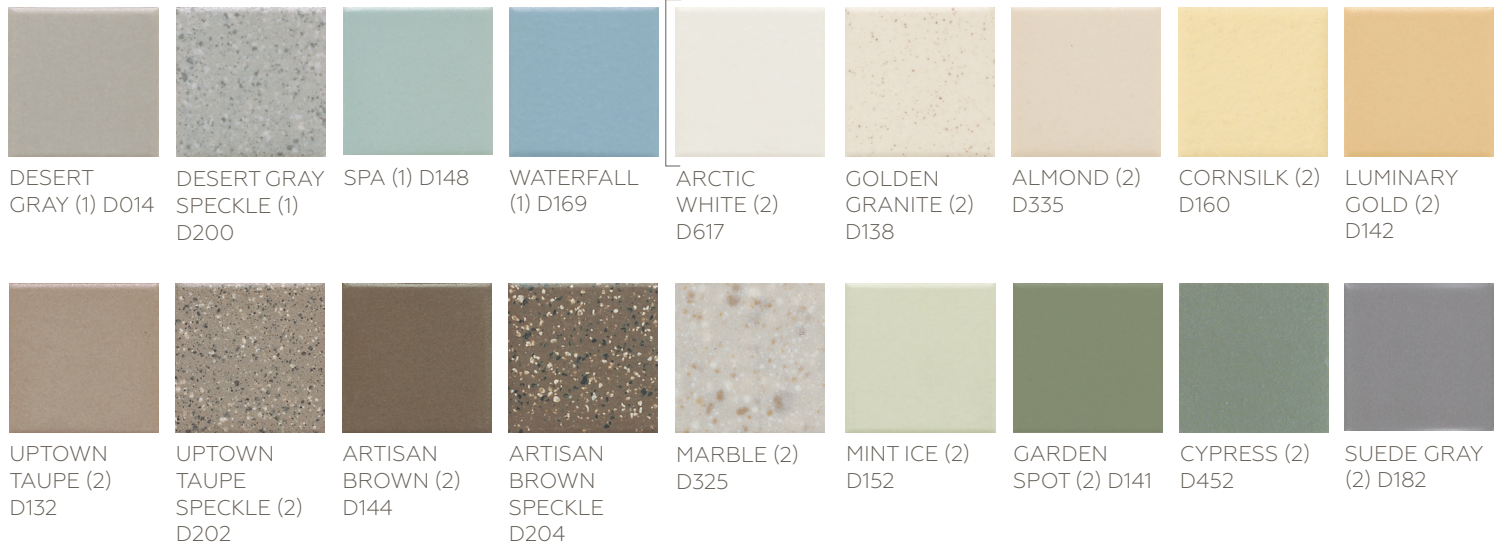
# KEYSTONES™

COLORBODY™ PORCELAIN MOSAICS

## GROUP 1



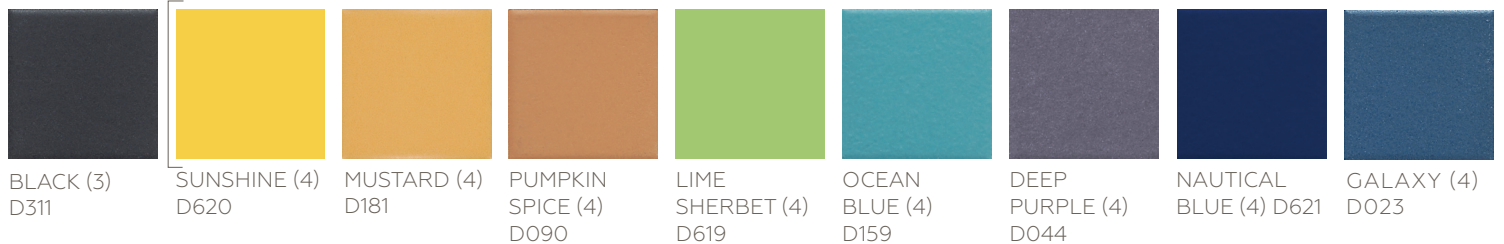
## GROUP 2



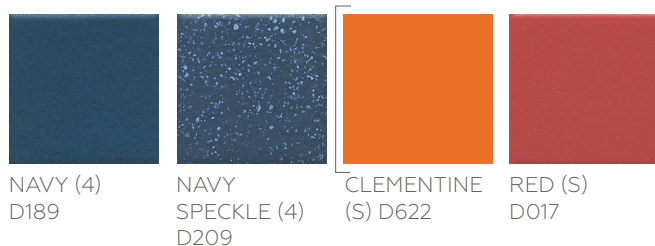
## GROUP 3



## GROUP 4



## GROUP S



(1), (2), (3), (4) and (S) indicate Price Groups, (1) being the least expensive.

All Keystones™ 1 x 1 and 2 x 2 mosaics are offered in all colors and available on a standard made-to-order basis using ClearFace™ mounting system.

## SIZES

			Thickness	Sq. Ft. per Carton	Pieces per Carton
	2 x 2 Mosaic (Dot-mounted)	(2" x 2" Piece) (12" x 24" Sheet) (30.48 cm x 60.96 cm Sheet)	1/4"	24.00	12
	1 x 1 Mosaic (Dot-mounted)	(1" x 1" Piece) (12" x 24" Sheet) (30.48 cm x 60.96 cm Sheet)	1/4"	24.00	12
	2 x 1 Straight-joint Mosaic (Dot-mounted)	(2" x 1" Piece) (12" x 24" Sheet) (30.48 cm x 60.96 cm Sheet)	1/4"	24.00	12
	2 x 1 Brick-joint Mosaic (Dot-mounted)	(2" x 1" Piece) (12" x 24" Sheet) (30.48 cm x 60.96 cm Sheet)	1/4"	22.00	12
	2" Hexagon Mosaic (Dot-mounted)	(2" x 2" Piece) (12" x 24" Sheet) (30.48 cm x 60.96 cm Sheet)	1/4"	24.24	12
	1" Hexagon Mosaic (Dot-mounted)	(1" x 1" Piece) (12" x 22-5/8" Sheet) (30.48 cm x 58.10 cm Sheet)	1/4"	21.00	12
	2 x 4 Straight-joint Mosaic (Dot-mounted)	(2" x 4" Piece) (12" x 24" Sheet) (30.48 cm x 60.96 cm Sheet)	1/4"	24.00	12

All colors in 1 x 1 and 2 x 2 size available with Keystones ClearFace™ mounting system on a made-to-order basis.

## APPLICATIONS

	Target DCOF wet	Suitable
Dry & Level – Interior Floor	N/A	✓
Wet & Level – Interior Floor	≥ 0.42	✓
Shower Floors (Residential or Light Commercial)	≥ 0.42	✓
Exterior Floor Applications, including Pool Decking & Other Wet Areas with Minimal Footwear	≥ 0.55	✓*
Ramps & Inclines	≥ 0.65	
Walls/Backsplashes	N/A	✓
Countertops	N/A	✓
Pool Linings	N/A	✓
Pool Tank/Submerged	N/A	✓**

A DCOF value of ≥ 0.42 is the standard for tiles specified for level interior spaces expected to be walked upon when wet, as stated in ANSI A137.1-2012, Section 9.6. For more information about DCOF and the DCOF AcuTest™, visit [daltile.com/DCOF](http://daltile.com/DCOF).



### APPLICATION NOTES:

Suitable for exterior applications in freezing and non-freezing climates, when proper installation methods are followed.

\* Keystones mosaics have recurrent grout joints and reflect a DCOF of ≥ 0.55 wet making them suitable for these applications.

\*\* Keystones mosaics with ClearFace™ mounting system recommended for pool tanks and submerged applications.

## INSTALLATION

Grout Joint Recommendation	Shade Variation
1/8" Approximately	 Low (V1) to  Random (V4)

Solid colors have low shade variation, mottled and speckled colors have medium, and blends have random.

## TEST RESULTS

	ASTM#	Result
Water Absorption	C373	< 0.5%
Breaking Strength	C648	> 300 lbs
Scratch Hardness	MOHS	N/A
Chemical Resistance	C650	Resistant

**SIZES:**



**FINISHES:** MATTE | SEMI-GLOSS

**SEMI-GLOSS**

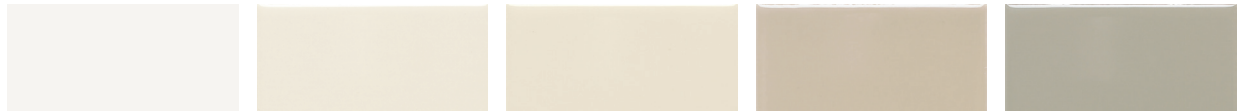


WHITE 0100 (1)    ARCTIC WHITE 0190 (1)    BISCUIT K175 (1)    ALMOND 0135 (1)    URBAN PUTTY 0161 (2)    ARCHITECTURAL GRAY 0109 (2)

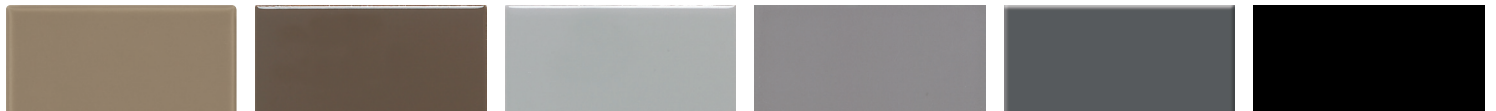


ELEMENTAL TAN 0166 (2)    ARTISAN BROWN 0144 (2)    DESERT GRAY X114 (1)    SUEDE GRAY 0182 (2)    CHALKBOARD 0180 (2)    BLACK K111 (2)

**MATTE**



MATTE ARCTIC WHITE 0790 (1)    MATTE BISCUIT K775 (1)    MATTE ALMOND X735 (1)    MATTE URBAN PUTTY 0761 (2)    MATTE ARCHITECTURAL GRAY 0709 (2)



MATTE ELEMENTAL TAN 0766 (2)    MATTE ARTISAN BROWN 0744 (2)    MATTE DESERT GRAY X714 (1)    MATTE SUEDE GRAY 0782 (2)    MATTE CHALKBOARD 0780 (2)    MATTE BLACK K711 (2)

**ACCENT\***



CORNSILK 0160 (3)    MUSTARD 1012 (3)    SUNFLOWER DH50 (3)    ORANGE BURST 1097 (3)    CURRANT SH17 (3)    PLUM CRAZY 1178 (3)



SPA 0148 (3)    GARDEN SPOT 0141 (3)    KEY LIME 1098 (3)    ELECTRIC BLUE 1194 (3)    COBALT DM14 (3)†    WOOD VIOLET 1467 (3)



WATERFALL 0169 (3)    EMERALD 0115 (3)    OCEAN BLUE 1049 (3)    SEA BREEZE 1174 (3)    GALAXY 1469 (3)    NAVY K189 (3)

\* Accent available in Semi-Gloss finish only. † Subject to crazing; black grout not recommended  
(1), (2) and (3) indicate price groups. (1) being the least expensive.



