The minimum SBR polymer latex content shall be 2.5 %. The SBR polymer latex content may be reduced below the minimum content provided, if the following requirements are met:

1. An AASHTO accredited laboratory shall blend the PG binder and SBR polymer latex at the proposed SBR polymer latex content and test and grade the modified PG binder in accordance with AASHTO M 320.

2. The laboratory test results verifying the blend and compliance with 902.01(a) shall be submitted to the Engineer for approval.

3. The source of the PG Binder or SBR polymer latex shall not be changed.

1. Sampling

An acceptance sample and backup sample shall be taken from the asphalt delivery system at the HMA plant. A copy of a load ticket identifying the binder source shall be submitted with the samples. The Engineer will take immediate possession of the samples.

2. PG Binder Testing

The Department will perform complete testing in accordance with AASHTO M 320. Complete PG binder testing will consist of RTFO DSR and PAV BBR testing. Rotational viscosity and flashpoint tests are not required. If the material is not in accordance with the specifications, the material will represent one week of HMA production and be adjudicated as a failed material in accordance with 105.03.

3. Appeals

If the Contractor does not agree with the acceptance test results, a request may be made in writing for additional testing. The appeal shall be submitted within 15 calendar days of receipt of the Department's written results. The basis of the appeal shall include complete AASHTO M 320 test results.

(b) Asphalt Emulsions

Asphalt emulsions shall be from a supplier listed on the QPL of Asphalt Emulsion Suppliers. An emulsion will be considered for inclusion on the QPL by following ITM 593. Asphalt emulsions may contain additives to improve handling and performance characteristics. Failure of an emulsion to perform satisfactorily in the field shall be cause for rejection, even though it passes laboratory tests. The grade used shall be in accordance with the table for asphalt emulsions as shown herein. A Type C certification in accordance with 916 shall be provided for the asphalt emulsion.

The requirements for asphalt emulsions are as follows:

Characteristics[1]	Test Method	AE-90		AE-90S		AE-NT		AE-F		AE-150		AE-PL	
		Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.
Test on Emulsion													
Viscosity, Saybolt Furol at 25°C (77°F), s or Viscosity, Rotational Paddle at 25°C (77°F), mPa*s	AASHTO T 59					15 30	100 200		100 200	50 100			115 230
Viscosity, Saybolt Furol at 50°C (122°F), s or Viscosity, Rotational Paddle at 50°C (122°F), mPa*s	AASHTO T 59	50 100		50 100						75 150	300 600		
Demulsibility w/35 mL, 0.02N $CaC1_2$, %	AASHTO T 59			30									
Demulsibility w/50 mL, 0.10N $CaC1_2$, %	AASHTO T 59	75											
Oil Distillate by Distillation, mL/100 g Emulsion[2]	AASHTO T 59		4.0		3.0		4.0		4.0		7.0		3.0
Residue by Distillation, %	AASHTO T 59	65		65[4]		50		27	35	65		30	
Sieve Test, sample retained, %	AASHTO T 59		0.10		0.10		0.30		0.10		0.10		0.10
Penetrating Ability, mm	902.02(u)											6.0	
Stone Coating Test, %	902.02(r)3a	90								90			
Settlement, % (5 days)	AASHTO T 59		5.0				5.0						
Storage Stability, %	AASHTO T 59				1.0								

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Characteristics[1]	Test Method	AE-90		AE-90S		AE-NT		AE-F		AE-150		AE-PL	
		Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.
Tests on Residue													
Penetration (0.1 mm) at 25°C (77°F), 100g, 5 s[3]	AASHTO T 49	100	200	90	150		40		90				
Penetration (0.1 mm) at 25°C (77°F), 50g, 5 s[3]	AASHTO T 49									100	300		
Ductility at 25°C (77°F), mm	AASHTO T 51	400											
Ash Content, %	AASHTO T 111		1.0		1.0		1.0		1.0		1.0		1.0
Float Test at 60°C (140°F), s[3]	AASHTO T 50	1200		1200						1200			
Force Ratio	AASHTO T 300			0.30									
Elongation Recovery, at 4°C (39°F)	AASHTO T 301			58									

Notes:
[1] Broken samples or samples more than 14 days old will not be tested.
[2] Oil distillate shall be in accordance with ASTM D396, table 1, grade No. 1.
[3] The Engineer may waive the test.
[4] Maximum temperature to be held for 15 minutes at 350 ±9°F (175 ±5°C).

