



Rapid Strength Horizontal Repair

1. PRODUCT NAME

Tenon® Rapid Strength Horizontal Repair

2. MANUFACTURER

TCC Materials®

2025 Centre Pointe Blvd.
Mendota Heights, MN 55120 USA

Phone: 1.651.688.9116
Fax: 1.651.688.9164
Internet: tccmaterials.com

3. PRODUCT DESCRIPTION

Tenon® Rapid Strength Horizontal Repair is a high-strength, fast-setting, non-shrink patching material for commercial and industrial concrete horizontal surfaces, as well as concrete pavements and highway applications.

Features and Benefits

- Fast-setting patching material, initial set-time of 15 minutes
- Air-Entrained
- Applications from 1/2 in to 6 in.
- Excellent freeze/thaw and salt resistance properties
- High-strength, exceeds 4,000 psi in 3 hours
- Non-shrink formula, will not crack due to shrinkage
- Meets requirements of ASTM C928-R2 "Standard Specification for Packaged, Dry, Rapid-Hardening Cementitious Materials for Concrete Repairs" and its related standards
- Polymer Modified for increase adhesion and flexural strength.

Uses

- For use when downtime is critical
- When high early strength and fast-setting is required
- Patching concrete slabs
- Repair industrial concrete floors
- Concrete leveling and underlays

SAFETY

READ THE SAFETY DATA SHEET (SDS) BEFORE USING THIS PRODUCT. SDS information is available on our website: tccmaterials.com or contact TCC Materials® at 651-686-9116 (7:30 AM to 4:00 PM M-F, Central US Time).

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, neither Tenon® nor TCC Materials® can be responsible for the consequences of variations in such conditions, or for unforeseen conditions.

4. TECHNICAL DATA

Tests Performed	Tenon® Rapid Strength Horizontal Repair	ASTM C928-R2 Requirements	Typical Value when mixed with 3/8" minus aggregate
Slump (ASTM C1437)			
Percentage	155%	N/A	140%
Consistency after 5 min.	>100% @ 25 drops	100% min. @ 25 drops	4-6 inch slump
Set Time (ASTM C230)			
Initial (min)	:15	N/A	:17
Final (min)	:35	N/A	:37
Compressive Strength, psi (ASTM C109)			
3 hour	4,000	1,000 min.	3,450
24 hour	5,000	3,000 min.	4,300
7 day	5,500	4,000 min.	5,350
28 day	6,500	N/A	6,350
Tensile Strength, psi (ASTM C496)			
Average 28 day	550	N/A	470
Bond Strength, psi (ASTM C882)			
1 day	1,200	1,000	1,140
28 day	2,200	1,500	2,200
Flexural Strength, psi (ASTM C78)			
7 day	600	N/A	500
28 day	800	N/A	650

4. TECHNICAL DATA (cont.)

Tests Preformed	Tenon® Rapid Strength Horizontal Repair	ASTM C928-R2 Requirements
Length Change, % 28-day in water		
A	0.022	< 0.15
B	0.021	< 0.15
C	0.018	< 0.15
Average	0.020	< 0.15
Length Change, % 28-day in air		
A	-0.041	> -0.15
B	-0.039	> -0.15
C	-0.041	> -0.15
Average	-0.040	> -0.15

Note: Independent test results obtained under controlled laboratory conditions at 73°F (22.7°C) and 50% relative humidity.

LEED® Eligibility¹

- Regional Materials (MR-c4, MR-c5)

Packaging

Gray: 50 lb. (22.7 kg) bag (BOM #126173)

Gray: 50 lb. (22.7 kg) pail (BOM # 126176)

Shelf Life

12 months from the date of manufacture when stored in the original, unopened container, away from moisture, under cool, dry conditions and out of direct sunlight.

5. INSTALLATION

Preparation

All materials should be conditioned to 40°-75°F (4°-24°C) 24 hours prior to installation. Proper surface repair preparation is crucial to achieving a successful application.

1. Roughen surface and remove all unsound concrete. Clean area and remove grease, oil, paint, and any other foreign materials that will inhibit performance.
2. All concrete surfaces must be fully cured, structurally sound, and non-flexing.
3. The surface should be saturated with water, Surface Saturate Dry (SSD) with no puddling of water, prior to placement.
4. For repairs deeper than 1 in. (2.5 cm) make a vertical cut around the perimeter of the repair making a minimum width of repair at 2 in. (5 cm). Prepare as described in above steps.

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

Refer to:

- ACI 546 [Concrete Repair Guide](#)
- ICRI Technical Guideline Number 03730 [Guide for Surface Preparation for the Repair of Deteriorated Concrete from Reinforced Steel Corrosion](#)

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

Mix only the amount of material that can be placed within the 13-15 minute initial set-time.