STAINPROOF



DENTPROOF



SCRATCH-RESISTANT\*  
\*Applicable to products with Matte and Textured Finishes







FIRE-RESISTANT\*  
\*Not Applicable to Heat-Insulated Mosaics



SIMPLICLEAN™



## SIZES

			Thickness	Sq. Ft./ Carton	Pieces/ Carton
	6 x 6 Wall Tile	(6" x 6") (15.31 cm x 15.31 cm)	5/16" 7.90 mm	12.50	50
	4 x 4 Wall Tile	(4-1/4" x 4-1/4") (10.90 cm x 10.90 cm)	5/16" 7.90 mm	12.50	100
	3 x 6 Wall Tile	(3" x 6") (7.65 cm x 15.31 cm)	5/16" 7.90 mm	12.50	100
	3 x 6 † Bevel Wall Tile	(3" x 6") (7.65 cm x 15.31 cm)	3/8" 9.40 mm	10.40	80

† Bevel is available in Group 1 colors only. Other colors available through the ColorMatch™ Special Order program.

## APPLICATIONS

	Target DCOF wet	Suitable
Dry & Level – Interior Floor	N/A	
Wet & Level – Interior Floor	≥ 0.42	
Shower Floors (Residential or Light Commercial)	≥ 0.42	
Exterior Floor Applications (including pool decking & other wet areas with minimal footwear)	≥ 0.60	
Ramps & Inclines	≥ 0.65	
Walls/Backsplashes	N/A	✓
Countertops	N/A	✓*
Pool Linings	N/A	✓


A DCOF value of ≥0.42 is the standard for tiles specified for level interior spaces expected to be walked upon when wet, as stated in ANSI A137.1-A326.3. For more information about DCOF and the DCOF AcuTest™, visit [daltile.com/DCOF](http://daltile.com/DCOF).

## APPLICATION NOTES:

Suitable for exterior applications in non-freezing climates, when proper installation methods are followed.

\* Matte finishes only. No Bevel Tile. Darker colors may show scratches.

## INSTALLATION

Grout Joint Recommendation	Shade Variation
Wall: 1/16"	 Low (V1)

## PERFORMANCE CHARACTERISTICS

	ASTM#	Result
Water Absorption	C373	< 20.0%
Breaking Strength	C648	120-230 lbs
Scratch Hardness	MOHS	4.0-6.0
Chemical Resistance	C650	Resistant
Abrasion Resistance	C1027	N/A

For additional information on test results, visit us at: [daltile.com/information/TestResults](http://daltile.com/information/TestResults).

## NOTES

Since there are variations in all fired ceramic and natural products, tile and trim supplied for your particular installation may not match samples. Final confirmation should be made from actual tiles and trim prior to installation. Manufactured in accordance with ANSI A137.1 standards.

For additional information refer to "Factors to Consider" at: [daltile.com/Factors](http://daltile.com/Factors).

## LRV &amp; MUNSELL

Color #	LRV Illuminate-OBS: F02-02 (CWF)	Munsell
<b>SEMI-GLOSS</b>		
0100	83.9	2.6Y 9.2/0.5
0190	83.9	7.0Y 9.2/0.2
K175	75.9	5.2Y 8.8/0.9
0135	68.0	2.9Y 8.4/1.2
0161	48.0	1.7Y 7.3/1.5
0166	26.8	1.1Y 5.7/1.6
0144	14.5	5.9YR 4.3/1.3
0109	37.9	6.0Y 6.6/1.0
X114	43.7	1.4GY 7.0/0.3
0182	22.6	1.9B 5.3/0.1
0180	11.4	1.3B 3.9/0.4
K111	5.0	10.0B 2.6/0.1
<b>MATTE</b>		
0790	83.4	4.9Y 9.2/0.2
K775	75.9	5.2Y 8.8/0.9
X735	70.9	3.5Y 8.6/1.2
0761	48.1	2.5Y 7.3/1.5
0766	26.8	0.2Y 5.7/1.7
0744	13.9	7.6YR 4.3/1.3
0709	36.9	5.6Y 6.5/1.0
X714	43.9	3.6GY 7.0/0.4
0782	22.3	9.8G 5.3/0.1
0780	11.1	0.6B 3.9/0.4
K711	5.8	3.3PB 2.8/0.1
<b>ACCENT</b>		
K189	5.9	5.0PB 2.9/1.2
1012	48.1	9.7YR 7.2/6.9
1049	18.0	1.9B 5.0/4.5
1097	26.4	10.1R 5.6/10.2
0115	11.7	3.3G 4.1/4.9
1174	9.1	5.8PB 3.6/5.6
1178	6.8	5.9RP 3.1/2.0
SH17	14.0	5.1R 4.4/11.1
0141	24.7	3.0GY 5.5/2.1
0148	48.3	3.7BG 7.4/1.3
0160	73.3	3.3Y 8.7/3.3
0169	40.4	9.7B 6.9/2.6
1469	9.3	4.5PB 3.6/2.7
DH50	70.6	4.7Y 8.4/8.8
DM14	4.7	9.9PB 2.5/4.4
1098	50.9	2.6GY 7.4/5.2
1194	19.0	0.3PB 5.2/6.7
1467	16.6	7.0P 4.6/2.2

 **POST-CONSUMER  
RECYCLED MATERIALS**

 **PRE-CONSUMER  
RECYCLED MATERIALS**

 **MADE IN THE U.S.A.**

All or select items within this series meet the requirements for these qualifications. For more information, visit [daltile.com](http://daltile.com).

**ZEROTOX**  
Healthy Homes | Healthy Planet

7834 C.F. Hawn Freeway,  
Dallas, Texas 75217 | 1.800.933.TILE

To view the complete collection of  
Daltile® products and information,  
visit our website at [daltile.com](http://daltile.com).

 **daltile**®  
IMAGINE WHAT'S POSSIBLE™  
©2020 Daltile (7/20)





# Ultracolor Plus FA

**Rapid-Setting, “All-in-One”  
Grout Replacement for  
Sanded and Unsanded Grouts**



## DESCRIPTION

*Ultracolor Plus FA* with DropEffect™ technology is an ultra premium, fine-aggregate, fast-setting, polymer-modified, color-consistent, nonshrinking, efflorescence-free grout for joint widths from 1/16" to 3/4" (1.5 to 19 mm). DropEffect reduces surface absorption to help repel water, dirt and grime from penetrating grout joints. *Ultracolor Plus FA* is specially formulated with MAPEI's High-Hydrated Cement Technology (HCT™) to eliminate the common problems related to Portland-cement grout, such as color consistency and efflorescence. Along with offering higher polymer content, HCT reduces absorption and increases stain resistance when compared with standard-performance cement grouts. *Ultracolor Plus FA* is formulated with 10% recycled content and meets the ANSI A138.1 specification for Green Squared certification.

## FEATURES AND BENEFITS

- Fine aggregate (FA) allows for narrow joint widths and improved cleanability.
- No efflorescence (free of Portland cement)
- Easy to install and stain-resistant
- No sealer required

## INDUSTRY STANDARDS AND APPROVALS

- ISO 13007: Classification CG2WAF
- ANSI: Meets or exceeds A118.6 and A118.7 industry standards
- SCS Green Squared: Certified per ANSI A138.1

## WHERE TO USE

- Commercial and residential construction suitable for both interior and exterior installations

- For grouting dimensional stone, slate, granite, stone agglomerates and most types of ceramic, ceramic mosaic, quarry, brick paver, porcelain, glass and clay tiles
- When installing in submerged jobsites (swimming pools, spas, water features and fountains), allow 72 hours of curing.
- For use where grout will be exposed to foot traffic within 3 to 4 hours
- For joint widths from 1/16" to 3/4" (1.5 to 19 mm)

## LIMITATIONS

- Sealing is not required. However, a high-performance penetrating grout sealer may still be applied from MAPEI's *UltraCare*™ family of sealers, which includes Penetrating Plus Stone, Tile & Grout Sealer; and Penetrating Plus SB Stone & Porcelain Tile Sealer. Follow the directions provided in the *UltraCare* Maintenance Guide.
- Do not use when a highly chemical-, impact- and stain-resistant grout is required or in heavy industrial tile installations. Instead, use an appropriate MAPEI epoxy grout (see the respective Technical Data Sheet [TDS] for details).
- When grouting in temperatures above 80°F (26°C), see the technical bulletin "Installing tile in hot weather" at [www.mapei.com](http://www.mapei.com) or consult MAPEI's Technical Services Department.

Consult MAPEI's Technical Services Department for installation recommendations regarding substrates and conditions not listed.

## SURFACE PREPARATION

- Certain tiles with high absorption, surface porosity or rough surfaces may require sealing before grouting to prevent permanent staining.

- The application of a grout release over certain types of porcelain or textured surface tiles or stone may be advantageous where a fine surface porosity might trap fine particles or color pigments. Seek the advice of the tile or stone manufacturer and site-test (mock up) on separate samples before grouting.
- Caution: Some types of glass, glazed ceramic tiles, marble, granite and marble agglomerates can be permanently stained, scratched, dulled or damaged when grouted with pigmented grout or sanded grout formulas. Generally, lighter-shade grout is best suited for grouting white or light-colored marble or granite. Take all the necessary precautions to ensure that the marble, granite or tiles are compatible with colored grouts. Check the tile or marble manufacturer's literature and test grout on a separate sample area before grouting to determine the suitability of the product with colored and/or sanded grouts. A test sample can also confirm the desired color and texture of *Ultracolor Plus FA*.
- Grout joints must be clean and free of standing water, dust, dirt and foreign matter. Remove excess adhesive or mortar from the joint area so that 2/3 of the depth of the tile is left available for grouting.
- Remove all spacers, pegs, ropes and strings.
- Before grouting, make sure that the tiles or stones are firmly set and that the adhesive or mortar is completely dry.
- Clean the tile or stone surface thoroughly to remove dust, dirt and other contaminants that may cause grout discoloration.

