

DMS-9202

Asphaltic Concrete Patching Material (Stockpile Storage or Bagged)



Effective Date: May 2017

1. DESCRIPTION

This Specification governs for crushed stone asphaltic concrete intended primarily as a cool- to cold-weather stockpile or bagged patching mix for maintenance. The mixture must remain workable in the stockpile for 6 months from the day of delivery and have good adhesion to wet surfaces. The length of satisfactory stockpiling and the lowest temperature at which it can be used will vary according to the type and grade of asphaltic binder specified.

Provide the mix as designated on the plans or requisition and following the combinations of asphalt and aggregate listed in Table 1.

**Table 1
Asphalt and Aggregate Combinations**

Aggregate	Asphalt									
	MC-250	MC-800	MC-800 w/Diesel	SCM I	SCM II	AES-300S	CMA-SG	CMA-WG	ASPPM	NVM
Gradation I	X	X	X	X	X	X				X
Gradation II	X	X	X	X	X	X	X	X		X
Gradation III							X	X		X
Gradation IV				X	X				X	X

2. UNITS OF MEASUREMENTS

The values given in parentheses (if provided) are not standard and may not be exact mathematical conversions. Use each system of units separately. Combining values from the two systems may result in nonconformance with the standard.

3. MATERIAL PRODUCER LIST

The Materials and Pavements Section of the Construction Division (CST/M&P) maintains the Material Producer List (MPL) of all materials conforming to the requirements of this Specification. Materials appearing on the MPL, entitled "[Asphaltic Concrete Patching Material \(Stockpile Storage or Bagged\)](#)," require no further testing unless deemed necessary by the Engineer. Materials not appearing on the MPL may not be used on Department projects.

4. BIDDERS' AND SUPPLIERS' REQUIREMENTS

The Department will only purchase or allow on projects those products listed by producer and product code or designation shown on the MPL.

Use of pre-qualified product does not relieve the Contractor of the responsibility to provide product that meets this Specification. The Department may inspect or test material at any time and reject any material that does not meet the specifications.

5. PRE-QUALIFICATION PROCEDURE

- 5.1. **Pre-Qualification Request.** Submit a request for evaluation under DMS-9202 to DMS_Prequal@txdot.gov.

Include the following information in the request:

- company name;
- physical and mailing addresses;
- contact person, phone number, and email address; and
- application classification(s) listed under Article 9202.5.

- 5.2. **Pre-Qualification Sample.** Submit a 40-lb. sample of asphaltic concrete patching material and 1 gal. of the cutback asphalt used to the Texas Department of Transportation, CST/M&P (CP51), 9500 North Lake Creek Parkway, Austin, TX 78717.

Include the following with the sample:

- current safety data sheet (SDS) that complies with OSHA Hazard Communication Standard 29 CFR 1910.1200;
- manufacturer, production location, and lot number;
- for ASPPM, manufacturer's certification that the material is pre-coated with at least 1% AC-10, PG 64-22, or equivalent;
- test report issued by an AMRL-accredited independent laboratory, signed and sealed by a licensed professional engineer to certify that the material meets the requirements of this Specification;
- technical data sheets that typically accompany the product, with printed instructions for mixing, application, and shelf life;
- current safety data sheet (SDS) that complies with OSHA Hazard Communication Standard 29 CFR 1910.1200;
- list of all possible package quantities and type of packaging; and
- curing protocol (recommended or required) for field application.

Submit all materials for pre-qualification at no cost to the Department.

- 5.3. **Evaluation.** CST/M&P will notify prospective bidders and suppliers after completion of material evaluation.

- 5.3.1. **Qualification.** If approved for Department use, CST/M&P will add the material to the MPL.

Report changes in the composition or in the manufacturing process of any material to CST/M&P. Significant changes reported by the producer, as determined by the Director of CST/M&P, may require a re-evaluation of performance. The Department reserves the right to conduct whatever tests it deems necessary to identify a pre-qualified material and determine if there is a change in the composition, manufacturing process, or quality that may affect its durability or performance. In case of variance, the Department's tests will govern.

- 5.3.2. **Failure.** Producers not qualified under this Specification may not furnish materials for use on Department projects.

Producers failing to qualify may submit a request for re-evaluation after 6 months have elapsed from the date of the original request. CST/M&P may modify this time limit at its discretion. In the request for re-evaluation, document the cause of the issue and corrective action taken.

The Department normally bears the costs of sampling and testing; however, the producer will bear the costs associated with materials failing to conform to the requirements of this Specification. The Director of CST/M&P will assess this cost at the time of testing, and amounts due will be billed to the producer.

