BONDING ADDITIVE

A high-solids acrylic liquid bonding admixture for cementitious materials

PRODUCT NAME

Tenon® Bonding Additive

MANUFACTURER

TCC Materials®
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PRODUCT DESCRIPTION

Tenon® Bonding Additive is a high-solids acrylic bonding admixture designed to improve adhesion, impact resistance, shear bond strength, tensile strength, flexural strength, and compressive strength in non-modified cement-based mortars, repair materials, tile setting mortars, and grouts. When used as directed, it also enhances workability, extends open time (pot life), improves freeze/thaw and salt resistance, reduces the potential for efflorescence, and provides excellent UV resistance. Because of its high-solids content, Tenon Bonding Additive can be diluted with clean water for many applications, providing added convenience and material savings. Tenon Bonding Additive can also be used as a paint-on bonding agent to improve adhesion between new repair materials and existing substrates.

Features & Benefits

As a concrete bonding additive:

- Improves bond strength for interior/exterior applications

As an additive in non-modified cement-based mixes:

- Solvent-free and VOC compliant
- Increases tensile strength
- Enhances adhesion and durability
- Improves workability and curing
- Suitable for interior and exterior applications

Performance & Versatility:

- Exceeds the physical property requirements stated in ASTM C1059, *Standards Specification for Latex Agents for Bonding Fresh to Hardened Concrete*
- Approved by MnDOT for use under the *Special Surface Finish System* program.
- Versatile for use with mortars, patching materials, grouts, and underpayments.

Uses

As a surface-applied bonding agent:

- Concrete and other Cement-based materials

As an additive for non-modified cement-based mixes:

- Portland cement and masonry products
- Portland cement-based repair products
- Portland cement-based grouts

As an additive for tile-setting mortar:

- For non-modified tile-setting mortars
- Suitable for walls, floors, and ceilings
- Sets most types of ceramic tile or stone
- Excellent adhesion to exterior grade plywood
- Reduces water absorption
- Exceeds ANSI A118.4 and A118.11
- For installation of ceramic, porcelain, glass, and quarry tile; cement tile; pavers; and non-moisture-sensitive marble and slate
- For installation over concrete, tile backerboard, gypsum wallboard (walls only), exterior-grade plywood (interior floors only), properly prepared cutback adhesive, resilient flooring, tile, VCT, properly cured and finished concrete, and Tenon Waterproofing & Crack Isolation Membrane
- Suitable wherever latex tile settings mortars are specified

Available Sizes

- 1 gal. (3.78 L) bottle **(BOM #115222)**
- 5 gal. (18.9 L) pail **(BOM #115215)**
- 55 gal. (208 L) drum **(BOM #115346)**

TECHNICAL DATA

Typical Values		
	Base Mix 3 to 1 - sand/cement ratio (102127)	**Base Mix 2 to 1 - sand/cement ratio (100521)**
Compressive Strength, psi (ASTM C39)		
24 hr. avg.	1,830 psi (12.6 MPa)	3,110 psi (21.44 MPa)
3 day avg.	2,700 psi (18.6 MPa)	4,680 psi (32.2 MPa)
7 day avg.	3,860 psi (26.6 MPa)	6,170 psi (42.5 MPa)
28 day avg.	4,750 psi (32.75 MPa)	7,360 psi (50.7 MPa)
Tensile Strength, psi (ASTM C190)		
28 day avg.	202 psi (1.39 MPa)	364 psi (2.5 MPa)
Bond Strength, psi (ASTM C1042)		
28 day avg. (air cured)	750 psi (5.17 MPa)	1,030 psi (7.1 MPa)
28 day avg. (water cured)	1,400 psi (9.6 MPa)	1,910 psi (13.1 MPa)

Note: Test results obtained under controlled laboratory conditions at 72°F (22°C) and 50% relative humidity. Reasonable variations can occur due to atmospheric and job site conditions.

Coverage

Consult the Technical Data Sheet (TDS) for whichever mortar, repair product, tile setting mortar, or grout used.

LEED® Eligibility[1]

- Regional Materials (MR-c5)
- Low-Emitting Materials (IEQ-c4.1, IEQ-c4.3)

INSTALLATION

General Preparation

- Surfaces must be clean, dry, sound, and free of dirt, loose particles, wax, sealers, curing compounds, grease, paint, and other contaminants that may inhibit adhesion.
- Existing concrete floors should be free of hydrostatic pressure and efflorescence.
- Remove loose, unsound, or poorly bonded material by sandblasting, hammering, chipping, or other approved methods prior to application.
- Concrete floors must be fully cured (28 days) and have a fine broom finish.
- Test substrate porosity by sprinkling water in several areas. Water should penetrate the surface. Beading or droplet formation indicates surface contamination that must be removed prior to application.
- Smooth troweled surfaces should be scarified to promote proper bond.
- Follow the preparation requirements of the product being modified with Bonding Additive.