See the "Surface preparation requirements" reference guide in the Related Documents section of the Tile & Stone Installation Systems page on MAPEI's Website.

## MIXING

Before product use, take appropriate safety precautions. Refer to the Safety Data Sheet for details.

1. For best results, have the same person mix all of the grout. Consistent mixing techniques will promote more uniform results.
2. Before mixing the grout with water, dry-blend the product to avoid color variations in the finished grout, which may arise from pigment settling during shipment. If two or more bags are to be used, all of the contents should be dry-blended together.
3. Mix *Ultracolor Plus FA* with cool, clean water only. Do not mix with grout additives. Mix by using the following water-to-grout proportions:

<u>Ultracolor Plus FA powder</u>	<u>Water</u>
10 lbs. (4.54 kg)	1 to 1.1 U.S. qts. (0.95 to 1.04 L)
25 lbs. (11.3 kg)	2.6 to 2.8 U.S. qts. (2.46 to 2.65 L)

4. Pour the required measured amount of water into a clean mixing container. Gradually add the proportionate amount of *Ultracolor Plus FA* while slowly mixing. To avoid shade variation of the finished joint, always add the powder to the water while being consistent in the mixing process and the quantity of water used from batch to batch.

Note: When mixing 25-lb. (11.3-kg) bags, it might be necessary to mix partial bags. In this situation, a 3-to-1 ratio of powder to water can be mixed by volume. When using this ratio, keep in mind that it is a starting point: You might need to use slightly more or less powder or water in order to fine-tune the consistency of the mixture.

5. Mix thoroughly with a low-speed mixer (at about 350 rpm) for about 4 to 5 minutes, or until obtaining a smooth, creamy, homogenous paste consistency and a uniform shading of the colored grout.
6. Avoid prolonged mixing, which will trap air and shorten the pot life.
7. Wash tools immediately with fresh water.

## PRODUCT APPLICATION

Read all installation instructions thoroughly before installation.

1. Use only at temperatures between 50°F and 95°F (10°C and 35°C). With temperatures above 80°F (26°C), use cold water to mix the powder.
2. Using consistent application and cleaning procedures will produce consistent results.
3. To aid in spreading the grout, slightly moisten the tile or stone surface with a damp sponge just before application. Do not flood the tiles or allow water to stand in the ungrouted joint areas.
4. Spread *Ultracolor Plus FA* immediately into the joints with a rubber grout float. Make sure that all joints are well-compacted and free of voids and gaps.
5. Remove excess grout from the tile surface, moving the grout float diagonally to the joints while *Ultracolor Plus FA* is still fresh.
6. The grout surface should be flush with the tile edge.
7. Some stiffening may occur before all material is used (usually within about 1 hour at room temperature). If this occurs, simply remix but do not add more liquid.
8. Provide for expansion and control joints as specified per TCNA handbook method EJ171 or TTMAC Specification Guide 09300, Detail 301EJ.
9. For full and color-consistent grout joints, allow the grout to set for typically 15 to 30 minutes at 73°F (23°C) before cleaning. Time before cleaning depends on the temperature, humidity and absorption of the tile/stone. When highly absorptive tile such as nonvitreous wall tile is grouted, the grout requires less setting time (about 5 to 10 minutes) before initial cleaning.

10. Use two buckets of cleaning water: One for rinsing the majority of the grout residue from the grout sponge, and one for moistening the sponge in clean water.
11. Dip the sponge in a bucket of water and wring out the excess, so that the sponge does not drip water. Using very little pressure, pull the sponge diagonally across the grout joints to remove the excess grout from the tile surface. Also use the sponge to smooth the surface of the grout joint. Turn the sponge over and make another pass in an adjacent area. After using both sides, rinse the sponge in one bucket and wring out the excess water. Dip the sponge in the second bucket of water, wringing out the excess and continue the process.
12. Change the water in the buckets frequently to help limit the amount of haze that forms on the tile or stone surface.
13. To prevent discoloration and soft/powdery joints, avoid cleaning with excessive water.
14. To control color variations, buff the grouted surface with cheesecloth or a clean, dry cotton cloth when a haze is visible on the tile surface, usually 30 to 60 minutes after grouting. This should remove any remaining surface water or grout residue.
15. Wash tools immediately with fresh water.
16. Never use acid for cleaning marble, glazed tile or pigmented grout surfaces. If a persistent haze remains after normal cleaning, see the technical bulletin "How to remove grout haze" at [www.mapei.com](http://www.mapei.com) or consult MAPEI's Technical Services Department.

## PROTECTION

- Provide for dry, heated storage on site and deliver materials at least 24 hours before tilework begins.
- For at least 3 days after completion, protect from rain and freezing, and do not immerse the installation in water.
- **Floors:** Keep the installation free from foot traffic for at least 3 hours after grouting.
- **Walls:** Protect the installation from impact, vibration and hammering on adjacent and opposite walls for 14 days after tile installation (see the TDS of the adhesive or setting system for details).
- Because temperature and humidity (during and after installation of tile) affect the final curing time of all cement-based materials, allow for extended periods of curing and protection when temperatures drop below 60°F (16°C) and/or when the relative humidity is higher than 70%.

## MAINTENANCE

- Grout must be cured for at least 24 hours before regular cleaning.
- MAPEI grout products are produced to the highest quality of standards. To maintain a clean tile surface, use a neutral-pH cleaner for maintaining the floor, followed by a clean water rinse.

- Do not use harsh chemical cleaners to maintain the tile surface. Before proceeding with cleaning, consult the cleaner's manufacturer for compatibility, use and application instructions. Remove or rinse fatty acid residue from the grout surface to avoid potential grout deterioration caused by prolonged exposure.
- A high-performance penetrating grout sealer may still be applied from MAPEI's *UltraCare* family of sealers, which includes Penetrating Plus Stone, Tile & Grout Sealer; and Penetrating Plus SB Stone & Porcelain Tile Sealer. Follow the directions provided in the *UltraCare* Maintenance Guide.

## GROUTING IN HOT WEATHER

When *Ultracolor Plus FA* is being installed in hot weather – between 80°F and 95°F (26°C and 35°C) – these procedures should be followed in order to accomplish the best results:

- Store grout bag(s) at room temperature for at least 24 hours before use.
- Use cold water for mixing.
- Set mixing bucket inside a cold-water bath.
- Pre-wet tiles with cold water to lower the tile temperature and provide more working time (which is crucial for exterior and/or dark tile designs).
- Grout in the morning or evening hours to avoid the hottest part of the day.
- Remove as much of the excess from the tile surface as possible for easier cleanup.
- Start the initial wash in 15 minutes or less.
- Use tenting when grouting exterior to minimize sun exposure.
- Do not retemper the grout by adding additional water.
- You can remix the grout if the grout begins to stiffen up in the bucket. No additional water added.

**Ultracolor<sup>®</sup>  
Plus FA**

## ISO 13007 Classification

Classification Code	Test Characteristics	Classification Requirement
CG2 (cementitious grout, improved)	Shrinkage	≤ 0.30% shrinkage in 28 days
W (reduced water absorption)	Water absorption	≤ 5 g after 4 hours
A (high abrasion resistance)	Abrasion resistance	≤ 1 000 mm <sup>3</sup>
F (rapid-setting)	Compressive strength	≥ 2,175 psi (15 MPa) after 24 hours

## ANSI Specification

Test Method	Specification Standard	Test Results
ANSI A118.7 – compression	3,000 psi (20.7 MPa) at 28 days	3,000 to 5,500 psi (20.7 to 37.9 MPa) at 28 days
ANSI A118.7 – shrinkage	< 0.20% at 27 days	< 0.20% at 27 days
ANSI A118.7 – tensile strength	500 psi (3.45 MPa) at 28 days	500 to 600 psi (3.45 to 4.14 MPa) at 28 days
ANSI A118.7 – water absorption	< 5% (50% relative humidity to immersion)	< 5% (50% relative humidity to immersion)
ANSI A118.7 – flexural strength	1,000 psi (6.90 MPa) at 28 days	1,000 to 1,400 psi (6.90 to 9.66 MPa) at 28 days

## Shelf Life and Product Characteristics before mixing

Shelf life	1 year when stored in original, unopened packaging at 73°F (23°C) in a dry area
Physical state	Powder

## Application Properties at 73°F (23°C) and 50% relative humidity

Mixing ratio	Per 10 lbs. (4.54 kg) of grout powder: 1 to 1.1 U.S. qts. (0.95 to 1.04 L) of water Per 25 lbs. (11.3 kg) of grout powder: 2.6 to 2.8 U.S. qts. (2.46 to 2.65 L) of water
VOCs (Rule #1168 of California's SCAQMD)	0 g per L
Pot life*	30 minutes to 1 hour
Application temperature range	50°F and 95°F (10°C and 35°C)
Curing time*	3 days

\* Pot life and curing time vary based on jobsite conditions, including cold temperatures or high humidity.

## Packaging

Size
Bag: 10 lbs. (4.54 kg)
Bag: 25 lbs. (11.3 kg)

**Approximate Coverage\*** in sq. ft. (m<sup>2</sup>) per 10 lbs. (4.54 kg)

Tile Size	Grout Joint Width							
	1/16" (1.5 mm)	1/8" (3 mm)	3/16" (4.5 mm)	1/4" (6 mm)	3/8" (10 mm)	1/2" (12 mm)	5/8" (16 mm)	3/4" (19 mm)
1" x 1" x 1/4" (25 x 25 x 6 mm)	39 (3.62)	20 (1.86)	13 (1.21)	10 (0.93)	7 (0.65)	5 (0.46)	4 (0.37)	4 (0.37)
2" x 2" x 1/4" (50 x 50 x 6 mm)	78 (7.25)	39 (3.62)	26 (2.42)	20 (1.86)	13 (1.21)	10 (0.93)	8 (0.74)	7 (0.65)
3" x 3" x 1/4" (75 x 75 x 6 mm)	117 (10.9)	59 (5.48)	39 (3.62)	30 (2.79)	20 (1.86)	15 (1.39)	12 (1.11)	10 (0.93)
4" x 8" x 1/2" (100 x 200 x 12 mm)	104 (9.66)	52 (4.83)	35 (3.25)	26 (2.42)	18 (1.67)	13 (1.21)	11 (1.02)	9 (0.84)
4-1/4" x 4-1/4" x 1/4" (108 x 108 x 6 mm)	165 (15.3)	83 (7.71)	55 (5.11)	42 (3.90)	28 (2.60)	21 (1.95)	17 (1.58)	14 (1.30)
6" x 6" x 1/4" (150 x 150 x 6 mm)	233 (21.6)	117 (10.9)	78 (7.25)	59 (5.48)	39 (3.62)	30 (2.79)	24 (2.23)	20 (1.86)
6" x 6" x 1/2" (150 x 150 x 12 mm)	117 (10.9)	59 (5.48)	39 (3.62)	30 (2.79)	20 (1.86)	15 (1.39)	12 (1.11)	10 (0.93)
6" x 24" x 3/8" (150 x 610 x 10 mm)	249 (23.1)	125 (11.6)	83 (7.71)	63 (5.85)	42 (3.90)	32 (2.97)	25 (2.32)	21 (1.95)
8" x 8" x 3/8" (200 x 200 x 10 mm)	207 (19.2)	104 (9.66)	69 (6.41)	52 (4.83)	35 (3.25)	26 (2.42)	21 (1.95)	18 (1.67)
12" x 12" x 3/8" (300 x 300 x 10 mm)	311 (28.9)	156 (14.5)	104 (9.66)	78 (7.25)	52 (4.83)	39 (3.62)	32 (2.97)	26 (2.42)
12" x 24" x 3/8" (300 x 600 x 10 mm)	414 (38.5)	207 (19.2)	138 (12.8)	104 (9.66)	69 (6.41)	52 (4.83)	42 (3.90)	35 (3.25)
13" x 13" x 3/8" (330 x 330 x 10 mm)	337 (31.3)	169 (15.7)	113 (10.5)	85 (7.90)	57 (5.30)	43 (3.99)	34 (3.16)	29 (2.69)
18" x 18" x 3/8" (457 x 457 x 10 mm)	466 (43.3)	233 (21.6)	156 (14.5)	117 (10.9)	78 (7.25)	59 (5.48)	47 (4.37)	39 (3.62)
20" x 20" x 3/8" (508 x 508 x 10 mm)	518 (48.1)	259 (24.1)	173 (16.1)	130 (12.1)	87 (8.08)	65 (6.04)	52 (4.83)	44 (4.09)
24" x 24" x 3/8" (610 x 610 x 10 mm)	621 (57.7)	311 (28.9)	207 (19.2)	156 (14.5)	104 (9.66)	78 (7.25)	63 (5.85)	52 (4.83)
32" x 32" x 3/8" (812 x 812 x 10 mm)	828 (76.9)	414 (38.5)	276 (25.6)	207 (19.2)	138 (12.8)	104 (9.66)	83 (7.71)	69 (6.41)

**Approximate Coverage\*** in sq. ft. (m<sup>2</sup>) per 25 lbs. (11.3 kg)

Tile Size	Grout Joint Width							
	1/16" (1.5 mm)	1/8" (3 mm)	3/16" (4.5 mm)	1/4" (6 mm)	3/8" (10 mm)	1/2" (12 mm)	5/8" (16 mm)	3/4" (19 mm)
1" x 1" x 1/4" (25 x 25 x 6 mm)	97 (9.01)	49 (4.55)	33 (3.07)	25 (2.32)	17 (1.58)	13 (1.21)	10 (0.93)	9 (0.84)
2" x 2" x 1/4" (50 x 50 x 6 mm)	194 (18.0)	97 (9.01)	65 (6.04)	49 (4.55)	33 (3.07)	25 (2.32)	20 (1.86)	17 (1.58)
3" x 3" x 1/4" (75 x 75 x 6 mm)	291 (27.0)	146 (13.6)	97 (9.01)	73 (6.78)	49 (4.55)	37 (3.44)	30 (2.79)	25 (2.32)
4" x 8" x 1/2" (100 x 200 x 12 mm)	259 (24.1)	130 (12.1)	87 (8.08)	65 (6.04)	44 (4.09)	33 (3.07)	26 (2.42)	22 (2.04)
4-1/4" x 4-1/4" x 1/4" (108 x 108 x 6 mm)	413 (38.4)	207 (19.2)	138 (12.8)	104 (9.66)	69 (6.41)	52 (4.83)	42 (3.90)	35 (3.25)
6" x 6" x 1/4" (150 x 150 x 6 mm)	582 (54.1)	291 (27.0)	194 (18.0)	146 (13.6)	97 (9.01)	73 (6.78)	59 (5.48)	49 (4.55)
6" x 6" x 1/2" (150 x 150 x 12 mm)	291 (27.0)	146 (13.6)	97 (9.01)	73 (6.78)	49 (4.55)	37 (3.44)	30 (2.79)	25 (2.32)
6" x 24" x 3/8" (150 x 610 x 10 mm)	621 (57.7)	311 (28.9)	207 (19.2)	156 (14.5)	104 (9.66)	78 (7.25)	63 (5.85)	52 (4.83)
8" x 8" x 3/8" (200 x 200 x 10 mm)	518 (48.1)	259 (24.1)	173 (16.1)	130 (12.1)	87 (8.08)	65 (6.04)	52 (4.83)	44 (4.09)

**Ultracolor  
Plus FA**



# Ultracolor Plus FA



12" x 12" x 3/8" (300 x 300 x 10 mm)	776 (72.1)	388 (36.0)	259 (24.1)	194 (18.0)	130 (12.1)	97 (9.01)	78 (7.25)	65 (6.04)
12" x 24" x 3/8" (300 x 600 x 10 mm)	1,035 (96.2)	518 (48.1)	345 (32.1)	259 (24.1)	173 (16.1)	130 (12.1)	104 (9.66)	87 (8.08)
13" x 13" x 3/8" (330 x 330 x 10 mm)	841 (78.1)	421 (39.1)	281 (26.1)	211 (19.6)	141 (13.1)	106 (9.85)	85 (7.90)	71 (6.60)
18" x 18" x 3/8" (457 x 457 x 10 mm)	1,164 (108)	582 (54.1)	388 (36.0)	291 (27.0)	194 (18.0)	146 (13.6)	117 (10.9)	97 (9.01)
20" x 20" x 3/8" (508 x 508 x 10 mm)	1,294 (120)	647 (60.1)	432 (40.1)	324 (30.1)	216 (20.1)	162 (15.1)	130 (12.1)	108 (10.0)
24" x 24" x 3/8" (610 x 610 x 10 mm)	1,552 (144)	776 (72.1)	518 (48.1)	388 (36.0)	259 (24.1)	194 (18.0)	156 (14.5)	130 (12.1)
32" x 32" x 3/8" (812 x 812 x 10 mm)	2,069 (192)	1,035 (96.2)	690 (64.1)	518 (48.1)	345 (32.1)	259 (24.1)	207 (19.2)	173 (16.1)

\* Coverage shown is for estimating purposes only. Actual jobsite coverage may vary according to actual tile size and thickness, exact joint width, job conditions and grouting methods. Consult MAPEI's Technical Services Department or use the grout calculator at [www.mapei.com](http://www.mapei.com) to determine the amount of product needed for project criteria not shown.

## RELATED DOCUMENTS

Technical bulletin: "How to remove grout haze"\*\*\*

Technical bulletin: "Installing tile in hot weather"\*\*\*

Reference guide: "Tiling and grouting instructions"\*\*\*

Brochure: "Grout troubleshooting guide"\*\*\*

\*\* At [www.mapei.com](http://www.mapei.com)

Refer to the SDS for specific data related to health and safety as well as product handling.

For information on MAPEI's commitment to sustainability and transparency, as well as how MAPEI meets the health and well-being requirements of product certification programs, contact the MAPEI Sustainability Team at 1-800-992-6273.

## LEGAL NOTICE

The contents of this Technical Data Sheet ("TDS") may be copied into another project-related document, but the resulting document shall not supplement or replace requirements per the TDS in effect at the time of the MAPEI product installation. For the most up-to-date TDS and warranty information, please visit our website at

[www.mapei.com](http://www.mapei.com). **ANY ALTERATIONS TO THE WORDING OR REQUIREMENTS CONTAINED IN OR DERIVED FROM THIS TDS SHALL VOID ALL RELATED MAPEI WARRANTIES.**

Before using, the user must determine the suitability of our products for the intended use,

and the user alone assumes all risks and liability. **ANY CLAIM SHALL BE DEEMED WAIVED UNLESS MADE IN WRITING TO US WITHIN FIFTEEN (15) DAYS FROM DATE IT WAS, OR REASONABLY SHOULD HAVE BEEN, DISCOVERED.**

We proudly support the following industry organizations:



**MAPEI Headquarters of North America**  
1144 East Newport Center Drive  
Deerfield Beach, Florida 33442  
1-888-US-MAPEI (1-888-876-2734) /  
(954) 246-8888

**Technical Services**  
1-800-992-6273 (U.S. and Puerto Rico)  
1-800-361-9309 (Canada)

**Customer Service**  
1-800-42-MAPEI (1-800-426-2734)

**Services in Mexico**  
0-1-800-MX-MAPEI (0-1-800-696-2734)

**Edition Date:** June 4, 2019  
MK 3000144 (19-1770)

For the most current BEST-BACKED™ product data and warranty information, visit [www.mapei.com](http://www.mapei.com).

All Rights Reserved. © 2019 MAPEI Corporation.

## SERENE



## TRADITIONAL



## NATURAL



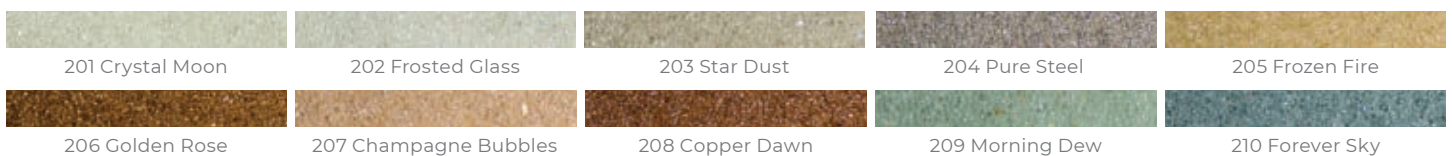
## ROMANCE



## GLAMOUR



## MAPEI Flexcolor® 3D and Mapesil™ 3D



## Ultracolor® Plus Max







# Keraflex Plus™

**Professional, Extra Smooth,  
Large-and-Heavy-Tile Mortar  
with Polymer**



## DESCRIPTION

*Keraflex Plus* is a highly versatile, non-sag/nonslump, large-and-heavy-tile mortar and thin-set mortar for tile and stone installations on floors, walls and countertops. This polymer-modified mortar is formulated with Easy Glide Technology™ for ease of application and offers excellent adhesion to substrates and tile. It can also be used as a mortar over uncoupling, crack-isolation, sound-reduction and waterproofing membranes.

