

Special Provision to Item 342

Permeable Friction Course (PFC)



For this project, Item 342, "Permeable Friction Course (PFC)," of the Standard Specifications, is hereby amended with respect to the clauses cited below, and no other clauses or requirements of this Item are waived or changed hereby.

Article 342.2., "Materials, Section 2.5. Additives," Section 2.5.1 Fibers is voided and replaced by the following:

When PG binder is specified, provide strengthening stabilizing fibers. Do not use fibers when A-R binder is specified.

The fibers proposed for use must meet the following requirements:

- Materials in a blend of Polyolefin and Poly para-phenyleneterephthalamide, or para-aramid, or aramid.
- Length: 3/4", (19 mm)
- Form: Fibrillated and Monofilament Fibers
- Specific Gravity: Polypropylene 0.91; Aramid 1.44
- Tensile Strength: Aramid \geq 400,000 psi.
- Melt Temperature: Polypropylene \geq 300°F, (148.9°C) Aramid \geq 800 °F, (426.7°C)
- Acid/Alkali Resistance: Inert

Individual unit packaging:

- Polyethylene / (C₂H₄)_nH₂
- Melting point of \geq 290 °F, (148.3°C)

Article 342.3., "Equipment, Section 3." is amended and the following is added:

Provide required or necessary equipment in accordance with Item 320, "Equipment for Hot-Mix Asphalt Materials." Fiber Supply System when a strengthening stabilizing fiber is used as a mixture ingredient. Use a separate feed system to store and proportion by weight the required quantity into the mixture with uniform distribution.

Control the feeder system with a proportioning device that meets the following:

- Accurate to within \pm 10 percent of the amount required by the design. Automatically adjusts the feed rate to maintain the material within tolerance at all times;
- Has a convenient and accurate means of calibration;
- Provides in-process monitoring, consisting of either a digital display of output or a printout of feed rate, in pounds (kg) per minute, to verify feed rate;
- Interlocks with the aggregate feed or weigh system to maintain the correct proportions for all rates of production and batch sizes;
- Provides flow indicators or sensing devices for the fiber system and interlock them with the plant controls to interrupt the mixture production if fiber introduction fails or if the output rate is not within the tolerances specified.

Introduce the fiber as follows:

- When a batch type plant is used, add the fiber to the aggregate in the weigh hopper. Increase the batch dry mixing time by 8 to 12 seconds from the time the aggregate is completely emptied into the mixer to ensure the fibers are uniformly distributed prior to the injection of asphalt cement into the mixer.

- When a continuous or drier-drum type plant is used, add the fiber to the dry heated aggregate at or near RAP port and uniformly disperse prior to the injection of asphalt cement. Ensure the fibers will not become entrained in the exhaust system of the drier or plant.

Article 342.4., "Construction, Section 4.4.1. Design Requirements," Table 4 is voided and replaced by the following:

Table 4

Master Gradation Limits (% Passing by Weight or Volume) and Laboratory Mixture Design Properties

Sieve Size	PG 76 Mixtures		A-R Mixtures		Test Procedure
	Fine (PFC-F)	Coarse (PFC-C)	Fine (PFCR-F)	Coarse (PFCR-C)	
3/4"	–	100.0 ¹	100.0 ¹	100.0 ¹	Tex-200-F
1/2"	100.0 ¹	80.0-100.0	95.0-100.0	80.0-100.0	
3/8"	95.0-100.0	35.0-60.0	50.0-80.0	35.0-60.0	
#4	20.0-55.0	1.0-20.0	0.0-8.0	0.0-20.0	
#8	1.0-10.0	1.0-10.0	0.0-4.0	0.0-10.0	
#200	1.0-4.0	1.0-4.0	0.0-4.0	0.0-4.0	
Mixture Properties					
Asphalt binder content, %	6.0-7.0	6.0-7.0	8.0-10.0	7.0-9.0	–
Design gyrations (Ndesign)	50	50	50	50	Tex-241-F
Lab-molded density, %	78.0 Max	82.0 Max	82.0 Max	82.0 Max	Tex-207-F
Hamburg Wheel test, ² passes at 12.5 mm rut depth	10,000 Min ³	Note ²	Note ²	Note ²	Tex-242-F
Overlay tester, ² number of cycles	200 Min	Note ²	Note ²	Note ²	Tex-248-F
Drain-down, %	0.10 Max	0.10 Max	0.10 Max	0.10 Max	Tex-235-F
Fiber content, % by wt. of total PG 76 mixture	0.45-0.55	0.45-0.55	–	–	Calculated
Lime content, % by wt. of total aggregate	1.0 ⁴	1.0 ⁴	1.0 ⁴	1.0 ⁴	Calculated
CRM content, % by wt. of A-R binder	–	–	15.0 Min	15.0 Min	Calculated
Boil test ⁵	–	–	–	–	Tex-530-C
Cantabro loss, %	20.0 Max	20.0 Max	20.0 Max	20.0 Max	Tex-245-F

1. Defined as maximum sieve size. No tolerance allowed.

2. Mold test specimens to Ndesign at the optimum asphalt binder content (JMF1). Perform the test for informational purposes only when no minimum number is specified.

3. May be decreased when approved.

4. Unless otherwise shown on the plans or waived by the Engineer based on Hamburg Wheel results.

5. Used to establish baseline for comparison to production results. May be waived when approved.