

Standard Guidelines for Product Review  
**Tendon Grout; Section 02080.50**  
January 13, 2010

## **02080.50 – Tendon Grout**

ODOT keeps a list of pre-packaged thixotropic grouts for use in filling post-tension ducts, on the Qualified Products List (QPL). This grout shall consist of Type I or II portland cement, potable water, mineral additives, and other specified admixtures. There shall not be deliberate addition of chlorides to the grout. The grout shall be resistant to washout of cement, and have good flow characteristics and thixotropic properties.

### **Specifications:**

- A. This grout shall be a Class C grout, as defined by Post-Tensioning Institute (PTI).
  
- B. Grout Strength:
  - ASTM C942 - Compressive Strength minimum 3000 psi (21 MPa) in 7 days.
  - ASTM C942 - Compressive Strength minimum 5000 psi (35 MPa) in 28 days.
  
- C. Permeability:
  - ASTM C1202 - Permeability (as modified by PTI) less than 2500 coulombs after 6 hours using 30 volts on 28 day old grout.
  
- D. Volume Change :
  - ASTM C1090 – The vertical height change shall be at least 0.0%, but less than +0.1% at 24 hours.
  - ASTM C1090 – The maximum vertical height change shall be no greater than +0.2% at 28 days.
  
- E. Pumpability and Fluidity Tests:
  - 1. The efflux time for the grout immediately after mixing shall be between 5 and 30 seconds for a 1 liter discharge. This shall be measured using the modified version of ASTM C939 and a flow cone as described in the PTI Specification for Grouting of Post-Tensioned Structures by (Section 4.4.5.2).
  - 2. After the first test described above, let the sample stand for 30 minutes without further agitation and test again, remixing for 30 seconds prior to final flow measurement. The efflux time now shall not be more than 30 seconds and must be a value to completely discharge the 1 liter volume.

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F. Bleed:

1. Wick Induced Bleed ASTM C940 (PTI Modified) maximum 0.0% at 3 hours @ 70 °F (20 °C).
2. Schupack Pressure Bleed:

	Vertical Rise, X (ft)	Gelman Pressure (psi)	Max % Bleed
A.	$0 \leq X \leq 2$	20	4
B.	$2 < X \leq 6$	30	2
C.	$6 < X < 100$	50	0

**To apply for inclusion** on the QPL, submit the following:

- [Preliminary information for Product Evaluation Form.](#)
- Independent test results showing compliance with all the specifications listed above.
- Specify which vertical rise you would like to be reviewed for.
- Spec Data Sheet.
- Material Safety Data Sheet
- Detailed installation/operating instructions.
- List of limitations and precautions.

Send no samples at this time.

Our specifications require a trial batch prior to each use. Even after placement on the QPL, on every project, the Contractor will have to demonstrate to the Engineer's satisfaction, at least 48 hours before the start of grouting, that the proposed grout has an acceptable efflux time and an acceptable water-cement ratio. Failure to meet these requirements will be reason to not allow the product on the project and to reject the product from the QPL.

Our specifications can be reviewed at:

<http://www.oregon.gov/ODOT/HWY/SPECS/index.shtml>

**Submit documentation to:**

Oregon DOT – Materials Lab  
Product Evaluation Coordinator  
800 Airport Road SE  
Salem OR 97301-4798  
503-986-3059

<http://www.oregon.gov/ODOT/HWY/CONSTRUCTION/QPL/QPIndex.shtml>