## FEATURES AND BENEFITS

- High-Transfer Technology™ for superior mortar-wetting properties
- Extra smooth, creamy consistency for ease of application
- Easy mixing, handling and troweling properties
- Ideal for edge-leveling clip applications
- Non-sag formula for large-format and heavy tile/stone in wall applications
- Nonslump formula for large-format and heavy tile/stone in floor applications
- For bond coats up to 1/2" (12 mm) in embedded thickness
- Polymer-enriched for high performance
- For use over plywood and a variety of membranes

## INDUSTRY STANDARDS AND APPROVALS

- ISO 13007: Classification C2TE
- ANSI: Exceeds A118.4HTE and A118.11 requirements

## WHERE TO USE

- Most interior/exterior residential installations on floors, walls and countertops in dry and wet areas (see wall specifications under "Limitations")
- Most interior/exterior commercial installations on floors and countertops
- Most interior commercial installations on walls
- For use in tub surrounds and showers
- For use over exterior-grade plywood
- Installation of ceramic and porcelain tile, manufactured stone, quarry tile, pavers and Saltillo tile, as well as most types of marble, granite and natural stone

## LIMITATIONS

- Install only at temperatures between 40°F and 95°F (4°C and 35°C).
- Do not use for moisture-sensitive stone (green marble; some limestone and granite), agglomerate tiles, or resin-backed tiles. Instead, use suitable epoxy or urethane adhesives. See the respective Technical Data Sheets for more information.
- Do not use over dimensionally unstable substrates such as hardwood flooring, oriented strand board (OSB), substrates containing asbestos, or metal. See the "Suitable Substrates" section below.
- To use directly over gypsum-based patching or leveling substrates, apply a suitable sealer/primer before use. See the "Tiling over gypsum" technical bulletin in the Tile & Stone Installation Systems section of MAPEI's Website.
- For light-colored and translucent natural stone, a white mortar is recommended.



- Do not use for transparent or translucent glass tile.
- Installations of tile over nonporous surfaces, such as waterproofing membranes and existing tile, may require extended setting/curing times.
- Use with dimensionally weak stone (limestone and travertine) is limited to thin-set applications only.
- Do not use for installations subject to water immersion, such as pools and spas.
- Do not use for exterior commercial building facades, such as shopping malls, office buildings and high-rise residential buildings.
- Large-and-heavy-tile mortars are not designed to correct uneven floors. Substrates must be flat and level before the installation of large-format tile.
- Use a MAPEI mortar with a liquid latex additive for areas subject to severe freeze/thaw conditions, for the best performance.

## SUITABLE SUBSTRATES

- Concrete (cured at least 28 days)
- Masonry cement block, brick, cement mortar beds, render coats and leveling coats
- Cement backer units (CBUs) – see the manufacturer’s installation guidelines
- Gypsum wallboard and plaster – interior walls in dry areas only (priming may be required)
- Plywood underlayments must be a Group 1 exterior-grade plywood CC-plugged or better, conforming to APA classification and U.S. Product Standard PS 1-95 or a “SELECT” or (SEL-TF) CANPLY classified exterior-grade plywood conforming to CSA-0121 standard for Douglas fir for direct-bond applications (interior, residential and light commercial floors and countertops in dry conditions only).
- Vinyl composition tile (VCT) and cutback residue (interior only)
- Existing ceramic and porcelain tile, cement terrazzo, quarry tile and pavers (interior in dry conditions only)
- MAPEI waterproofing, crack-isolation, sound-reduction and uncoupling membranes over recommended substrates

Consult MAPEI’s Technical Services Department for installation recommendations regarding substrates and conditions not listed.

## SURFACE PREPARATION

- All substrates should be structurally sound, stable, dry, clean and free of any substance or condition that may reduce or prevent proper adhesion.

See the “Surface preparation requirements” reference guide in the Tile & Stone Installation Systems section of MAPEI’s Website.

---

## Tile Council of North America (TCNA) Statement on Deflection Criteria

Floor systems, including the framing system and subfloor panels, over which tile will be installed should be in conformance with the IRC [International Residential Code] for residential applications, the IBC [International Building Code] for commercial applications, or applicable building codes.

Note: The owner should communicate in writing to the project design professional and general contractor the “intended use” of the tile installation, in order to enable the project design professional and general contractor to make necessary allowances for the expected live load, concentrated loads, impact loads, and dead loads including the weight of the tile and setting bed. The tile installer shall not be responsible for any floor framing or subfloor installation not compliant with applicable building codes, unless the tile installer or tile contractor designs and installs the floor framing or subfloor.

---

## MIXING

Before product use, take appropriate safety precautions. Refer to the Safety Data Sheet for details.

1. Pour clean, potable water into a clean mixing container.
- 2a. For non-sag/nonslump applications: Use about 5.7 to 6.2 U.S. qts. (5.39 to 5.87 L) of water.
- 2b. For MAPEI membranes: Use about 6.2 to 6.6 U.S. qts. (5.87 to 6.25 L) of water.
3. Gradually add 44 lbs. (20 kg) of powder while slowly mixing.
4. Use a low-speed mixing drill (at about 300 rpm), with an angled cross-blade mixer or spiral mixer. Mix thoroughly until the mixture becomes a smooth, homogenous, lump-free paste. Avoid prolonged mixing.
5. Let the mixture stand (“slake”) for 5 minutes.
6. Remix.
7. If the mixture becomes heavy or stiff, remix without adding more liquid.

## PRODUCT APPLICATION

1. Choose a notched trowel (see the “Approximate Coverage” chart below) with sufficient depth to achieve more than 80% mortar contact to both the tile and substrate for all interior applications, and more than 95% for exterior, commercial floor and wet applications. It may be necessary to back-butter the tile in order to meet these requirements. (Refer to ANSI A108.5 specifications and TCNA handbook guidelines.)
2. With pressure, apply a coat of mortar by using the trowel’s flat side to key the mortar into the substrate.
3. Apply additional mortar, combing it in a single direction parallel to the tile’s shortest dimension with the trowel’s

*Continued on Page 4*

## ISO 13007 Classification

Classification Code	Classification Requirement	Test Characteristic
C2 (cementitious, improved adhesive)	≥ 145 psi (1 MPa) after standard aging, heat aging, water immersion and freeze/thaw cycles	Using porcelain tile
T (vertical slip resistance)	≤ 0.019" (0.5 mm)	Using porcelain tile
E (extended open time)	≥ 72.5 psi (0.5 MPa) after 30 minutes	Using glazed ceramic wall tile

## ANSI Specification

Test Method	Specification Standard	Test Results
ANSI A118.4 – shear strength, impervious ceramic (porcelain) mosaics	> 200 psi (1.38 MPa) at 28 days	220 to 340 psi (1.52 to 2.34 MPa)
ANSI A118.4 – shear strength, glazed wall tile	> 300 psi (2.07 MPa) at 28 days	395 to 540 psi (2.72 to 3.72 MPa)
ANSI A118.4 – shear strength, quarry tile to quarry tile	> 150 psi (1.03 MPa) at 28 days	295 to 415 psi (2.03 to 2.86 MPa)
ANSI A118.4H – mortar for large and heavy tile	ASTM C627 Robinson Floor Test Lippage change < 1/64" (0.4 mm)	Pass
ANSI A118.4T – sag on vertical surfaces	< 0.02" (0.5 mm) at 20 minutes	Pass
ANSI A118.4E – extended open time	≥ 72.5 psi (0.5 MPa) at 30 minutes	Pass
ANSI A118.11 – shear strength, quarry tile to plywood	> 150 psi (1.03 MPa) at 28 days	Pass

## Shelf Life and Product Characteristics before mixing

Shelf life	1 year when stored in original, unopened packaging at 73°F (23°C) and 50% relative humidity
Colors	Gray; white

## Application Properties at 73°F (23°C) and 50% relative humidity

Open time*	30 minutes
Pot life*	3 hours
Time before grouting (walls)*	8 to 16 hours
Time before grouting (floors)*	24 hours
VOCs (Rule #1168 of California's SCAQMD)	0 g per L
Application temperature range	40°F and 95°F (4°C and 35°C)
Embedded thickness range	3/32" to 1/2" (2.5 to 12 mm)

\* Cold temperature or high humidity may alter these properties.

## Packaging

Size and Color
Bag: 44 lbs. (20 kg), gray
Bag: 44 lbs. (20 kg), white

## Approximate Coverage\*\* per 44 lbs. (20 kg)

Typical Trowel	Coverage
1/4" x 1/4" x 1/4" (6 x 6 x 6 mm)	75 to 90 sq. ft. (6.97 to 8.36 m <sup>2</sup> )
1/4" x 3/8" x 1/4" (6 x 10 x 6 mm)	55 to 65 sq. ft. (5.11 to 6.04 m <sup>2</sup> )
1/2" x 1/2" x 1/2" (12 x 12 x 12 mm)	38 to 45 sq. ft. (3.53 to 4.18 m <sup>2</sup> )
3/4" x 9/16" x 3/8" (19 x 14 x 10 mm)	25 to 30 sq. ft. (2.32 to 2.79 m <sup>2</sup> )

\*\* Trowel dimensions are width/depth/space. Actual coverage will vary according to substrate profile and tile type.

# Keraflex Plus



Continued from Page 2

- notched side. Spread only as much mortar as can be tiled before the product skins over. Open time can vary with jobsite conditions.
- 4. Place tiles firmly into the wet mortar. Push the tiles back and forth in a direction perpendicular to trowel lines, to collapse the mortar ridges and to help achieve maximum coverage. Ensure proper contact between the mortar, tile and substrate by periodically lifting a few tiles to check for acceptable coverage.
- 5. Remove excess mortar from the joint areas so that at least 2/3 of the tile depth is available for grouting (see ANSI A108.10 guidelines).

