

1. PRODUCT NAME

Tenon[®] Fast-Set Liquid Activator

2. MANUFACTURER

Bluestone Products[™], a TCC Materials[®] company
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[®] Fast-Set Liquid Activator is formulated specifically to be used in conjunction with Tenon[®] Air-Entrained Concrete Patching Mix AE in order to establish a quicker set and develop strength rapidly. When used with the patching mix, Fast-Set Liquid Activator reduces the closure time of high-traffic areas from 24 hours to 4-5 hours under normal conditions. Tenon[®] Fast-Set Liquid Activator may also be used with Tenon[®] Construction Grout in cold weather conditions to ensure strength gain even in temps as low as 35 degrees.

Features and Benefits

- Easy to use
- No additional mix water required
- Rapid strength gain
- Cold weather accelerator
- Extremely durable material
- Reduces closure time of high-traffic areas
- Non-chloride, non-corrosive
- Meets ASTM C494 *Standard Specification for Chemical Admixtures for Concrete*

Uses

Use with Tenon[®] Air-Entrained Concrete Patching Mix AE for:

- High-traffic concrete pavements
- Parking structures
- Bridge deck repair
- Industrial floors
- New slab construction, formed concrete work where reduced closure time is essential

Use with Tenon[®] Construction Grout in cold weather for all non-shrink grout applications

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

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.

Typical Results of Tenon [®] Air-Entrained Concrete Patching Mix AE with Tenon [®] Fast-Set Liquid Activator	
Compressive Strength, psi (ASTM C39)	
3 hours	1,800 psi (12.41 MPa)
4 hours	3,300 psi (22.75 MPa)
5 hours	5,000 psi (34.47 MPa)
6 hours	6,100 psi (42.06 MPa)
24 hours	9,500 psi (65.5 MPa)

Typical Results of Tenon [®] Construction Grout with Tenon [®] Fast-Set Liquid Activator		
Compressive Strength, psi (ASTM C109)		
	35 deg F mix temp	50 deg F mix temp
Pot life	20-25 min	20-25 min
24 hr	>500 psi (3.45 MPa)	>4,000 psi (27.58 MPa)
3 days	>3,000 psi (20.68 MPa)	>7,000 psi (48.26 MPa)
7 days	>6,000 psi (41.37 MPa)	>9,000 psi (62.05 MPa)
28 days	>10,000 psi (68.95 MPa)	>10,000 psi (68.95 MPa)

LEED® Eligibility¹

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

Packaging

- 1 gal. (3.78 L) bottle (BOM #120593)
- 5 gal. (18.9 L) pail (BOM #120770)

Shelf Life

12 months from the date of manufacture when stored in the original, unopened container, away from moisture, under cool, dry conditions, protected from freezing, and out of direct sunlight. Store dry at 40°F-95°F (4°C-35°C).

5. INSTALLATION

Preparation

- Surface must be clean, dry, hard, and free from dirt, loose particles, oil, wax, sealers, curing compounds, acids, grease, paint, and any foreign materials that will inhibit adhesion.
- All surfaces must be structurally sound and non-flexing. Existing concrete surfaces should be free of hydrostatic pressures, and efflorescence.

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 (Air-Entrained Concrete Mix)

1. Place the desired number of bags of Air-Entrained Concrete Patching Mix AE into a rotary drum concrete mixer.
2. For every 100 lbs. of dry material (two 50 lb./22.7 kg bags) add 1 gal. (3.8 L) bottle of Fast-Set Liquid Activator.
3. Mix for 4-5 minutes.
4. On initial mixing the concrete may appear very dry. DO NOT ADD ADDITIONAL MIX WATER. Admixtures in the concrete take some time to activate.
5. After mixing for 4-5 minutes, place the concrete as quickly as is practical. Working time is shortened due to the rapid setting and hardening characteristics of the mixture.
6. The designed slump is approximately 4-6". The targeted air content is 6.5% (±1.5%). Do not add additional additives.

Application (Air-Entrained Concrete Mix)

Ideal application conditions are when air, material, and substrate temperatures are between 40°F-80°F (4°C-26°C) within 24 hours of application and 72 hours thereafter.