- 5.4. **Periodic Evaluation.** The Department reserves the right to conduct random sampling and testing of pre-qualified materials to verify performance and Specification compliance and to perform random audits of documentation. The Department may request that producers submit samples, or Department representatives may sample material from the manufacturing plant, the project site, stockpile, or bag.

Failure of materials to comply with the requirements of this Specification as a result of periodic evaluation may be cause for removal of those materials from the MPL. The Department's tests will govern in all circumstances.

- 5.5. **Disqualification.** Causes for disqualification and removal from the MPL may include, but are not limited to:
- falsification of documentation,
 - producer fails to report any change in material composition or manufacturing process to CST/M&P,
 - material fails to meet the requirements of this Specification as a result of periodic evaluation, or
 - producer has unpaid charges for failing samples.

CST/M&P will remove disqualified producers from the MPL and will not allow submission of material for re-qualification for 1 year, at the discretion of the Department.

- 5.6. **Re-Qualification.** Once the disqualification period established by CST/M&P has elapsed, producers disqualified and removed from the MPL may begin the re-qualification process by submitting a request in accordance with Section 5.1, including additional documentation identifying the cause of the problem and corrective action taken. The re-qualification process will then follow all subsequent Sections of Article 5.

The Department normally bears the costs of sampling and testing; however, the disqualified producer will bear the costs associated with re-qualification. The Director of CST/M&P will assess this cost at the time of re-evaluation, and amounts due will be billed to the producer.

6. MATERIAL REQUIREMENTS

- 6.1. **Asphaltic Material.** Provide MC-250, MC-800, SCM I, SCM II, AES-300S, CMA, ASPPM, or NVM in accordance with the requirements below. Provide asphaltic material for use as designated by the Engineer on the plans or requisition.
- 6.1.1. **MC-250 or MC-800.** Provide asphaltic material in accordance with Item 300.

6.1.2. **SCM I (Special Cutback Material I).** Use an asphalt material to produce mixture in accordance with Table 2.

**Table 2
Asphalt Material Properties for SCM I**

Property	Test Procedure	Min	Max
Kinematic viscosity, 140°F, cSt	T 201	500	1,000
Water, %	T 55	–	0.2
Flash point, T.O.C., °F	T 79	174	–
Distillation test:	T 78		
Distillate, percentage by volume of total distillate to 680°F			
to 437°F		0	0
to 500°F		0	0.5
to 600°F		20	60
Residue from distillation, volume %		76	100
Tests on distillation residue:			
Penetration, 150 g, 5 sec., 77°F	D 5 ¹	180	–
Solubility in trichloroethylene ² , %	T 44	99.0	–

Note—Test procedures beginning with T are AASHTO procedures. Test procedures beginning with D are ASTM procedures.

1. Use cone conforming to ASTM D 217. Lower the level of water in the transfer dish to less than the height of the sample, and decant water from top of the sample before transferring from the bath to the penetrometer.
2. Only perform this test if the binder does not appear homogenous.

6.1.3. **SCM II (Special Cutback Material II).** Use an asphalt material to produce mixture in accordance with Table 3.

**Table 3
Asphalt Material Properties for SCM II**

Property	Test Procedure	Min	Max
Kinematic viscosity, 140°F, cSt	T 201	1,000	2,000
Water, %	T 55	–	0.2
Flash point, T.O.C., °F	T 79	174	–
Distillation test:	T 78		
Distillate, percentage by volume of total distillate to 680°F			
to 437°F		0	0
to 500°F		0	0.5
to 600°F		15	50
Residue from distillation, volume %		82	100
Tests on distillation residue:			
Penetration, 150 g, 5 sec., 77°F	D 5 ¹	180	–
Solubility in trichloroethylene ² , %	T 44	99.0	–

Note—Test procedures beginning with T are AASHTO procedures. Test procedures beginning with D are ASTM procedures.

1. Use cone conforming to ASTM D 217. Lower the level of water in the transfer dish to less than the height of the sample and decant water from top of the sample before transferring from the bath to the penetrometer.
2. Only perform this test if the binder does not appear homogenous.

6.1.4. **AES-300S.** Provide a high float and mixing-grade type emulsion utilizing a polymer-modified asphalt base in accordance with Table 4.