Tile-Setting Mortar Preparation

- Walls and floors must be free of movement and dimensionally stable.
- Surfaces to receive tile shall be plumb, true, and have square corners.
- For tile 15 in. (381 mm) or greater on any side, substrate variation shall not exceed 1/8 in. (3 mm) in 10 ft. (3 m).
- For tile less than 15 in. (381 mm) on any side, substrate variation shall not exceed 1/4 in. (6 mm) in 10 ft. (3 m).

Note: It is the responsibility of the installer/applicator to ensure the suitability of the product for its intended use.

Job Mockups

The manufacturer requires that when its Tenon® products are used in any application or as part of any system that includes other manufacturers' products, the contractor and/or design professional shall test all the system components collectively for compatibility, performance and long-term intended use in accordance with pertinent and accepted industry standards prior to any construction. Written documentation of the tests performed shall be satisfactory to the design professional and contractor. Test results must include the means and methods of application, products used, project-specific conditions being addressed, and standardized tests performed for each proposed system or variation.

Mixing

Depending on the project or product needs, dilute Bonding Additive according to the guidelines below or appropriate Tenon product technical data sheet

Typical Mix	Mix Ratio		Total Liquid
	Water	*Bonding Additive*	
Product	**Typical Quarts (L) of Liquid**		
80 lb. (36.3 kg) Mortar Mix	3¾ qt. (3.5 L)	1¼ qt. (1.1 L)	≈ 5 qt. (4.7 L)
60 lb. (27.2 kg) Mortar Mix	3 qt. (2.8 L)	1 qt. (0.95 L)	≈ 4 qt. (3.78 L)
60 lb. (27.2 kg) Concrete Mix	1 ¾ qt. (1.65 L)	1 ¾ qt. (1.65 L)	≈ 3 ½ qt. (3.5 L)
60 lb. (27.2 kg) Sand Mix	2 ¼ qt. (2 L)	2 ¼ qt. (2 L)	≈4 ½ qt. (4.25 L)
50 lb. (22.7 kg) Thinset Mortar	none	8.5 qt. (8 L)	≈ 8.5 qt. (8 L)

- Slowly stir Tenon Bonding Additive before use. Do not create bubbles or foam by shaking the product.
- When diluting, always use cool, clean, potable water in the range of 50º-80ºF (10º-27ºC).
- Protect new surfaces from use until material is
- completely hard and set.
- Always use clean tools and mixing containers.
- Refer to the respective mortar, repair product, tile setting mortar, or grout manufacturer's instructions for recommended mixing ratios for latex and powder.

Mixing as a tile setting mortar additive:

1. Bonding Additive is formulated in the correct proportions for use in tile setting mortars. Mix latex well before using. Do not dilute.
2. Add just enough dry tile setting mortar to the Bonding Additive to produce a thick but trowelable consistency or as described in the Tenon tile setting mortar product literature. Troweled ridges should not flow or slump.
3. Mix thoroughly. Let stand 10 minutes to give all chemicals time to slake. Remix and use. Do not add more Bonding Additive or dry materials after slaking.
4. Do not mix with a high-speed power mixer. High-speed mixing tends to beat in air and reduce the strength of the mortar.
5. Working life in the bucket is approximately 2 - 3 hours.

Mixing as a cement additive:

Refer to the individual cement mortar (s) product manufacturer's instructions for recommended mixing ratios of latex and powder.

Tenon Conproco® Structural Skin:
1 quart / 50 lb. bag for curing.
2 quarts / 50 lb. bag for reinforced lath/fabric applications

Tenon Conproco Conpro® Stucco:
1 quart / 50 lb. bag

Tenon Conproco Plastermix:
1 quart / 50 lb. bag

Tenon Conproco One shot 2C:
1 gallon / 50 lb. bag

Note: When higher physical performance is required, the ratio of Bonding Additive may be increased to meet project requirements. Job site factors such as substrate, horizontal, or vertical application, weather conditions, etc. should be taken into consideration.

Application

Apply only to surfaces that are frost free and above 40°F (4°C) and above 100°F (38°C) within 24 hours of application and 72 hours thereafter, and when rain would not fall on the surface within 24 hours of application. Refer to the individual cement mortar (s) product manufacturer's instructions for specific application instructions.

