

# DMS-4670

## Grouts for Post-Tensioning

Effective Date: **June 2023**



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### 1. DESCRIPTION

This Specification governs the pre-qualification procedure, packaging, and material properties of thixotropic grouts for post-tensioning.

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### 2. UNITS OF MEASUREMENTS

The values given in parentheses (if provided) are not standard and may not be exact mathematical conversions. Use each system of units separately. Combining values from the two systems may result in non-conformance with the Standard.

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### 3. MATERIAL PRODUCER LIST

The Rigid Pavements and Concrete Materials Section of the Materials and Tests Division (MTD) maintains the Material Producer List (MPL) of all materials conforming to the requirements of this Specification. Materials appearing on the MPL, entitled "[Grouts for Post-Tensioning](#)," require no further sampling and testing before use, unless deemed necessary by the Project Engineer or MTD.

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### 4. BIDDERS' AND SUPPLIERS' REQUIREMENTS

The Department will only purchase or allow on projects those products listed by producer and product code or designation shown on the MPL.

Use of pre-qualified product does not relieve the Contractor of the responsibility to provide product that meets this Specification. The Department may inspect or test material at any time and reject any material that does not meet the specifications.

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### 5. PRE-QUALIFICATION PROCEDURE

- 5.1. **Pre-Qualification Request.** Submit a **written** request **on company letterhead** for evaluation under DMS-4670 to [DMS\\_Prequal@txdot.gov](mailto:DMS_Prequal@txdot.gov).

Include the following information in the request:

- company name;
- physical and mailing addresses;
- contact person, phone number, and email address;
- independent laboratory test report from a laboratory audited and inspected by the Cement and Concrete Reference Laboratory containing test results and certifying compliance of the post-tensioning grout with this Specification. **Test reports older than one yr. must be accompanied by a notarized certification stating that there has been no alteration of the product since originally submitted for testing;**
- technical data sheets typically accompanying product with printed instructions for proportioning, mixing, and shelf life; and
- **list of all possible package types and available sizes.**

- 5.2. **Pre-Qualification Sample.** After reviewing the pre-qualification request, MTD will request a **sample of adequate size** to complete testing. Ship samples with packaging representative of that supplied to the field to the Texas Department of Transportation, MTD – Concrete Lab, Laboratory Building, 6230 E. Stassney Ln, Austin, TX 78744.

Include the following with the sample:

- current safety data sheet (SDS) that complies with OSHA Hazard Communication Standard 29 CFR 1910.1200, and
- lot number for the submitted sample.

Submit all materials for pre-qualification at no cost to the Department.

- 5.3. **Evaluation.** MTD will **test for conformance to this Specification and** notify prospective bidders and suppliers after completion of material evaluation.

- 5.3.1. **Qualification.** If approved for Department use, MTD will add the material to the MPL.

Report changes in the composition or in the manufacturing process of any material to MTD. Significant changes reported by the producer, as determined by MTD, may require a re-evaluation of performance. The Department reserves the right to conduct whatever tests it deems necessary to identify a pre-qualified material and determine if there is a change in the composition, manufacturing process, or quality that may affect its durability or performance. In case of variance, the Department's tests will govern.

- 5.3.2. **Failure.** Producers not qualified under this Specification may not furnish materials for use on Department projects.

Producers failing to qualify may submit a request for re-evaluation after 12 mo. have elapsed from the date of the original request. MTD may modify this time limit at its discretion. In the request for re-evaluation, document the cause of the issue and corrective action taken.

The Department normally bears the costs of sampling and testing; however, the producer will bear the costs associated with materials failing to conform to the requirements of this Specification **and any re-evaluation testing**. MTD will assess this cost at the time of testing and amounts due will be billed to the producer.

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## 6. **QUALITY ASSURANCE**

The Department reserves the right to conduct random sampling and testing of pre-qualified materials to verify performance and Specification compliance and to perform random audits of documentation. Department representatives may sample material from the manufacturing plant, the project site, project storage, and the warehouse. **The Department may also request samples for evaluation at any time from the producer.**

- 6.1. **Periodic Evaluation.** The Department reserves the right to conduct periodic evaluations on pre-qualified products. Pre-qualified products must meet the requirements of Article 8, "Material Requirements," to maintain pre-qualified status. The Department reserves the right to conduct any or all tests listed in Article 8 during a periodic evaluation.

- 6.2. **Failure.** Failure of materials to comply with the requirements of this Specification as a result of periodic evaluation may be cause for removal of those materials from the MPL. In case of variance, the Department's tests will govern.

- 6.3. **Disqualification.** Causes for disqualification and removal from the MPL may include, but are not limited to:

- falsification of documentation,
- producer fails to report any change in material composition or manufacturing process to MTD,
- material fails to meet the requirements of this Specification as a result of periodic evaluation, or

- Producer does not provide the Department with samples for periodic evaluations when requested
- a history of documented field performance issues such as “soft grout,” segregation, and/or low compressive strength, or
- producer has unpaid charges for failing samples.

MTD will remove disqualified producers from the MPL and will not allow submission of material for re-qualification for up to 12 mo., at the discretion of the Department.

6.4. **Re-Qualification.** Once the disqualification period established by MTD has elapsed, producers disqualified and removed from the MPL may begin the re-qualification process by submitting a request in accordance with Section 5.1., “Pre-Qualification Request,” including additional documentation identifying the cause of the problem and corrective action taken. The re-qualification process will then follow all subsequent Sections of Article 5, Pre-Qualification Procedure.”

The Department normally bears the costs of sampling and testing; however, the disqualified producer will bear the costs associated with re-qualification. MTD will assess this cost at the time of re-qualification and amounts due will be billed to the producer.

## 7. PACKAGING REQUIREMENTS

7.1. **Bags.** Prepackage grout in plastic lined or coated bags.

7.2. **Labeling.** Grout bags must indicate the following:

- brand name,
- date of manufacture,
- lot number, and
- mixing instructions.

## 8. MATERIAL REQUIREMENTS

8.1. **General.** No grout may contain:

- aluminum powder,
- gas generating components that produce hydrogen gas, carbon dioxide, or oxygen, or
- admixtures containing chlorides.

Post-tensioning grout must meet the material requirements stated in Table 1.

**Table 1**  
**Material Requirements of Post-Tensioning Grout**

Property	Requirement	Test Method
Total Chloride Ions, %, Max	0.03 <sup>1</sup>	ASTM C114
Percent Passing No. 50 Sieve, %	100	Tex-401-A
Fluidity (a) Immediately after mixing, sec. (b) 30 min. after mixing with 30-sec. remix, sec.	Min 5, Max 20 Max 30	Tex-437-A, Method 2
Wick Bleed, %, Max	0.0 at 3 hr.	Tex-441-A
Pressure Bleed, %, Max	0 at 100 psi	ASTM C1741
Setting Time (a) Initial Set, hr., Min (b) Final Set, hr., Max	3 12	ASTM C953
Compressive Strength, psi, Min	3,000 at 7 days 5,000 at 28 days	Tex-442-A (2" cubes)
Volume Change, % expansion	0.0 to 0.20 at 24 hr. and 28 days	ASTM C1090
Permeability at 28 days Chloride Ion Permeability, Coulombs, Max or Bulk Resistivity, kΩ-cm, Min	2,500 at 30V for 6 hr. or 10.4	ASTM C1202 or ASTM C1876

1. By weight of powdered material

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**9. ARCHIVED VERSIONS**

Archived versions are available.