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.

Test Requirements for Petroleum Asphalt Cements

Test And Method	Test Temperature				Original Binder	Residue Of Binder After:	
	PG 58-22	PG 64-22	PG 67-22	PG 76-22		Rolling Thin-Film Oven AASHTO: TP5	Pressure Aging AASHTO: PP-1
Flash Point, AASHTO: T-48 Min.					446 °F (230 °C)		
Viscosity (a), AASHTO:TP-48 Max.	275 °F (135 °C)				3Pa-S (3000CP)		
Mass Loss (%), Max. AASHTO: T-240 (b)						0.5	
Dynamic Shear, G*/sinδ, AASHTO: TP5, 10 Rad/Sec	136 °F (58 °C)	147 °F (64 °C)	153 °F (67 °C)	169 °F (76 °C) Phase Angle	≥ 1.0 kPa ≤ 75 deg.	≥ 2.2 kPa	
Dissipated Energy, Dynamic Shear, G*sinδ, AASHTO: TP5, 10 Rad/Sec	77 °F (25 °C)						≤ 5000 kPa
Creep Stiffness (c), 60 sec. AASHTO TP1	10 ° F (- 12 °C)						S ≤ 300 000 kPa m ≥ 0.300
Direct Tension, 1.0 mm/min. AASHTO: TP3, Failure Strain	10 ° F (- 12 °C)						Report

a. The Department may waive this requirement if the supplier warrants that the asphalt binder can be adequately pumped and mixed at temperatures that meet all applicable safety standards.

b. Heat loss by AASHTO T 179 may be accepted in lieu of mass loss by AASHTO T 240.

c. If the creep stiffness is below 300 000 kPa, the direct tension test is not required. If the creep stiffness is ≥300 000 kPa, report the Direct Tension Failure Strain value. Satisfy the m-value

requirement in either case.

If modification is required, thoroughly blend the composite materials at the supply facility prior to being loaded into the transport vehicle. Ensure all blending procedures, formulation, and operations are approved by the Office of Materials and Research.

3. Certification: Provide certified test results from an approved, certified laboratory of blends for proposed PG asphalt for each specification characteristic of the asphalt cement proposed for shipment. Provide the certified results to the State Materials and Research Engineer as required in Standard Operating Procedure (SOP 4).

   In the event there is reason to suspect a sample will be outside specification limits, the State Materials and Research Engineer may interrupt production until test results are known.

B. Materials Warranty

General Provisions 101 through 150.