Add between 3-4 qt. (2.8-3.8 L) clean, potable water to a portable mixer. Do not exceed 4.0 qt. (3.8 L)

1. In a clean container, with clean tools, mix with cool water only, no bonding additive is needed. Place ¾ of the desired mixing water, start mixer, then slowly add the dry material. After all of the powder has been added, slowly add the remaining ¼ water until the desired consistency is achieved. The mix consistency should be determined by the project application. Vertical and overhead applications require a firm, plastic, trowelable consistency, while grouting and anchoring a more flowable consistency.
2. Mix to a uniform, lump-free consistency, typically 1-3 minutes. If additional water is needed for your application, add in small doses. Material becomes stiff in approximately 10-15 minutes, so mix only what you plan on using in this time period.

Application

Ideal application conditions are when air, material, and substrate temperatures are between 45°F-90°F (7°C-32°C) within 24 hours of application and placement, and rain is not forecast 24 hours after. Set times will vary in extremely hot or cold conditions. Do not apply over concrete cured less than 28 days or surfaces that are frozen or contain frost.

1. Apply from ½ in. minimum to 6 in. maximum thickness (1.3 -15 cm). When used as an overlay, a test area or mock-up is recommended to evaluate suitability for the application.
2. Shovel or place mixture immediately into pre-dampened prepared area. For flat work, do not install in layers, instead place full-depth sections and progress horizontally.
3. Once the mixture has been compacted and spread to completely fill forms or patch, strike off with a straight board or screed, moving the edge back and forth with a

saw-like motion. Use a darby or bull float to level any ridges and fill voids left by the screed.

- Do not wait for bleed water, apply final finish as soon as possible using trowel, float, and/or broom finish.
- Mortar shall be used and placed in final position within 35 minutes after initial mixing or discarded at that time.
- Can typically be open to foot traffic in 4-6 hours, wheeled traffic in 12 hours at average temperatures of 70°F (21°C).
- Cold weather conditions below 45°F (7.2°C) can extend the set time of the product. Heating of the concrete repair area before and after placement and using warm water for mixing may assist in increasing the rate of strength gain. In warm weather conditions, materials and concrete surfaces that are hot may reduce the working time of the product. Keeping water and material cool will assist in maintaining open time of the product

Curing

Water cure Tenon® Rapid Strength Horizontal Repair installations by keeping the exposed surfaces wet with a light mist of water for a minimum of 1 hour after application. This allows the product to reach sufficient strength. Begin curing as soon as the surface begins to loose the moist sheen. Under hot and windy conditions, all concrete tends to lose moisture unevenly and may develop plastic shrinkage cracks. Protect from freezing for a minimum of 48 hours. The fast-setting technology used in this product reduces the waiting time for application of paints or coatings. Water-based coatings and latex paints can typically be applied in 1-4 hours when conditions are dry. Allow a minimum of 16 hours drying for solvent based coatings such as oil based paint and epoxy coatings.

Cleaning

Use clean potable water to clean all tools immediately after use. Dried material must be mechanically removed. Use a waste water hardener (e.g. Conglez™ or similar product) for cementitious waste disposal.

Limitations

- Shade and protect patch in windy and/or hot weather conditions.
- During weather warm conditions, keeping mixing water and material cool should assist in maintaining open time of the product. During cold weather conditions, the use of warm mixing water and warming surfaces should accelerate set times.
- Do not over-work, over-water, retemper or overmix.
- Do not apply to surfaces that are frozen or contain frost.
- Do not use product when ambient air temperature is below 40°F (4°C) or if it is expected to drop below 40°F (4°C) within 24 hours of placement.
- Do not bridge expansion joints, control joints, or cold joints.
- Clean trowel frequently during application
- Tenor® Rapid Strength Horizontal Repair should be installed in accordance with local building code provision and all applicable ASTM standards.

Coverage

50 lb. (22.7 kg) bag yields:
Neat = 0.50 cu. ft. (14.5 L)

6. AVAILABILITY

To locate Tenon® products in your area, please contact:

Phone: 1.651.688.9116
Email: info@tccmaterials.com

7. 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.

8. MAINTENANCE

Not applicable.

9. TECHNICAL SERVICES

Technical Assistance:
Information is available by calling TCC Materials®
(hours 7:30 AM to 4:00 PM CST):
Phone: 1.651.688.9116
Email: info@tccmaterials.com
Web: tccmaterials.com

Technical and Safety Literature:

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

10. FILING SYSTEM

Division 3

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



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