## EXPANSION AND CONTROL JOINTS

- Provide for expansion and control joints as specified per TCNA Method EJ171, or TTMAC Specification Guide 09 30 00, Detail 301MJ. Do not cover any expansion joints with mortar.
- When necessary, cut tiles along both edges of the expansion joints. Do not allow tile and mortar to overlap the joints.
- Protect tilework with metal strips (edge metal) along both edges of structural building expansion joints.
- Install the specified compressible backer rod and sealant into all expansion and control joints.

## CLEANUP

- Use water only to clean tools and tile while the mortar is fresh.

## PROTECTION

- Do not disturb the installation, allow light traffic or grout any tiles for at least 24 to 48 hours.
- Protect the installation from general traffic for at least 72 hours and from heavy traffic for at least 7 days.
- Protect the installation from rain for 72 hours and from freezing for 21 days.

## RELATED DOCUMENTS

Reference guide: "Surface preparation requirements" for tile and stone installation systems\*

Technical bulletin: "Tiling over gypsum"\*

\* At [www.mapei.com](http://www.mapei.com)

Refer to the SDS for specific data related to health and safety as well as product handling.

For information on MAPEI's commitment to sustainability and transparency, as well as how MAPEI products may contribute to green building standards and certification systems, contact [sustainability\\_USA@mapei.com](mailto:sustainability_USA@mapei.com) (USA) or [sustainability-durabilite@mapei.com](mailto:sustainability-durabilite@mapei.com) (Canada).

## LEGAL NOTICE

The contents of this Technical Data Sheet ("TDS") may be copied into another project-related document, but the resulting document shall not supplement nor replace requirements per the TDS in effect at the time of the MAPEI product installation. For the most up-to-date TDS and warranty information, please visit our website at

[www.mapei.com](http://www.mapei.com). **ANY ALTERATIONS TO THE WORDING OR REQUIREMENTS CONTAINED IN OR DERIVED FROM THIS TDS SHALL VOID ALL RELATED MAPEI WARRANTIES.**

Before using, the user must determine the suitability of our products for the intended use,

and the user alone assumes all risks and liability. **ANY CLAIM SHALL BE DEEMED WAIVED UNLESS MADE IN WRITING TO US WITHIN FIFTEEN (15) DAYS FROM DATE IT WAS, OR REASONABLY SHOULD HAVE BEEN, DISCOVERED.**

We proudly support the following industry organizations:



**MAPEI Headquarters of North America**  
 1144 East Newport Center Drive  
 Deerfield Beach, Florida 33442  
 1-888-US-MAPEI (1-888-876-2734) /  
 (954) 246-8888

**Technical Services**  
 1-800-992-6273 (U.S. and Puerto Rico)  
 1-800-361-9309 (Canada)

**Customer Service**  
 1-800-42-MAPEI (1-800-426-2734)

**Services in Mexico**  
 0-1-800-MX-MAPEI (0-1-800-696-2734)

**Edition Date:** July 2, 2020  
 MK 3000019 (20-2303)





# Mapelastic® AquaDefense

## Premium Waterproofing and Crack-Isolation Membrane



### DESCRIPTION

Mapelastic AquaDefense is a premixed, advanced liquid-rubber, extremely quick-drying waterproofing and crack-isolation membrane for installation under ceramic tile or stone in residential, commercial and industrial environments. Mapelastic AquaDefense provides a thin, continuous barrier to protect adjacent rooms and floors below from water damage. For common problem areas like coves, corners, cracks and drains, it can be combined with MAPEI's optional Reinforcing Fabric or Mapeband™ accessories (cove roll and drain flash) to provide additional protection. Mapelastic AquaDefense dries after about 30 to 50 minutes and is then ready to receive any MAPEI polymer or epoxy mortar. Mapelastic AquaDefense can be flood-tested after 12 hours of drying time, is IAPMO-listed for use as a shower-pan liner, and exceeds ANSI A118.10 and ANSI A118.12 standards.

### FEATURES AND BENEFITS

- Very quick drying: Install tile after 30 to 50 minutes of drying time.
- Time-saving: Flood-test as shower-pan liner after 12 hours of drying time.
- Apply with roller or brush – easy to install over flat, curved or irregular surfaces
- Bonds to a wide range of surfaces; convenient, user-friendly and versatile
- No odor; great for confined spaces
- Prevents in-plane floor cracks from transmitting through tile or stone

### INDUSTRY STANDARDS AND APPROVALS

- ANSI: Exceeds A118.10 standard (Waterproofing Membranes for Thin-Set Ceramic Tile) and A118.12 standard (Crack-Isolation Membranes for Thin-Set Ceramic Tile)

- ASTM: C627 (Robinson) service rating for extra heavy
- ASTM: E-96 Method E, meeting requirements of <0.5 perms
- IAPMO: Listed for use as shower-pan liner
- IAPMO File #3996
- ICC Evaluation Service Report ESR 3474
- Los Angeles Board of Building & Safety Commissioners File Number M-130022

#### LEED v3 Points Contribution

#### LEED Points

MR Credit 5, Regional Materials\* .....Up to 2 points  
IEQ Credit 4.2, Low-Emitting Materials – Paints & Coatings..... 1 point

\* Using this product may help contribute to LEED certification of projects in the categories shown above. Points are awarded based on contributions of all project materials.

### WHERE TO USE

- Residential and commercial interior/exterior floors, walls and ceilings
- Industrial interior floors and walls
- Tub and shower surrounds: bathrooms; kitchens; food prep, dishwashing, servery and cafeteria areas; countertops; and laundry rooms
- Residential and commercial submerged applications: freshwater pools, fountains and water features (completely covered by ceramic tile)
- Cantilevered balconies and decks over unoccupied space (see the "Limitations" section)
- Balconies and decks over occupied space when used in conjunction with a primary waterproofing membrane



- Steam rooms and steam showers (refer to TCNA handbook's sections SR613 and SR614 or TTMAC 319SR and 321SR).
- Meets ASTM E-96 Procedure E for a low perm waterproof membrane
- In-plane crack isolation up to 1/8" (3 mm) over nonstructural cracks
- MAPEI's *Reinforcing Fabric* is available but optional for use on coves, corners and field application.

## LIMITATIONS

- *Mapelastic AquaDefense* is not for use over structural cracks, in-plane cracks beyond 1/8" (3 mm) or where vertical out-of-plane movement occurs.
- Do not use over substrates containing asbestos, dimensionally unstable substrates such as hardwood flooring, particleboard, oriented strand board (OSB), Masonite or metal. See "Suitable Substrates" section below.
- Do not use over: Plank flooring, treated plywood, Lauan, gypsum-based floor-patching compounds, vinyl, glazed tile, laminate, fiberglass or epoxy floors, or storage tanks.
- Do not use where excessive substrate moisture and/or where negative hydrostatic pressure exists. Maximum allowable moisture is 8 lbs. per 1,000 sq. ft. (3,63 kg per 92,9 m<sup>2</sup>) per 24 hours per ASTM F1869 or up to 85% relative humidity as measured with moisture probes.
- Do not use: As a single-application roof-deck membrane, wear surface or primary waterproofing membrane on balconies or decks directly over occupied space or in storage tanks; or with premixed setting materials.
- Do not allow direct contact with solvent-based materials.

Consult MAPEI's Technical Services Department for installation recommendations regarding substrates and conditions not listed.

## SUITABLE SUBSTRATES

### Interior and exterior

- Fully cured concrete at least 28 days old (see "Limitations" section)
- Masonry walls of cement block or brick
- Cured cement mortar beds or leveling coats
- Cement backer units (CBUs)

### Interior only

- Gypsum wallboard (walls only, in approved application areas only)
- Properly prepared radiant-heated substrates
- Properly prepared unglazed ceramic tile and cement terrazzo floors, and gypsum underlayments with a minimum of 2,500 psi (17,2 MPa) in compressive strength

Note: Existing unglazed ceramic tile must be abraded, and existing cement terrazzo must be mechanically

profiled. Both must be skimcoated with an appropriate MAPEI latex- or polymer-modified mortar.

- Exterior-grade plywood (for interior residential floors and countertops in dry areas only)
- PVC, copper, brass and stainless-steel pipe penetrations (abraded)

---

### **Tile Council of North America (TCNA) Statement on Deflection Criteria**

Floor systems, including the framing system and subfloor panels, over which tile will be installed should be in conformance with the IRC [International Residential Code] for residential applications, the IBC [International Building Code] for commercial applications, or applicable building codes.

Note: The owner should communicate in writing to the project design professional and general contractor the "intended use" of the tile installation, in order to enable the project design professional and general contractor to make necessary allowances for the expected live load, concentrated loads, impact loads, and dead loads including the weight of the tile and setting bed. The tile installer shall not be responsible for any floor framing or subfloor installation not compliant with applicable building codes, unless the tile installer or tile contractor designs and installs the floor framing or subfloor.

---

## SURFACE PREPARATION

- All recommended substrates must be structurally sound, stable, clean and free of any substance preventing adhesion.
- Do not use chemicals (acid etching or stripping) to prepare approved substrates.
- Concrete substrates should have a concrete surface profile of #2 per the International Concrete Repair Institute (ICRI). Mechanically clean and profile by diamond-cup grinding or other engineer-approved method when necessary.
- Substrate and room temperatures must be 45°F to 95°F (7°C to 35°C) during and at least 24 hours after application.
- See MAPEI's "Surface Preparation Requirements" document in the Reference & Installation Guides section of the Tile & Stone Installation Systems page on MAPEI's Website.

## MIXING

Choose all appropriate safety equipment before use. Refer to the Safety Data Sheet for details.

1. Mix by hand before using.
2. Do not dilute with any other material.
3. Promptly wash tools with water after mixing.

## PRODUCT APPLICATION

Read all installation instructions thoroughly before installation.

- Fill all cracks, control joints and gaps in corners and coves that are greater than 1/32" (1 mm) with an appropriate filler material. Force material into crack and finish smooth with trowel. Let dry.
- MAPEI's optional *Reinforcing Fabric* may be used with *Mapelastc AquaDefense* in any of the areas shown below (see the section "Optional Use of MAPEI's *Reinforcing Fabric*").
- MAPEI's *Mapeband* accessories (cove roll and drain flashing) also may be used with *Mapelastc AquaDefense* in any of the areas shown below (see the section "Optional Use of *Mapeband* Accessories").

