Construction Grout

1. PRODUCT NAME
Tenon® Construction Grout

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® Construction Grout is a general purpose structural grout for setting columns, anchoring bolts, forming equipment bases, precast wall panels, anchoring rebar, and more. This high–performance, non–shrink, pumpable formula is ideal for heavy–duty applications. Construction grout may also be used in cold weather when used with Tenon® Fast–Set Liquid Activator.

Features and Benefits
- Interior/Exterior
- Pumpable
- Non–shrink
- Non–corrosive, non–metallic formula
- Meets Corps of Engineers Specification CRD–C 621
- Meets ASTM C–1107

Uses
For structural grouting and general purpose structural grouting:
- Above and below grade
- Anchoring bolts
- Equipment bases
- Precast wall panels
- Compressors, generators, and pumps
- Steel bearing plates
- Structural columns
- Anchoring rebar

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
Greater than: > Greater than or equal to: ≥ Less than: < Less than or equal to: ≤
Note: Test results obtained under controlled laboratory conditions at 73°F (22.7°C) and 50% relative humidity.

Typical Values • Construction Grout			
	Plastic	Flowable	Fluid
Mixing Water per 50 lb. (22.7 kg)	7.25 pt. (3.4 L)	8.25 pt. (3.9 L)	9.25 pt. (4.4 L)
Consistency of Flow	110%	130%	25 sec.
Working Time (73°F)	15 min	25 min	>1 hr
Working Time (45°F)	45 min	70 min	>1 hr
Compressive Strength ASTM C109 Standard Test Methods for Com–pressive Strength of Hydraulic Cement Mortars			
24 hours	3,450 psi (23.8 MPa)	2,450 psi (16.9 MPa)	1,750 psi (12.1 MPa)
3 days	5,600 psi (38.6 MPa)	5,100 psi (35.2 MPa)	4,100 psi (28.3 MPa)
7 days	8,200 psi (56.5 MPa)	7,000 psi (48.3 MPa)	6,200 psi (42.7 MPa)
28 days	10,500 psi (72.4 MPa)	8,500 psi (58.6 MPa)	8,200 psi (56.5 MPa)
Height Change, ASTM C827			
Average Height Change at Final Set	0.45%	0.85%	1.1%

LEED® Eligibility[1]

• Regional Materials (MR–c4, MR–c5)

Packaging

50 lb. (22.7 kg.) bag (BOM #120720)

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°F–75°F (4°C–24°C) 24 hours prior to installation. Proper surface repair preparation is crucial to achieving a successful application. For cold weather grouting, Tenon® Fast–Set Liquid Activator is recommended. Refer to Fast–Set Liquid Activator technical data sheet.

1. All surfaces must be structurally sound and non–flexing.
2. Clean area and remove all unsound concrete, grease, oil, paint, and any other foreign materials to ensure proper performance.
3. Smooth surfaces should be mechanically abraded to open pores.
4. Areas to receive grout should be flushed with clean water to saturate. Remove all standing water prior to grouting.
5. Form designs should be tailored to the grout type, consistency, application method, and to ensure continuous placement can be efficiently achieved. Ensure forms have air relief holes, as needed.
6. Tenon® FormGuard is recommended for treating forming surfaces prior to placing grout. Refer to FormGuard technical data sheet for more information.

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

Refer to:

- ACI 351.R–99 Report on Grouting Between Foundations and Bases for Support Equipment and Machinery
- ACI 351.2R Foundations for Static Equipment
- ACI 306R Cold Weather Concreting
- ACI 305R Hot Weather Concreting

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 in 15 minutes at 70°F (21°C). Do not mix with other additives, with the exception of Tenon® Fast–Set Liquid Activator (see PREPARATION).

1. Use a mixer large enough to permit continuous placement before any part of the grout has set.
2. Only mix with clean, potable water according to the quantities below. More or less water may be required to achieve a 25–30 second flow or the desired mixing consistency depending on the conditions. Do not exceed 9¼ pt. (4.4 L) water.
   - For PLASTIC grout consistency use 7¼ pt. (3.4 L) of water per 50 lb. bag (22.7 kg).
   - For FLOWABLE grout consistency use 8 ¼ pt. (3.9 L) of water per 50 lb. bag (22.7 kg).
   - For FLUID grout consistency use 9¼ pt. (4.4 L) of water per 50 lb. bag (22.7 kg).
3. Place ¾ of the desired mixing water in the mixer, start mixer, and slowly add the grout mix.
4. After all the mix has been added, slowly add remaining ¼ water until the desired consistency is achieved.
5. Do not add more water than the amount needed to produce a 20 second flow per Test Method ASTM C939.
6. Mix for 3–5 minutes to ensure a lump–free consistency and place immediately. Do not retemper once mixed.

Application

Apply only when air and substrate temperatures are between 50°F–90°F (10°C–32°C) within 24 hours of application and placement, and when rain is not forecast 12 hours after. Shut down nearby machinery prior to and during placement. Avoid exposure to vibration for 24 hours after placement. Minimum application thickness is ½ in. (13mm). Maximum thickness is 4 in. (100mm).

1. Pour and place grout from one side of the form to eliminate air voids.
2. Agitate material as necessary within its working time to maintain workability.
3. Provide vent holes where necessary. A vibrator, rod, chain, or trowel may be used to assist in consolidating the grout and eliminating air voids.
4. Confine grout to ensure minimum surface exposure.
5. After placement, immediately trim the surfaces and edges with a trowel.
6. Forms may be removed after grout has hardened to initial set.

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

Jobsite strength tests must use ASTM C–1107 specifications 2 in. (51 mm) metal cube molds. DO NOT use cylinder molds or plastic cube molds. Control testing based on achieving the desired flow rather than water content.

Curing

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

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 grout than can be placed in 15 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.
- 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

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 mer–chantability 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

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

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REV 08/24