

1. PRODUCT NAME

Tenon[®] Rapid Patch 100

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 Patch 100 is a fast-setting, fiber-reinforced, high strength, cement-based repair mortar designed for applications where high early strength gain is needed to reduce down time.

Features and Benefits

- Ideal for DOT horizontal concrete repairs*
- Fast-setting– final set in approximately 45 minutes
- Interior/Exterior
- High early strength – over 2000 psi (14 MPa) in one hour allows repairs to be opened to traffic within 60 minutes
- Wide temperature range – from 20°F to 100°F (–6°C to 38°C)
- Apply ½ in. to 2 in. (13–51 mm)
- Can be extended up to 60% by weight for repairs greater than 2 in. (51 mm) deep
- High performance cement technology and alkali resistant fibers help improve impact, flexural and tensile strengths
- Cement based, non-corrosive – not a chemical concrete
- Contains corrosion inhibitor
- Contains no chlorides or magnesium phosphates
- Compatible with portland cement formulated concrete
- Meets ASTM C 928, Standard Specification for Packaged, Dry, Very Rapid, Hardening Cementitious Materials for Concrete Repair

* Call for TCC Materials Technical Services for state DOT approvals

Uses

Concrete repair mortar designed to repair heavy duty surfaces such as:

- Highway repairs and overlays
- Bridge decks and parking structures
- Airport runways
- Freezer rooms
- Heavy industrial and warehouse repairs
- Loading docks and wastewater treatment facilities

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 651–688–9116 (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

Typical Values • Rapid Patch 100 Neat			
Set Time (vicat) – ASTM C 191			
Initial Set	37 minutes		
Final Set	46 minutes		
Flow – ASTM C 1437	128		
Compressive Strength – ASTM C109			
	45°F	73°F	95°F
3 hours	2,980 psi (20.5 MPa)	4,830 psi (33.3 MPa)	4,720 psi (32.5 MPa)
1 day	8,250 psi (56.9 MPa)	6,750 psi (46.5 MPa)	6,890 psi (47.5 MPa)
7 days	10,390 psi (71.6 MPa)	8,330 psi (57.4 MPa)	8,860 psi (61.1 MPa)
28 days	10,810 psi (74.5 MPa)	9,270 psi (63.9 MPa)	9,930 psi (68.5 MPa)
Length Change (%) ASTM C157	1 in. Prism	3 ft. Prism	
Air Cured (28 d)	–0.067	–0.044	
Water Cured (28 d)	0.027	0.020	
Shear Bond Strength – ASTM C882			
1 day	1,500 psi (10.3 MPa)		
7 days	1,830 psi (12.6 MPa)		
28 days	2,000 psi (13.8 MPa)		

4. TECHNICAL DATA (Cont.)

Typical Values • Rapid Patch 100 Neat (Cont.)		
Salt Scaling (25 cycles) ASTM C 672	0 Scaling	
Freeze/Thaw Resistance (300 cycles) – ASTM C 666 (B)	F/T Durability	% weight loss
	RDM – 92%	0.4%
Freeze/Thaw Durability (50 cycles) NY 502–3P	0% Loss	
Absorption (28 d) – ASTM C 140	9.0%	
Chloride Content – ASTM C 1218	0.004% wt	
Flexural Strength – ASTM C 78	470 psi (3.2 MPa)	
Chloride Penetrability (28 d) – ASTM C1202	2,750 Coulombs	
Splitting Tensile Strength (28 d) – ASTM C 496	550 psi (3.8 MPa)	
Modules of Elasticity (28 d) – ASTM C 469	4.06 x 10 ⁶ psi	
Coefficient of Thermal Expansion (28d) ASTM C 531	5.9 x 10 ⁻⁶ in/in/°F	

Note: Test results obtained under controlled laboratory conditions at 73°F (22.7°C) and 50% relative humidity. Tested using 2.5 qt. (2.4 L) water per 50 lb. (22.7 kg) powder. Reasonable variations can be expected due to atmospheric and job site conditions.
Greater than: > Greater than or equal to: ≥ Less than: < Less than or equal to: ≤

Typical Values • Rapid Patch 100 Extended 50% with 3/8" Coarse Aggregate	
Slump	3.5 in.
Compressive Strength – ASTM C 39	
1 hr	2,770 psi (19.1 MPa)
3 hr	3,540 psi (24.4 MPa)
1 days	4,570 psi (31.5 MPa)
7 days	5,550 psi (38.3 MPa)
Flexural Strength (4 hr) ASTM C78	700 psi (4.8 MPa)
Shear Bond Strength (1d) ASTM C882	1,580 psi (10.9 MPa)

Note: Test results obtained under controlled laboratory conditions at 73°F (22.7°C) and 50% relative humidity. Tested using 5.17 qt. (4.9 L) water per 150 lb. (68.1 kg) powder [100 lb. (45.4 kg) Rapid Patch 100 + 50 lb. (22.7 kg) coarse aggregate.] Reasonable variations can be expected due to atmospheric and job site conditions.
Greater than: > Greater than or equal to: ≥ Less than: < Less than or equal to: ≤

Packaging

Gray 50 lb. (22.7 kg.) bag (BOM #120970)

Shelf Life

Best when used 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°F–80°F (4°C–27°C) 24 hours prior to installation.