Paint-on bonding agent:

- Apply undiluted in a uniform manner, like a coat of paint. Use a roller, brush, or spray with back rolling to achieve a uniform, continuous film over the entire surface at a rate of 200-350ft²/gal. The coverage rate will vary depending upon porosity of the substrate. Very porous concrete may require two coats.
- Bonding Additive should still be tacky when applying the topping. Do not allow the surface to become dry. If this happens, apply another coat of Bonding Additive.
- It is recommended that the surface be inspected to verify continuous film coverage before installation of the surface material.

Tile Setting Products:
Installation must conform to the current specifications in ANSI A108.5 and the TCNA Handbook for Ceramic Tile Installations.

- Select the proper trowel size: The proper trowel is one that will ensure the bond coat after the tile is embedded, shall be 3/32 in. (6.4 mm). The proper trowel should also result in a minimum of 80% coverage, 95% when used on exterior or in wet areas or with marble and natural stone.
- With pressure, apply a skim coat to the substrate with the flat edge of the trowel.
- Comb the mortar in one direction with the recommended notched trowel, only that part of the bed that can have tile put on it before skinning occurs. If skinning occurs, scrape and discard skinned mortar.
- Press tile into place and slide perpendicular to the ridges to ensure proper coverage.
- Tile may be adjusted for up to 15 minutes after placing it.
- Tile floor must be firmly set before grouting. This requires at least 16 - 24 hours.

Curing

Refrain from using curing/sealing compounds over patching materials for a minimum of 2 weeks. Areas in which tile is being set shall be closed to traffic and all other work. Light traffic is not permissible until 16-24 hours after completion, and heavy traffic not until seven days.

Clean Up

Use water to clean all tools immediately after use. Dried material must be mechanically removed.

LIMITATIONS & PRECAUTIONS

Limitations

- High relative humidity, excessive moisture and low temperatures will retard the curing of Tenon Bonding Additive.
- Do not use if the temperature is below 40°F (4°C) or above 100°F (38°C).
- Do not apply to a frozen or frosted surface or if the surface temperature will drop below 40°F (4°C) for the initial 72 hours.
- Use only with non-modified mixes, mortars, and grouts.
- Do not use air-entrained cement mixes or with air-entraining admixtures without testing first. Adjustment of air-entrainment may be required
- Do not over mix or aerate mixes.
- Use with proper ventilation.
- Shade and protect patch repairs in windy and/or dry hot weather.
- Do not use sensitive stones, resin backed tiles or cultured marble. Do not soak tile.
- Do not use over oriented strand board (OSB), hardwood flooring, metal, or any other dimensionally unstable substrate.
- Do not add latex or dry material after the tile setting mortar has slaked.
- Do not adjust tile mortar after its initial set.

- Do not allow material to freeze—once it freezes, it will not work properly upon thawing. Discard material that has frozen.
- Do not use on surfaces that have hydrostatic pressure.

Safety

READ THE SAFETY DATA SHEET (SDS) BEFORE USING THIS PRODUCT. SDS information is available on our website: tccmaterials.com

Cautions

Read complete cautionary information printed on product container prior to use.
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 Tenon brand product(s) under normal environmental and working conditions. Because each project is different, TCC Materials cannot be responsible for the consequences of variations in such conditions, or for unforeseen conditions.

STORAGE & HANDLING

Shelf Life

For best use, the recommended shelf life is 12 months. If shelf life is beyond 12 months, please contact your distributor.

Storage Conditions

Store in the original labeled container, away from moisture, out of direct sunlight. DO NOT STORE NEAR HEAT OR OPEN FLAME. Keep containers tightly sealed when not in use.

ADMINISTRATIVE INFORMATION

Product Availability & Technical Services

Business hours are 7:30 AM to 4:00 PM CST. To locate Tenon products in your area or contact Technical Services:
Phone: 651.688.9116
Email: info@tccmaterials.com

To acquire technical and safety literature, please visit our website at:
Web: tccmaterials.com

Warranty

Seller warrants that its product will conform to and perform in accordance with the product specifications. The foregoing warranty is in lieu of all other warranties, expressed or implied, including, but not limited to those concerning merchantability and fitness for a particular purpose.

Because of the difficulty in ascertaining and measuring damages hereunder, it is agreed that Seller's liability to the Buyer shall not exceed the total amount billed and billable to the Buyer for the product hereunder.

Filing System

Division 9

[1] Tenon® products can contribute to LEED® credits within the Material Resource, (Recycled Content & Regional Materials) and Indoor Environmental Quality (Low Emitting Materials).

TCC MATERIALS

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Data sheets are subject to change without notice. For the latest version, please check the product page at www.tccmaterials.com