### Pre-treat cracks, corners and coves (floor/wall intersections)

1. For expansion and control joints, see the section "Expansion and Control Joints."
2. Apply *Mapelastc AquaDefense* liquid 6" (15 cm) on both sides of cracks, corners and coves with a paintbrush or roller. Let dry to a dark-green color.
3. Apply a second coat and let dry.

### Pre-treat drains

1. Review drain manufacturer's instructions for waterproof membrane installation in conjunction with these instructions.
2. Fill space between drain pipe and substrate with appropriate expansion joint materials (typically foam backer rod and sealant).
3. For drains with bolt-down collar and weep holes, loosen and remove bolts from drain flange. Abrade drain flange with sandpaper, and clean and dry thoroughly.
4. With paintbrush, apply a liberal coat over and around drain flange. Let dry to a dark-green color.
5. Apply a second coat and let dry.

### Pre-treat openings around pipes and other penetrations

1. Pack/fill the openings/spaces between drain pipe and substrate with appropriate expansion joint materials (typically foam backer rod and sealant).
2. Apply *Mapelastc AquaDefense* with brush around and up onto floor or wall penetration. Let dry to a dark-green color.
3. Apply a second coat and let dry.

### Complete the main area

1. Apply *Mapelastc AquaDefense* to entire area to be waterproofed (including previously coated areas such as cracks, drains and penetrations) using a 3/8" (10 mm) nap roller. Let dry to a dark-green color.
2. Apply a second coat to entire installation. Let dry 30 to 50 minutes before installing tile or stone.
3. Final dry thickness of first and second coats combined in the main area should be about 20 mils at minimum (about the thickness of a credit card).
4. Inspect and, as needed, recoat pinholes or areas not completely covered. Let dry.
5. Apply bead of silicone or urethane sealant around drain flange at drain throat to join *Mapelastc AquaDefense* to the drain assembly. Leave no voids.

6. Bolt down collar to drain flange.
7. Where *Mapelastc AquaDefense* coating ends on any penetration, apply a bead of silicone or urethane sealant.

## CLEANUP

- Remove excess *Mapelastc AquaDefense* (while fresh) with damp sponge, soap and warm water. Any completely dried material may be mechanically removed.

## PROTECTION

- Protect from foot traffic, rain and freezing for 24 hours.
- Protect installed *Mapelastc AquaDefense* from contamination, excessive heat and extended sun exposure until tile or stone is installed.

## FLOOD-TESTING (per ASTM D5957)

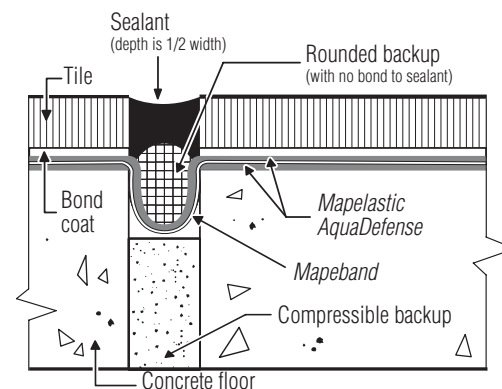
If flood-testing is required, allow *Mapelastc AquaDefense* to cure at least 12 hours at 73°F (23°C) and 50% relative humidity. Actual curing time depends on air and substrate temperature, substrate porosity and humidity. Expect shorter drying times in warmer conditions, longer drying times in cooler conditions.

## INSTALLING CERAMIC TILE OR NATURAL STONE

1. *Mapelastc AquaDefense* is ready to receive thin-set mortars for tile or stone when dry to touch (about 30 to 50 minutes after applying second coat).
2. Let *Mapelastc AquaDefense* cure for at least 8 hours before installing medium-bed mortars (for large tile or stone), screeds (for leveling floors) or epoxy adhesives.
3. For tile and stone installations, use a MAPEI polymer-modified mortar meeting ANSI A118.4 or ANSI A118.11, or an epoxy mortar meeting ANSI A118.15 ANSI A118.3. For the installation of resilient or wood flooring over *Mapelastc AquaDefense*, adhere to the adhesive recommendations or limitations for use over nonporous substrates.

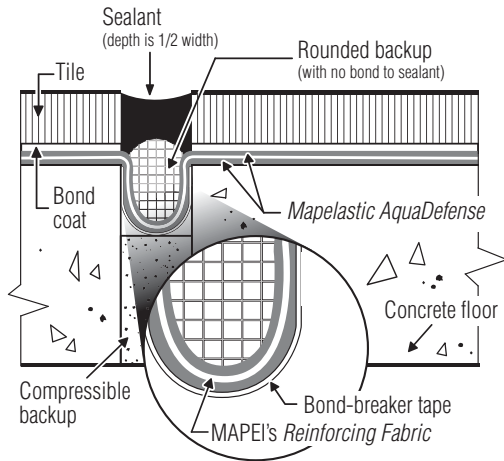
## EXPANSION AND CONTROL JOINTS

### Installation with *Mapeband*:





### Installation with MAPEI's Reinforcing Fabric:



1. Provide for expansion and control joints as specified per TCNA Method EJ171 or TTMAC Specification Guide 09 30 00 Detail 301EJ. Do not cover expansion joints with mortar.
2. If waterproofing integrity is required in expansion and control joints, provide per the above drawing. MAPEI's *Reinforcing Fabric* or *Mapeband* can be embedded into the *Mapelastic AquaDefense* liquid, allowed to dry and filled with appropriate joint sealant or an expansion molding system.
3. Protect tilework with metal strips (edge metal) along both edges of structural building expansion joints.

Contact MAPEI's Technical Services Department for more information.

### OPTIONAL USE OF MAPEI'S REINFORCING FABRIC

#### Select fabric size (see packaging chart)

- For coves (floor/wall intersections), allow for 2" (5 cm) of fabric on the floor and 4" (10 cm) up the wall. For cracks, control joints and vertical corners, allow for 3" (7,5 cm) of fabric on each side.
- For drains, cut desired fabric size from 38" (97-cm) wide roll. For floor or wall penetrations, use 6" (15-cm) wide, 38" (97-cm) wide or a combination of both.
- For large areas, the 38" (97-cm) wide roll is recommended.

#### Cut fabric to size

- Cut all required pieces. Set aside.

#### Pre-treat cracks, control joints, corners, coves, drains, and floor and wall penetrations

1. Apply *Mapelastic AquaDefense* as described in the "Pre-treat" sections above.
2. Lay pre-cut pieces of fabric into wet *Mapelastic AquaDefense*. Use brush to press fabric into corners until liquid comes through fabric. Work out any wrinkles or bubbles.

3. While fabric is wet, apply additional *Mapelastic AquaDefense* over fabric until completely covered to create void-free surface. Let dry to a dark-green color.
4. Apply a second coat and let dry.

#### Install fabric on main area

1. Apply the first coat of *Mapelastic AquaDefense* (including areas previously coated) using a 3/8" (10-mm) nap roller.
2. Place fabric into wet liquid on the floor. Using a roller, apply pressure to the fabric, working out wrinkles or bubbles while forcing *Mapelastic AquaDefense* to come through the fabric. Overlap seams and ends of the fabric by 2" (5 cm). While still wet, apply additional *Mapelastic AquaDefense* over the fabric until completely covered, creating a void-free surface. Let dry completely to a dark-green color.
3. Apply a second coat of *Mapelastic AquaDefense* to the entire area. Let dry.
4. Give a final inspection, looking for pinholes, areas not completely covered and other defects.
5. Recoat as needed. Let dry to a dark-green color.
6. Apply a bead of commercial-grade silicone or urethane sealant between the membrane and the drain flange, about 1/2" (12 mm) in from the drain opening.
7. Bolt the drain collar into place while the sealant is still fresh.
8. Install ceramic tile or natural stone per the above section "Installing ceramic tile or natural stone."

### OPTIONAL USE OF MAPEBAND ACCESSORIES

1. MAPEI's *Mapeband* accessories (cove roll and drain flashing) are waterproof, vapor-proof thin, elastic, deformable, rubber-coated fabric pieces that are fully compatible with *Mapelastic AquaDefense* and provide the ultimate in "change-of-plane" waterproofing protection for coves, corners and drains. *Mapeband* accessories are ideal for environments requiring waterproofing but also where temperature extremes, freeze/thaw conditions, vibrations, etc., can cause waterproofing problems.
2. *Mapeband* cove roll can be used in place of MAPEI's *Reinforcing Fabric* on coves, corners and control joints. The "felt side" should face into the corner.
3. *Mapeband* drain flashing can be used in place of MAPEI's *Reinforcing Fabric* on drains. The "felt side" should face down.
4. See *Mapeband*'s Technical Data Sheet for installation details.

## Product Performance Properties

Laboratory Tests	Results
pH	9
Viscosity	Approximately 30,000 cps
Density	1,3 g per mL
Weight	10.9 lbs. per U.S. gal. (1,3 kg per L)

## Shelf Life and Product Characteristics (before mixing)

Shelf life ( <i>Mapelastic AquaDefense</i> )	2 years when stored in original, unopened packaging at 73°F (23°C)
Physical state	Liquid
Color	Medium green when wet; dark green when dry
Shelf life (optional <i>Reinforcing Fabric</i> )	Unlimited when stored in original, unopened packaging at 73°F (23°C)
Storage	Store in a cool, dry place.

Protect containers from freezing in transit and storage. Provide for heated storage on site and deliver all materials at least 24 hours before work begins.

## Application Properties at 73°F (23°C) and 50% relative humidity

Flash point (Seta flash)	Nonflammable
VOCs (Rule #1113 of California's SCAQMD)	0 g per L
Drying time between first and second coats	When dark green and dry to the touch
Drying time after second coat (before applying ceramic tile or stone)	About 30 to 50 minutes (when dark green and dry to the touch)
Drying time before flood-testing	After 12 hours
Final dry thickness (2 coats)	About 20 mils at minimum (about credit-card thickness)
Freeze/thaw stability (liquid)	Up to 5 cycles at 32°F (0°C)

## Packaging (*Mapelastic AquaDefense*)

Size	Approximate Coverage (per 2 coats) *
Pail: 1 U.S. gal. (3,79 L) – 4-pack	60 sq. ft. (5,57 m <sup>2</sup> )
Pail: 3.5 U.S. gals. (13,2 L)	210 sq. ft. (19,5 m <sup>2</sup> )
Pail: 5 U.S. gals. (18,9 L)	300 sq. ft. (27,9 m <sup>2</sup> )
Drum: 55 U.S. gals. (208 L) – special order	3,300 sq. ft. (307 m <sup>2</sup> )

\* Coverage shown is for estimating purposes only. Actual jobsite coverage may vary according to substrate conditions, concrete profile and porosity, type of equipment used, thickness applied, handling and application procedures.

