

State: Montana	Materials: Re: Section 702.02
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Montana		Table 1: Requirements for Anionic Emulsified Asphalt		
Property		Test Method AASHTO (T), ASTM (D), or Other	SS-1	SS-1H
EMULSIONS:				
Viscosity, Saybolt Furol seconds	25 °C (77 °F)	T59	20-100	20-100
	50 °C (122 °F)		-	-
Storage Stability Test, 24 hours, %			1 max.	1 max.
Sieve Test, %			0.1 max.	0.1 max.
Demulsibility, %			-	-
Cement Mixing Test, %			2.0 max.	2.0 max.
Coating Ability and Water Resistance	Dry Aggregate		-	-
	After Spraying		-	-
	Wet Aggregate		-	-
	After Spraying		-	-
Residue, %			57 min.	57 min.
Oil Distillate, volume of emulsion, %			-	-
DISTILLATION RESIDUE:				
Penetration, 25 °C (77 °F), tenths of mm		T49	90-250	40-90
Ductility, 25 °C (77 °F), cm		T51	40 min.	40 min.
Ash Content, %			1.0 max.	1.0 max.
Float Test at 60 °C (140 °F), seconds		T50	-	-
NOTES:				

Montana		Table 2: Requirements for Cationic Emulsified Asphalt				
Property		Test Method AASHTO (T), ASTM (D), or Other	CQS-1H	CRS-2	CSS-1	CSS-1H
EMULSIONS:						
Viscosity, Saybolt Furol Seconds, range	25 °C (77 °F)	T59	20-100	-	20-100	20-100
	50 °C (122 °F)		-	100-400	-	-
Settlement, 5 days, %			-	-	-	-
Storage Stability Test, 24 hours, %			-	1.0 max.	1.0 max.	1.0 max.
Sieve Test, %			0.10 max.	0.10 max.	0.10 max.	0.10 max.
Particle Charge Test			Positive	Positive	Positive	Positive
Demulsibility, %			-	40 min.	-	-
Ash Content, %			T111	1 max.	1 max.	1 max.
Residue, %		T59	62	65	57	57
EVAPORATION RESIDUE:						
Penetration, 25 °C (77 °F), tenths of mm		T49	40-90	90-150	90-250	40-90
Ductility, 25 °C (77 °F), cm		T51	40 min.	40 min.	40 min.	40 min.
Elastic Recovery, 25 °C, %		T301	-	-	-	-
NOTES:						

Montana		Table 3: Requirements for Polymer Modified Cationic Asphalt Emulsions			
Property		Test Method AASHTO (T), ASTM (D), or Other	CQS-1HP	CQS-1P	CRS-2P (1,3)
EMULSIONS:					
Viscosity, Saybolt Furol Seconds, range	25 °C (77 °F)	T59	20-100	20-100	-
	50 °C (122 °F)		-	-	100-400
Settlement, 5 days, %			-	-	-
Storage Stability Test, 24 hours, %			-	-	1 max.
Sieve Test, %			0.1 max.	0.1 max.	0.1 max.
Particle Charge Test			Positive	Positive	Positive
Demulsibility, %			-	-	40
Ash Content, %			T111	1 max.	1 max.
Residue by Evaporation, % (2)		T59	62 min.	62 min.	65 min.
EVAPORATION RESIDUE:					
Penetration, 25 °C (77 °F), tenths of mm		T49	40-90	90-200	90-150
Softening Point, °F		T53	135 min.	128 min.	-
Elastic Recovery, 25 °C, %		T301	50 min.	60 min.	60 min.
Ductility, 25 °C (77 °F), 5 cm/min		T51	-	-	-
Float Test at 60 °C (140 °F), seconds		T50	-	-	-
NOTES:		<ol style="list-style-type: none"> 1. Polymerize CRS-2P emulsions using at least 3% polymer by weight (mass) of the asphalt binder. 2. AASHTO T59 Residue by Evaporation will be used to obtain samples for all residue testing requirements. AASHTO T59 is modified by deleting note 8. 3. Specification aligns with M316-23. 			

To ensure the most accurate and current information, the specific agency should be contacted.

Montana		Table 4: Requirements for High Float Emulsions (1)			
Property		Test Method AASHTO (T), ASTM (D), or Other	HF-100	HFE-300	CHFRS-2P (7)
EMULSIONS:					
Viscosity, Saybolt Furol Seconds, range	25 °C (77 °F)	T59	-	-	-
	50 °C (122 °F)		50-400	50-400	100-400
Settlement, 5 days, %			-	-	5 max.
Storage Stability Test, 24 hours, % (2)			1 max.	-	1 max.
Sieve Test, % (2,3)			0.10 max.	0.3 max.	0.1 max.
Particle Charge Test			-	-	Positive
Demulsibility, % (4)			30 min.	-	40 min.
Ash Content, %			T111	-	-
Residue, %		T59	65 min.	60 min.	65 min.
Oil Distillate, volume of emulsion, %			2 max.	18 max.	0.2 max. (6)
RESIDUE:			DISTILLATION		EVAPORATION
Penetration, 25 °C (77 °F), tenths of mm		T49	100-170	300 min	90-150
Ductility, 25 °C (77 °F), cm		T51	40 min.	-	75 min.
Solubility in trichloroethylene, % (5)		T44	95.5 min.	-	95 min.
Elastic Recovery, 25 °C, %		T301	-	-	60 min.
Softening Point, °F		T53	-	-	130 min.
Float Test at 60 °C (140 °F), seconds		T50	1200 min.	1200 min.	1800 min.
Viscosity @ 140 °F, Poise		T44	-	-	1300 min.
NOTES:		<ol style="list-style-type: none"> 1. Refer to R5 for typical applications. 2. This test requirement on representative samples is waived if successful application of the material has been achieved in the field. 3. A maximum percentage of 0.30 is acceptable for samples taken at the point of use. 4. The demulsibility test shall be performed within 30 days from the date of shipment. Use 50 ml 0.10 N CaCl₂ solution. 5. N-propyl bromide may also be used for HFRS-2. 6. The oil distillate requirement of 0.2 maximum is only checked in the event that the residual binder collected via evaporation falls outside of the allowable range. 7. Polymerize CHFRS-2P emulsions using at least 4% polymer by weight (mass) of the asphalt binder. 			

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Montana		Table 5: Requirements for High Performance (Rejuvenated) Asphalt Emulsions	
Property		Test Method AASHTO (T), ASTM (D), or Other	PMRE
EMULSIONS:			
Viscosity, Saybolt Furol Seconds, range	25 °C (77 °F)	T59	-
	50 °C (122 °F)		50-400
Settlement, 5 days, %			
Storage Stability Test, 24 hours, %			
Sieve Test, %			-
Particle Charge Test			
Demulsibility, %			
Ash Content, %	T111		
Residue, %	T59	65	
EVAPORATION RESIDUE:			
Penetration, 25 °C (77 °F), tenths of mm	T49	20-70	
Ductility, 25 °C (77 °F), cm	T51		
Elastic Recovery, 25 °C, %	T301	-	
NOTES:			