- Surfaces must be solid, clean, free of all bond breakers such as oil, grease, dirt etc. Weak concrete surfaces must be cleaned down to solid sound concrete by mechanical means.
- The base concrete should be roughened to enhance mechanical bond and repair areas should be in a saturated surface dry (SSD) condition with all standing water removed. Using a stiff broom or brush apply a bond scrub coat of thinly mixed Rapid Patch 100 to the adjacent surfaces.
- Do not let this bond coat dry, before covering it with Rapid Patch 100. A minimum patch repair depth of 1/2 in. (13 mm) is required. This is best accomplished by saw cutting the patch area perimeter to the minimum 1/2 in. (13 mm) depth.

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

Mix as close to the area being repaired as possible.

1. Rapid Patch 100 requires only the addition of water. Use 2.5 qt (2.4 L) per 50 lb (22.7 kg). Place the potable water into the mixing container and then while mixing add the repair material. Addition of cold water at high temperatures or warm water at low temperatures will aid in adjusting the mix temperature.
2. The Rapid Patch 100 can be mixed in a mortar mixer or by using a paddle attached to a heavy duty 1/2" drill (650 rpm). Mix no more than can be placed in 30 minutes.
3. Mix for 2 – 3 minutes to a lump free consistency. Do not retemper or overwater.
4. Place immediately after mixing, working Rapid Patch 100 firmly into the sides and bottom eliminating air pockets and ensuring bond. This is best done working from one side of the cavity to the other and then screeding toward the adjoining concrete.
5. For repairs deeper than 2 in. (5 cm), Rapid Patch 100 can be extended 60% by weight using clean 3/8 in. (10 mm) dry pea gravel. Mix the Rapid Patch 100 as outlined and then during the last minute of mixing (after 2 minutes) add the pea gravel, blend for 1 additional minute and place.

Application

Ideal application conditions are when air, material and substrate temperatures are between 40°F–80°F (4°C–27°C) within 24 hours of application and when rain is not expected within 12 hours.

Hot and Cold Weather Applications:

Ideal mixed product temperature at placement is 65° – 70°F (18° – 21°C), where the initial setting time is 20 – 30 minutes. Hot temperatures will shorten setting time, while cold temperatures will extend setting time.

Hot Weather 80°F to 100°F (27°C to 38°C):

Keep Rapid Patch 100 cool. Pre-soak and then remove standing water from the repair area, resulting in a saturated surface dry (SSD) surface. Mix Rapid Patch 100 using ice water to extend working time. The repair must be protected from rapid dry out with wet burlap or a water-based curing compound.

Cold Weather 20°F to 40°F (–7°C to 4°C):

Do not use antifreeze or accelerators and keep Rapid Patch 100 warm. Heat the surrounding concrete until warm. Combine the warmed repair material with warm mixing water. After placing use a construction insulating blanket for at least 2– 3 hours and keep material from freezing.

Refer to:

ACI 305 [Standard on Hot Weather Concreting](#)
ACI 306 [Standard on Cold Weather Concreting](#)

Curing

Rapid Patch 100 should be moist cured for 1 hour after final set (approximately 20 minutes) or the application of a water based curing compound is acceptable. Prolonged wet curing minimizes the chances of cracking and improves physical properties. Full cure is reached after 28 days.

Refer to;

- ACI 308 [Standard Practice for Curing Concrete Wet Cure](#)
- ACI 308R [Guide to Curing Concrete](#)

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

- Do not mix more than can be placed in 30 minutes.
- Do not use for applications less than 1/2 in. (13 mm) thick.
- Do not retemper after mixing.
- Do not overwater or add other cements or additives.
- Protect from premature drying.
- Install in accordance with local building codes and applicable ASTM standards.
- Mixing time and water amounts should be consistent from batch to batch.

Coverage

- 50 lb. (22.7 kg) bag yields approximately 0.4 cu. ft. (0.01 m³)
- 50 lb (22.7 kg) extended with 30 lb. (13.6 kg) of 3/8 in. (10 mm) pea gravel yields approximately 0.7 cu. ft. (0.02 m³).

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, M–F, 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



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