## Packaging (optional *Reinforcing Fabric*)

Size	Coverage
Roll: 6" x 75' (15 cm x 22,9 m), 8 per box – To reinforce over cracks, control joints, corners, coves and floor/wall penetrations	37.5 sq. ft. (3,48 m <sup>2</sup> ) per roll
Roll: 38" x 75' (97 cm x 22,9 m), 1 per box – To reinforce around drains or main area to be waterproofed	237.5 sq. ft. (22,1 m <sup>2</sup> ) per roll

## Packaging (*Mapeband* waterproofing accessories)

Size and Color
Drain flashing (blue): 16.75" x 16.75" (43 x 43 cm)
Cove roll (blue): 4.75" x 163 ft. (12 cm x 49,7 m)

# Mapelastick AquaDefense



## RELATED DOCUMENTS

Reference Guide: Surface Preparation Requirements for tile and stone installation systems	RGTO309*
---	----------

\* At [www.mapei.com](http://www.mapei.com)

Refer to the SDS for specific data related to health and safety as well as product handling.

## LEGAL NOTICE

The contents of this Technical Data Sheet ("TDS") may be copied into another project-related document, but the resulting document shall not supplement or replace requirements per the TDS in effect at the time of the MAPEI product installation. For the most up-to-date TDS and warranty information, please visit our website at

[www.mapei.com](http://www.mapei.com). **ANY ALTERATIONS TO THE WORDING OR REQUIREMENTS CONTAINED IN OR DERIVED FROM THIS TDS SHALL VOID ALL RELATED MAPEI WARRANTIES.**

Before using, the user must determine the suitability of our products for the intended use,

and the user alone assumes all risks and liability. **ANY CLAIM SHALL BE DEEMED WAIVED UNLESS MADE IN WRITING TO US WITHIN FIFTEEN (15) DAYS FROM DATE IT WAS, OR REASONABLY SHOULD HAVE BEEN, DISCOVERED.**

We proudly support the following industry organizations:



### MAPEI Headquarters of North America

1144 East Newport Center Drive  
Deerfield Beach, Florida 33442  
1-888-US-MAPEI (1-888-876-2734) /  
(954) 246-8888

### Technical Services

1-800-992-6273 (U.S. and Puerto Rico)  
1-800-361-9309 (Canada)

### Customer Service

1-800-42-MAPEI (1-800-426-2734)

### Services in Mexico

0-1-800-MX-MAPEI (0-1-800-696-2734)

**Edition Date:** October 5, 2017

PR: 5593 MKT: 17-2314

For the most current **BEST-BACKED™** product data and warranty information, visit [www.mapei.com](http://www.mapei.com).

All Rights Reserved. Printed in the USA. © 2017 MAPEI Corporation.



# Reinforcing Fabric

**For Use With Mapelastic®  
AquaDefense**

## DESCRIPTION

MAPEI's *Reinforcing Fabric* is a strong, absorbent, flexible, alkali-resistant, polyester reinforcing fabric for optional use with MAPEI's *Mapelastic AquaDefense* when installed under ceramic tile or stone on residential and commercial interior applications. *Reinforcing Fabric* is also for use as a component in MAPEI's *ShowerPerfect™* shower installation systems.

*Reinforcing Fabric* is ideal for use over substrate areas such as cracks, coves, corners and areas around drains when used with *Mapelastic AquaDefense*. *Reinforcing Fabric* provides a durable, reliable barrier to water migration into adjacent areas. It can easily be cut to size with scissors or a razor knife, and has excellent compatibility with all MAPEI cement- or epoxy-based grouts and mortars.

## FEATURES AND BENEFITS

- Compatible with *Mapelastic AquaDefense* waterproofing and *Mapeband™* accessories – to address a wide variety of installations
- Reduces total installation time by quickly absorbing *Mapelastic AquaDefense*
- Durable and flexible; lays flat, making it easy to install
- Fast to install: easy to cut with scissors or razor knife

## WHERE TO USE

*Reinforcing Fabric* is optional for use when installing *Mapelastic AquaDefense*. See the Technical Data Sheet (TDS) for *Mapelastic AquaDefense* for specific uses.

## LIMITATIONS

For specific limitations, see the TDS for *Mapelastic AquaDefense*.

## SUITABLE SUBSTRATES

For suitable substrates, see the TDS for *Mapelastic AquaDefense*.

Consult MAPEI's Technical Services Department for installation recommendations regarding substrates and conditions not listed.

## SURFACE PREPARATION

- All suitable substrates must be smooth, structurally sound and free of any substance that could prevent adhesion.
- Do not use chemical means (acid etching or stripping) to prepare approved substrates. Use mechanical methods only.
- To remove any bond-inhibiting materials, concrete substrates should be mechanically cleaned and prepared by diamond-cup grinding or other engineer-approved methods to obtain the International Concrete Repair Institute (ICRI) concrete surface profile (CSP) of #2. When concrete requires more mechanical preparation, the profile will typically increase. In such cases, the surface can be made smooth by applying coats of MAPEI's *Planipatch®*.
- For other important surface preparation instructions, see individual TDSs for waterproofing products. For other details, see MAPEI's "Surface Preparation Requirements" document in the Reference & Installation Guides section of the Tile & Stone Installation Systems page on MAPEI's Website or contact MAPEI's Technical Services Department.

## PRODUCT APPLICATION

For specific application instructions, see the TDS for *Mapelastic AquaDefense*.



**Product Performance Properties** at 73°F (23°C) and 50% relative humidity

Laboratory Tests	Results
VOCs	0 g per L
Fabric weight – ASTM D3776	2.06 U.S. oz. per sq. yd. (70 g per m <sup>2</sup> )
Grab tensile strength (MD/TD) – ASTM D5034	57.3/52.8 lbf (255/235 N)
Grab tensile % elongation (MD/TD) – ASTM D5034	50/55%
Trapezoidal tear TD – ASTM D1117	24.7 lbf (110 N)
Thickness – ASTM D1117	13.6 mils (0,35 mm)
Air permeability – ASTM D737	670 CFM (18,9 cu. meter/minute)
Mullen burst – ASTM D3786	82.5 psi (402.8 kg-force/m <sup>2</sup> )

**Shelf Life and Product Characteristics**

Color	White
Shelf life	5 years when stored in original, unopened container
Storage	Store in cool, dry place.
Application temperature range	See TDSs for individual products.

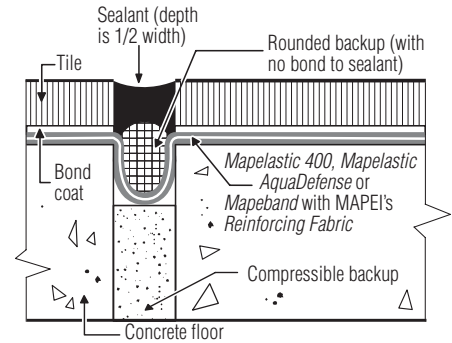
**Packaging and Coverage**

Size*	Coverage
Cove roll: 6" x 75 ft. (15 cm x 22,9 cm) – 8 rolls per box	37.5 sq. ft. (3,48 m <sup>2</sup> )
Roll: 38" x 75 ft. (0,97 m x 22,9 m)	237.5 sq. ft. (22,1 m <sup>2</sup> )

\* Rolls can be purchased by the full box only.

**EXPANSION AND CONTROL JOINTS**

- Do not cover any substrate expansion joint or control joints with mortar or tiles. Provide for expansion and control joints where specified per Detail EJ-171 of the most current TCNA handbook for ceramic tile installation, or Detail 301MJ of the TTMAC Tile Installation Manual.
- If waterproofing integrity is required in expansion and control joints, provide per the below drawing. *Reinforcing Fabric* or *Mapeband* cove roll can be bonded to both sides of the joint and filled with an appropriate joint sealant or an expansion molding system.
- Protect tilework with metal strips (edge metal) along both edges of structural building expansion joints.
- When necessary, cut tiles along both edges of the expansion joints. Do not allow tile or mortar to overlap the joints.
- Install the specified compressible bead and sealant into all expansion and control joints.



**RELATED DOCUMENTS**

Reference Guide: Surface Preparation Requirements for tile and stone installation systems	RGTO309**
---	-----------

\*\* At [www.mapei.com](http://www.mapei.com)

Refer to the SDS for specific data related to health and safety as well as product handling.

**LEGAL NOTICE**

The contents of this Technical Data Sheet ("TDS") may be copied into another project-related document, but the resulting document shall not supplement or replace requirements per the TDS in effect at the time of the MAPEI product installation. For the most up-to-date TDS and warranty information, please visit our website at

[www.mapei.com](http://www.mapei.com). **ANY ALTERATIONS TO THE WORDING OR REQUIREMENTS CONTAINED IN OR DERIVED FROM THIS TDS SHALL VOID ALL RELATED MAPEI WARRANTIES.**

Before using, the user must determine the suitability of our products for the intended use, and the user alone assumes all risks and liability. **ANY CLAIM SHALL BE DEEMED WAIVED UNLESS MADE IN WRITING TO US WITHIN FIFTEEN (15) DAYS FROM DATE IT WAS, OR REASONABLY SHOULD HAVE BEEN, DISCOVERED.**

We proudly support the following industry organizations:



**MAPEI Headquarters of the Americas**  
1144 East Newport Center Drive  
Deerfield Beach, Florida 33442  
1-888-US-MAPEI (1-888-876-2734) /  
(954) 246-8888

**Technical Services**  
1-800-992-6273 (U.S. and Puerto Rico)  
1-800-361-9309 (Canada)  
**Customer Service**  
1-800-42-MAPEI (1-800-426-2734)

**Services in Mexico**  
0-1-800-MX-MAPEI (0-1-800-696-2734)  
**Edition Date:** January 23, 2017  
PR: 5895 MKT: 16-2125