

**KANSAS DEPARTMENT OF TRANSPORTATION
 SPECIAL PROVISION TO THE
 STANDARD SPECIFICATIONS, EDITION 2007**

Page 600-42, change title from "ASPHALT SEALING" to "CHIP SEALS".

SECTION 608

CHIP SEALS

Add the following additions to TABLE 601-1:

TABLE 601-1: ASPHALT APPLICATION TEMPERATURES				
TYPE AND GRADE	TEMPERATURE RANGE (°F)			
	Spraying		Plant Mixing	
	Min.	Max.	Min.	Max.
Asphalt Cement (AC-20-5TR)	325	350	n/a	n/a
Asphalt Cement (AC-20-XP)	325	350	n/a	n/a
Asphalt Cement (AC-10-2TR)	300	350	n/a	n/a
Asphalt Cement (AC-10-XP)	300	350	n/a	n/a

Page 600-42, subsection 608.1. Delete Bid Item "Manipulation (Asphalt Seal)" and replace with "Manipulation (Chip Seals)".

Page 600-43, TABLE 608-1, change the title to "RATES OF APPLICATION FOR CHIP SEALS". Also, remove the complete row "CM-E, Chat..."

Page 600-43, delete subsection 608.3g, and replace with the following:

g. Manipulation. Immediately following the application of cover material, embed using pneumatic rolling. Provide a minimum of 3 self-propelled pneumatic rollers. Check the tire pressures of all tires on all rollers every morning. Inflate all tires on a roller to the same pressure. Provide this information to the Engineer before work begins. Complete the initial rolling within 5 minutes after application of cover material. If the air temperature is less than 70°F, then complete the initial rolling within 2 minutes after applying the aggregate. Proceed at a speed less than or equal to 5 miles per hour to prevent turning over aggregate. Make a minimum of 3 complete passes over the aggregate. Roll the aggregate so the entire width of the treatment area is covered in one pass of all the rollers. The total compacting width of each pneumatic-tired roller shall exceed 5 ft. The number of rollers for shoulders may be reduced based on the width of the shoulders and the width of the rollers.

If emulsified asphalt is used, cure the asphalt material a minimum of 4 hours before opening the roadway to unrestricted traffic. If polymer modified emulsified asphalt is used, the cure time shall be a minimum of 1 ½ hours before the traveled way is opened to unrestricted traffic. If traffic causes excessive chip loss, increase the cure time until excessive chip loss is eliminated.

On seals using CM-A, or B, the Engineer may require the use of a steel roller for one of the coverages, provided excessive crushing of the cover material does not occur.

Do not turn rollers on the sealed surface.

When required, apply additional cover material and roll it with the pneumatic rollers as directed by the Engineer.

Broom the loose cover material from the surface of the traveled way as soon as the asphalt material has cured enough to prevent damage by brooming or vehicular traffic. Continue periodic brooming until all loose aggregate has been removed. All seals shall receive 1 light brooming of the cover material before opening to traffic. Additional broomings may be required before opening to traffic to prevent the cover material from being picked up by moving vehicles. Broom excess cover material from the shoulder.

The Contractor may seal in 1 lane for the entire day.

When CM-B and cutback asphalt are specified in the Contract Documents, begin a second period of manipulation on the day following the first rolling, or as soon thereafter as weather conditions permit. This manipulation consists of spreading the loose cover material uniformly over the surface and rolling with the type of rollers specified by the Engineer. The rolling operation consists of 2 complete coverages of the previous day's work. Following the second day's rolling, broom excess cover material off the traveled way and shoulders, as directed by the Engineer.

Page 600-44, subsection 603.8h. In the last sentence change "Manipulation (Asphalt Seal)" to "Manipulation (Chip Seals)".

Page 600-45, add the following subsection 608.3l.:

l. Observation Period. The Engineer, along with the Contractor, will inspect the chip seal, 30 days after work is completed on the seal. Repair areas where there is no cover material left in place (bare areas) as directed by the Engineer:

- In 5% the wheel paths; and
- Individual areas ≥ 10 square yards; and
- Where the total square yards of bare areas is greater than 5% of the total square yards of the seal.

Page 600-45, subsection 608.4. In the fifth paragraph, change "Manipulation (Asphalt Seal)" to "Manipulation (Chip Seals)".

Page 600-45, subsection 608.4. In the sixth paragraph, change "asphalt sealing" to "chip seals".

SECTION 1201

GENERAL REQUIREMENTS FOR DIVISION 1200-ASPHALT MATERIALS

Add the following to the end of subsection 1201.2:

i. Asphalt Cement (AC).

