

Section 819—Fiber Stabilizing Additives

819.1 General Description

This Section covers the general requirements for fiber stabilizing additives that are incorporated into asphaltic concrete mixtures. These fibers are generally used to stabilize the asphalt film surrounding aggregate particles to reduce drain-down of the asphalt cement. Use a cellulose or mineral fiber stabilizer listed on QPL 77, Fiber Stabilizing Additives.

819.1.01 Related References

A. Standard Specifications

General Provisions 101 through 150.

B. Referenced Documents

ASTM C612

GDT 124

QPL 77

819.2 Materials

The selected fiber shall meet the properties described below. Dosage rates given are typical ranges but the Office of Materials and Research shall approve the actual dosage rate used.

A. Cellulose Fibers

Add cellulose fibers at a dosage rate between 0.2% and 0.4% by weight of the total mix as approved by the Engineer.

Fiber properties shall be as follows:

1. Fiber length: 0.25 inch (6.35 mm) maximum
2. Sieve Analysis
 - a. Alpine Sieve Method
 - Passing No. 100 (150 μ m) sieve: 60-80%
 - b. Ro-Tap Sieve Method
 - Passing No. 20 (850 μ m) sieve: 80-95%
 - Passing No. 40 (425 μ m) sieve: 45-85%
 - Passing No. 100 (150 μ m) sieve: 5-40%
3. Ash Content: 18% non-volatiles (\pm 5%)
4. pH: 7.5 (\pm 1.0)
5. Oil Absorption: 5.0 (\pm 1.0) (times fiber weight)
6. Moisture Content: 5.0 % (maximum)

B. Cellulose Pellets

Use cellulose pellets that are a blend of cellulose fiber and asphalt cement. Add them at a dosage rate between 0.4% and 0.8% by weight of the total mix. The cellulose used shall comply with requirements of Subsection 819.2.A.

- Pellet size: 1/4 cubic inch (4.093 cubic centimeters) maximum
- Asphalt: 25–80 pen.

C. Mineral Fibers

Use mineral fibers that are made from virgin basalt, diabase, or slag that is treated with a cationic sizing agent to enhance disbursement of the fiber and to increase adhesion of the fiber surface to the bitumen. Add the fiber at a dosage rate between 0.2% to 0.5% by weight of the total mix as approved by the Engineer.

1. Size Analysis:
 - Average Fiber length: 0.25 inches (6.35 mm) maximum
 - Average Fiber thickness: 0.0002 inches (0.005 mm) maximum

2. Shot content (ASTM C612)
 - Passing No. 60 (250 μm) sieve: 90 - 100%
 - Passing No. 230 (67 μm) sieve: 65 - 100%
 - Degradation (GDT 124/McNett Fractionation): 30% (maximum)

D. Materials Warranty

General Provisions 101 through 150.

Section 820—Asphalt Cement

820.1 General Description

This Section includes the requirements for asphalt cements prepared from crude petroleum.

820.1.01 Related References

A. Standard Specifications

General Provisions 101 through 150.

B. Referenced Documents

Standard Operating Procedure (SOP 4)

AASHTO TP 1

AASHTO TP 3

AASHTO TP 5

AASHTO T 48

AASHTO TP 48

AASHTO T 179

AASHTO T 240

820.2 Materials

820.2.01 Asphalt Cement

A. Requirements

1. Type

Use a material that is homogenous and water-free and that does not foam when heated to 347 °F (175 °C).

Ensure that a blend used to produce a specified performance grade meets the following requirements:

- Is uniform and homogeneous without separation
- Uses PG 64-22 or PG 67-22 described below for the base asphalt
- Consists of production materials that have not been “air-blown” to achieve the performance grade

2. Grade

Use the various grades of asphalt cement that meet the requirements shown in the test requirements for Petroleum Asphalt Cements

Add only Styrene-Butadiene-Styrene (SBS) or Styrene-Butadiene (SB) to neat asphalt to produce a binder that meets requirements for PG 76-22.