**Table 4
Asphalt Material Properties for AES-300S**

Property	Test Procedure	Min	Max
Viscosity, Saybolt Furol 77°F, sec.	T 72	75	400
Sieve test, %	T 59	–	0.1
Coating ability and water resistance: dry aggregate/after spray wet aggregate/after spray	T 59	Good/Fair Fair/Fair	
Storage stability, 1 day, %	T 59	–	1
Distillation test: Residue by distillation, % by wt. Oil distillate, % by volume of emulsion	T 59	65 –	– 7
Tests on residue from distillation: Penetration, 77°F, 100 g, 5 sec. Solubility in trichloroethylene, % Float test, 140°F, sec.	T 49 T 44 T 50	300 97.5 1,200	– – –
Elastic Recovery, 50°F, %	Tex-539-C	30%	

Note—Test procedures beginning with T are AASHTO procedures.

1. Undisturbed emulsion will not show white milky substance at either the top or bottom of the test cylinder after the 24-hour period.
2. Perform test on cured residue. Cure by pouring material into two rolling film containers and testing in accordance with ASTM D 2872

6.1.5. **Cold Mix Asphalt Summer Grade (CMA-SG).** Use only aggregate gradations II and III to produce CMA-SG. Use an asphalt material to produce CMA-SG in accordance with Table 5.

**Table 5
Asphalt Material Properties for CMA-SG**

Property	Test Procedure	Min	Max
Viscosity, 77°F, Poises	D 4957 ¹	3,000	5,000
Water, %	T 55	–	1.0
Flash point, T.O.C., °F	T 79	158	–
Distillation test: Distillate, percentage by volume of total distillate to 680°F to 437°F to 500°F to 600°F Residue from distillation, volume %	T 78	 0 0 30 78	 0 5 70 100
Tests on distillation residue: Penetration, 100 g, 5 sec., 77°F Float test, 140°F, sec. Solubility in trichloroethylene, %	T 49 T 50 T 44	100 1,200 99.0	250 – –

Note—Test procedures beginning with T are AASHTO procedures. Test procedures beginning with D are ASTM procedures.

1. Use a #200 modified Koppers viscometer at 300 mm of vacuum.

6.1.6. **Cold Mix Winter Grade (CMA-WG).** Use only aggregate gradations II and III to produce CMA-WG. Use an asphalt material to produce CMA-WG in accordance with Table 6.

**Table 6
Asphalt Material Properties for CMA-WG**

Property	Test Procedure	Min	Max
Viscosity, 77°F, Poises	D 4957 ¹	1,500	4,000
Water, %	T 55	–	1.0
Flash point, T.O.C., °F	T 79	158	–
Distillation test:	T 78		
Distillate, percentage by volume of total distillate to 680°F			
to 437°F		0	0
to 500°F		0	5
to 600°F		30	70
Residue from distillation, volume %		78	100
Tests on distillation residue:			
Penetration, 100 g, 5 sec., 77°F	T 49	100	250
Float test, 140°F, sec.	T 50	1,200	–
Solubility in trichloroethylene, %	T 44	99.0	–

Note—Test procedures beginning with T are AASHTO procedures. Test procedures beginning with D are ASTM procedures.

1. Use a #200 modified Koppers viscometer at 300 mm of vacuum.

6.1.7. **All Season Pre-Coated Patching Mixture (ASPPM).** Use only aggregate gradation IV to produce ASPPM. Pre-coat the coarse and fine aggregates with at least 1% of AC-10, PG 64-22, or equivalent material in accordance with Item 300 prior to mixing with the asphalt material meeting the requirements of Table 7.

**Table 7
Asphalt Material Properties for ASPPM**

Property	Test Procedure	Min	Max
Kinematic viscosity, 140°F, cSt	T 201	300	700
Water, %	T 55	–	0.1
Flash point, T.O.C., °F	T 79	250	–
Distillation test:	T 78		
Distillate, percentage by volume of total distillate to 680°F			
to 437°F		0	0
to 500°F		0	5
to 600°F		55	–
Residue from distillation, volume %		73	100
Tests on distillation residue:			
Penetration, 100 g, 5 sec., 77°F	T 49	200	–
Solubility in trichloroethylene ¹ , %	T 44	99.0	–

Note—Test procedures beginning with T are AASHTO procedures.

1. Only perform this test if the binder does not appear homogenous.

6.1.8. **Non-Volatile Mixture (NVM).** Use aggregate gradations I, II, III, or IV to produce NVM. Use a non-volatile binder to produce NVM in accordance with Table 8.

**Table 8
Asphalt Material Properties for NVM**

Property	Test Procedure	Min	Max
Flash point, T.O.C., °F	T 79	174	—
Distillation test:	T 78		
Distillate, percentage by volume of total distillate to 680°F			
to 437°F		0	0
to 500°F		0	0
to 600°F		0	0
Residue from distillation, volume %		100	100
Tests on distillation residue:			
Penetration, 100 g, 5 sec., 77°F	T 49	180	—
Solubility in trichloroethylene ¹ , %	T 44	99.0	—

Note—Test procedures beginning with T are AASHTO procedures.

1. Only perform this test if the binder does not appear homogenous.

6.2. **Asphaltic Additives.** Use one or more asphalt additives in the mixture to prevent stripping of the asphalt from the aggregate in the presence of water and promote bonding to damp or wet surfaces. Add the additives to the asphalt material at the point of origin or meter in at the mix plant to provide a uniform concentration of the agents. The Engineer will approve the type and amount of additives used in the design stage based on the resistance to stripping, as described in Article 9202.6, and desired bonding and workability characteristics.

6.3. **Distillate.** When an MC-800 is designated as the asphaltic material to be used, the Engineer may also direct that distillate in amounts not to exceed 5% by weight of the MC-800 be added in order to extend stockpile life and improve cold weather workability. Furnish the distillate that meets the requirements for No. 1 or No. 2 diesel, ASTM D 975, with the exception that the maximum water content does not exceed 0.2%.

Meter the distillate into the mix plant separately from the MC-800 or, when approved by the Engineer, blend with the MC-800.

6.4. **Aggregate.** Furnish aggregate meeting the requirements of Item 334.

7. MIXTURE PROPERTIES

7.1. **General Testing.** Produce a mixture according to the mixture property requirements listed in Table 9.

**Table 9
Mixture Property Testing Requirements**

Property	Test Procedure	Min	Max
Residual Asphalt Content, exclusive of volatiles, % by weight ¹	Tex-210-F	3.0	7.0
Hydrocarbon Volatile Content of mix, % by weight ²	Tex-213-F	0.3	1.0
Moisture Content of Mix, % by weight ³	Tex-212-F, Part I		2.0
Hveem Stability of as-received mix (no curing) at 77 ± 2°F, (molded at 77 ± 2°F)	Tex-208-F	35	
Hveem Stability of cured mix (cured to a constant weight) at 140°F, (molded at 140°F in accordance with Tex-206-F), %	Tex-208-F	35	

- Residual asphalt content allowed for ASPPM only, is in the range of 4.0 to 6.0%.
- No hydrocarbon volatile content allowed for NVM only.
- This requirement does not apply to mixtures produced at mixing temperatures of 174°F or less.

- 7.2. **Mixture Design and Aggregate Gradation.** Mixtures produced must adhere to the density requirements specified in Table 10.

Table 10
Laboratory-Molded Density Requirements

Minimum	Optimum	Maximum
90.0	93.0	96.0

The Engineer will select the asphalt content within the range specified in Table 11 for mixtures produced with aggregate gradation I, II, III, or IV.

Table 11
Aggregate Gradation Requirements (% passing by Weight or Volume) ¹

Sieve Size	Gradation I	Gradation II	Gradation III	Gradation IV
3/4"	–	–	100	100
1/2"	100	100	70–90	100
3/8"	95–100	95–100	40–70	100
No. 4	90–100	17–40	10–30	65–90
No. 10	10–30	2–15	5–20	20–40
No. 40	0–25	–	0–10	10–30
No. 80	0–10	–	0–5	0–15
No. 200	0–5	0–3	0–4	0–5
AC % ²	–	4.5–6.5	4.0–5.5	5.0–7.0

- Determine percent passing in accordance with Tex-200-F, Part II.
- Allowed range for asphalt content as measured according to Tex-210-F. This asphalt content includes volatiles.

- 7.3. **Resistance to Water Damage.** Evaluate the as-received mix for resistance to water damage by soaking a 100 g representative sample of the total mixture in 200 mL (7 fl. oz.) of distilled or de-ionized water at 140 ± 2°F for 24 ± 2 hours. Perform the soaking test in an approximately 400 mL (14 fl. oz.) glass. Evaluate the mixture upon completion of the 24-hour soaking period while submerged in the testing water. No visible evidence of stripping of the material is allowed.

8. MIXTURE PREPARATION

Provide a plant-produced mixture. Heat the asphaltic material in accordance with Item 300, Table 19. Apply SCM I and SCM II when specified at 170–200°F, unless otherwise specified by the material supplier. Apply AES-300S and CMA when specified at the temperature specified by the material supplier. Mix the aggregate with asphaltic material at a temperature not exceeding 200°F, unless otherwise approved by the Engineer. Discharge the bituminous mixture at a temperature not exceeding 200°F at the point of discharge from the mixer, unless otherwise approved by the Engineer. Mix the aggregate and bituminous material until all of the aggregate is uniformly coated.

9. ARCHIVED VERSIONS

Archived versions are available.