(1) Definition of testing levels.

Complete AASHTO Specification Compliance (SC) test for AC:

Viscosity, 140°F

Penetration, 77°F

Flash Point, COC

Solubility

Tests on Residue from TFOT

Loss on heating

Viscosity, 140°F

Ductility, 77°F

Quality Control (QC) Tests for AC:

Viscosity @ 140°F

Penetration @ 77°F

(2) When shipping from Refineries and Blending Facilities, use the following guidelines:

- (a) For a tank which is filled before beginning shipping, and then emptied before more material is added, perform 1 complete AASHTO SC test per tank when filled, and weekly QC tests.
 - (b) For a tank being continually filled while continuous shipping is made from the tank, perform 1 complete AASHTO SC test per week, and daily QC tests
 - (c) When blending directly into a tanker, sample every third truck for QC tests, and perform 1 complete AASHTO SC test per week.
 - (d) Under any of the operations described above, if the results of any of the QC tests indicate the product may be out of specification, stop shipment from that source immediately. Perform a complete AASHTO SC test to ascertain the product status and re-certify the source.
- (3) When shipping from Terminals, use the following guidelines:
- (a) For operations where a tank is filled before beginning shipping, and then emptied before more material is added, perform a complete AASHTO SC test at the refinery on the material being shipped. When the shipment arrives at the terminal, run the QC tests to verify the material as it is being unloaded. After that, perform the QC tests weekly until the tank is emptied.
 - (b) For operations where a tank is being continually filled while continuous shipping is being made from the tank, perform a complete AASHTO SC test at the refinery on the material being shipped. When the shipment arrives at the terminal, run the QC tests to verify the material as it is being unloaded. Perform the QC tests on the contents in the tank weekly. Perform a complete AASHTO SC test on the contents in the tank once per month.
 - (c) Under any of the operations described above, if the results of any of the QC tests indicate the product may be out of specification, stop shipment from that source immediately. Perform a complete AASHTO SC test to ascertain the product status and re-certify the source.
- (4) Asphalt cement containing particulate modifiers may be susceptible to separation of the modifier. Provide appropriate circulation or agitation in storage if separation of the modifier is expected, suspected or if the modified asphalt will be stored at elevated temperature for more than one day before use.

Add a new section to DIVISION 1200:

POLYMER MODIFIED ASPHALT CEMENT FOR CHIP SEALS

1.0 DESCRIPTION

This specification covers polymer modified (tire rubber and/or SBS) asphalt cement for use in chip seals.

2.0 REQUIREMENTS

Provide material that complies with **TABLE 1.0**.

TABLE 1.0: SPECIFICATIONS FOR ASPHALT CEMENT FOR CHIP SEALS								
	AC-20-5TR		AC-20-XP		AC-10-2TR		AC-10-XP	
	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.
Polymer	TR & SBS ⁽¹⁾		SBS		TR & SBS ⁽²⁾		SBS	
Polymer Content, %	5	-----	3	-----	3	-----	1	-----
Dynamic shear, G*/sin δ, 64°C, 10 rad/s, kPa	1.0	-----	1.0	-----	-----	-----	-----	-----
Dynamic shear, G*/sin δ, 58°C, 10 rad/s, kPa	-----	-----	-----	-----	1.0	-----	1.0	-----
Viscosity, 140°F, Poise	2,000	-----	2,000	-----	1,000	-----	1,000	-----
Penetration, 77°F, 100g, 5sec	75	115	75	115	95	130	95	130
Elastic Recovery, ASTM D6084 50°F, % Recovery, 1 hour	55	-----	55	-----	30	-----	30	-----
Softening Point, °F	120	-----	120	-----	110	-----	110	-----
Test of Residues from RTFO Aging and PAV								
Bending Beam Rheometer at - 18°C, MPa								
Creep Stiffness m-value	----- 0.300	300 -----	----- 0.300	300 -----	----- 0.300	300 -----	----- 0.300	300 -----

(1) Produce the AC-20-5TR with a minimum of 5% scrap, group, whole tire rubber.

(2) Produce the AC-10-2TR will a minimum of 3% polymers to include a combination of tire rubber and SBS.

3.0 TEST METHODS

Test according to the applicable provisions of ASTM D 36 and D 6084 Procedure B, and AASHTO T 48, T 49, T 202, T 313, and T 315.

4.0 PREQUALIFICATION

Prequalify material according to **SECTION 1201**.

5.0 BASIS OF ACCEPTANCE

See applicable requirements under **SECTION 1201**.

06-23-11 C&M

Sept-11 Letting