

State: Virginia	Materials: Re: Section 210 – Asphalt Materials
Date: 2/12/2024	Web Address: www.dot.state.va.us
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Virginia		Table 1: Requirements for Cationic Emulsified Asphalts (1)								
Property	Test Method AASHTO (T), or ASTM (D)	Quick-Setting		Rapid-Setting				Med.-Setting	Slow-Setting	
		CQS-1h	CQS-1hLM	CRS-1	CRS-1h	CRS-2	CRS-2L(P)	CMS-2	CSS-1h	
EMULSIONS:										
Viscosity, Saybolt Furoil seconds	25 °C (77 °F)	VTM-64	20-100	20-100	-	-	-	-	-	20-100
	50 °C (122 °F)		-	-	20-100	20-100	100-400	100-400	50-450	-
Storage Stability, 24 hours, % (2)	-		-	1 max.	1 max.	1 max.	-	1 max.	1 max.	
Sieve Test, % (2)	0.10 max.		-	0.10 max.	0.10 max.	0.10 max.	0.10 max.	0.10 max.	0.10 max.	
Particle Charge	-		-	Positive	Positive	Positive	-	Positive	Positive	
Demulsibility, % (3)	-		-	40 min.	40 min.	40 min.	-	-	-	
Cement Mixing Test, %	-		-	-	-	-	-	-	2.0 max.	
Coating Ability and Water Resistance	Dry Aggregate		-	-	-	-	-	-	Good	-
	After Spraying		-	-	-	-	-	-	Fair	-
	Wet Aggregate		-	-	-	-	-	-	Fair	-
	After Spraying		-	-	-	-	-	-	Fair	-
Residue by Distillation, %	62 min.		-	60 min.	60 min.	65 min.	-	65 min.	57 min.	
Oil Distillate, volume of emulsion,%	-		-	3 max.	3 max.	3 max.	-	12 max.	-	
DISTILLATION RESIDUE:										
Penetration, 25 °C (77 °F), dmm	T49	40-90	40-90	90-150	40-110	90-150	70-140	90-250	40-90	
Ductility, 25 °C (77 °F), cm	T51	40 min.	-	40 min.	40 min.	40 min.	-	40 min.	40 min.	
Ash Content, %	T111	1 max.	-	1 max.	1 max.	1 max.	-	1 max.	1 max.	
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. Use 35 ml of 0.8% sodium dioctyl sulfosuccinate solution. 									



Virginia	Table 1 Continued: Requirements for Cationic Emulsified Asphalts								
Property	Test Method AASHTO (T), ASTM (D), or Other	Quick-Setting		Rapid-Setting				Medium-Setting	Slow-Setting
		CQS-1h	CQS-1hLM	CRS-1	CRS-1h	CRS-2	CRS-2L(P)	CMS-2	CSS-1h
EMULSIONS:									
Residue by Evaporation, %	T59	-	62 min. (4)	-	-	-	65 min.	-	-
EVAPORATION RESIDUE:									
Penetration, 25 °C (77 °F), tenths of mm	T49	-	40-90	-	-	-	70-140	-	-
Ring and Ball Softening Point, °F	T53	-	140 min.	-	-	-	100 min.	-	-
Elastic Recovery, %	T301	-	-	-	-	-	50 min. (5)	-	-
NOTES:	4. Performed according to VTM-78. 5. Performed at 50 °F.								