- Shovel or place mixture immediately into pre-dampened or slurry coated prepared area. A mechanical vibrator is recommended to help with consolidation. Due to the accelerated working time, place and finish concrete as quickly as possible.
- Follow application and finishing instructions for Tenon® Air-Entrained Concrete Patching Mix AE.

Curing (Air-Entrained Concrete Mix)

After placement, follow industry practices for curing concrete.

Cleaning (Air-Entrained Concrete Mix)

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 (Air-Entrained Concrete Mix)

- Do not add additional additives.
- Shade and protect patch repairs in windy and/or dry hot weather.

Coverage (Air Entrained Concrete Patch)

Each 1 gal. (3.8 L) bottle of Tenon® Fast-Set Liquid Activator treats two 50 lb. (22.7 kg) bags of Tenon® Air-Entrained Concrete Patching Mix AE.

Mixing (Construction Grout)

Liquid Requirements

For flowable grout consistency (per ASTM C1107), add 2/3 gallon (2.5L) of Tenon® Fast-Set Liquid Activator per 50 lb. bag (22.7 kg). For plastic consistency, use less liquid, for fluid consistency, use more.

1. Place ¾ of the desired mixing liquid, 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. Avoid adding excessive amounts of liquid that promotes segregation or bleeding of the grout. Do not add more liquid than the amount needed to produce a 20 second flow per Test Method ASTM C939
2. Mix mechanically with a high torque electric drill, not to exceed 600 rpm, with a paddle type mixing blade, or an appropriately sized mortar mixer. Do not hand-mix.
3. Mix for 3-5 minutes to ensure a uniform lump free consistency and place immediately.
4. Mix no more than can be placed in 15 minutes. Use a mixer large enough to permit continuous placement before any part of the grout has set.
5. Do not retemper once mixed.

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Application (Construction Grout)

Accelerated grout can be placed when air and substrate temperatures are at least 35°F. Material will cure better if protected from air and precipitation. Cover with insulated blanket recommended.

Shut down nearby machinery prior to and during placement. Avoid vibration for 24 hours after placement.

- Pour and place grout from one side of form to eliminate air voids. Agitate material as necessary within its working time to maintain workability. Provide vent holes where necessary. A vibrator, rod, chain, or trowel may be used to assist in consolidating the grout and eliminating air voids. Confine grout to ensure minimum surface exposure. After placement, immediately trim the surfaces and edges with a trowel. Forms may be removed after grout has hardened to initial set.
- Minimum application thickness is ½ in. (13 mm); maximum is 4 in. (100 mm).

Note: For installation where acids and sulfates are present, a protective coating is required. Protect uncoated aluminum from direct contact with Portland-cement based materials.

Jobsite Testing (Construction Grout)

Jobsite strength tests must use ASTM C-1107

specifications 2 in. (51 mm) metal cube molds with cap plates. DO NOT use cylinder molds or plastic cube molds. Control testing based on achieving the desired flow rather than water content.

Curing (Construction Grout)

Damp cure a minimum of 3 days required to control the non-shrink qualities and maintain strength levels. If temperatures are expected to drop below freezing during the first 3 days, thermal insulation blankets or plastic sheeting should be used. 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 (Construction Grout)

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 (Construction Grout)

- Do not mix more grout than can be placed in 20 minutes.
- Do not apply in applications thicknesses <½ in. (13 mm), or greater than 4 in. (100 mm).
- Do not overwater, retemper, or mix with other additives except as detailed in this data sheet.
- Do use in applications of high dynamic loading.
- Install in accordance with local building codes and applicable ASTM standards.
- Do not allow Portland cement-based materials to come in direct contact with uncoated aluminum.
- Do not use as a floor topping or in large areas with an exposed shoulder around base plates.
- Do not add accelerators, retarders, plasticizer, or other additives.
- Mixing time and water amounts should be consistent from batch to batch.
- Grout should be cured for a minimum of 28 days.

Coverage (Construction Grout)

50 lb. (22.7 kg) bag yields approximately 0.45 cu. ft. (12.7 L) at a flowable consistency.

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

¹Tenon® 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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