RS-2, HFRS-2, and SS-1h shall be in accordance with AASHTO M 140, except the cement mixing test is waived.

CRS-2P and HFRS-2P shall be in accordance with AASHTO M 316. The distillation temperature shall be 350°F.

CSS-1h shall be in accordance with AASHTO M 208.

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1. Asphalt Emulsion Warranted Micro-Surfacing

The polymer modified asphalt emulsion shall be a quick-set, CSS-1h emulsion in accordance with AASHTO M 208, except the cement-mixing test is waived.

The polymer material shall be milled or blended into the asphalt or blended into the emulsifier solution prior to the emulsification process. The minimum polymer solids content will be 3.0% based on the residual of the emulsion. Mix set additives shall be added as required to provide control of the quick-set properties. Additional requirements shall be in accordance with the following:

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Characteristics	Test Method	Requirements
Residue by Distillation, % (Note)	AASHTO T 59	62+
Softening Point, °F (°C)	AASHTO T 53	140+ (60+)
Viscosity @ 140°F (60°C)	AASHTO T 202	8000+
Elastic Recovery @ 25°C (77°F), %	AASHTO T 301	60+
Note: The distillation temperature for this test shall be 350°F (175°C).		

2. Asphalt Emulsion Ultrathin Bonded Wearing Course

Characteristics		Test Method	Min.	Max.
Viscosity, Saybolt Furol @ 77°F (25°C), s		AASHTO T 59	20	100
Storage Stability Test, 24 h, % (Note 1)		AASHTO T 59		1
Sieve Test, %		AASHTO T 59		0.05
Residue by Distillation, % (Note 2)		AASHTO T 59	63	
Oil Distillate by volume of emulsified asphalt, %		AASHTO T 59		2
Demulsibility, %	w/35 mL, 0.02 N CaCl2 or	AASHTO T 59	60	
	w/35 mL, 0.8% DSS	AASHTO T 59		
Tests on Residue from Distillation				
Penetration (0.1 mm) at 77°F (25°C), 100g, 5 s		AASHTO T 49	90	150
Elastic Recovery @ 39°F (4°C), %		AASHTO T 301	58	

Notes:

1. After 24 h, the emulsion shall be a homogeneous color.

2. Except maximum temperature of 400 ±10°F (205 ±5°C).

3. Asphalt Emulsion Recycling

Characteristics (Note 1)	Test Method	Min.	Max.
Viscosity, Saybolt Furol, @ 77°F (25°C), SFS	AASHTO T 59	20	100
Sieve Test, No. 20, retained on sieve, %	AASHTO T 59		0.10
Storage Stability Test, 24 hr, %	AASHTO T 59		1
Residue by Distillation, % (Note 2)	AASHTO T 59	64	
Oil Distillate by volume of emulsified asphalt, %	AASHTO T 59		1
Penetration, 77°F (25°C), 100 g, 5 s, dmm	AASHTO T 49	50	200

Notes:

1. The asphalt emulsion shall be selected for the project by the asphalt emulsion supplier based on the Contractor's mixture design. The penetration of the supplied asphalt emulsion shall be within ±25 dmm of the penetration of the design asphalt emulsion. The asphalt emulsion shall be received on the job site at a temperature no greater than 120ºF (50°C).

2. Modified AASHTO T 59 – distillation temperature of 350 ±9°F (175 ±5°C) with a 20-minute hold.

4. Rapid Penetrating Emulsion, RPE

The asphalt material comprising the rapid penetrating emulsion shall be in accordance with the following:

Characteristics	Test Method	Requirements
Test on Emulsion		
Viscosity, Saybolt Furol at 25°C, max.	AASHTO T 59	50
Sieve Test, %, max.	AASHTO T 59	0.10
Oil Distillate by Volume of Emulsified Asphalt, %, max.	AASHTO T 59	1.0
Identification Test, %, min.	ITM 599	60
Water Resistance Test, %, min.	ITM 598	60
Residue by Distillation*, %, min.	AASHTO T 59	30
Test on Residue		
Penetration (0.1 mm) at 25C, 100g, 5s, max.	AASHTO T 49	150
Ash Content, %, max.	AASHTO T 111	1.0
* The minimum sample size shall be 300g.		

(c) Blank

(d) Utility Asphalt

The asphalts shall be uniform in character and shall not foam when heated to 350°F. Utility asphalts shall be in accordance with the following: