

Product:**CMS-1PC****Description:**

A cationic, water-based asphalt emulsion product used primarily as a rejuvenating scrub seal.

Specification:

Property	Test Procedure (AASHTO)	Specification	
		Min	Max
Emulsion Properties			
Viscosity, Saybolt-Furol, 77°F, SFS	T72	50	350
Sieve Test, %	T59		0.1
Storage Stability, 24 hour, %	T59		1
Residue Properties From Distillation			
Residue by Distillation ⁽¹⁾ , 350°F, %	T59	60	
Oil Distillate, %	T59		0.5
Penetration, 4°C, 200g weight, 60 sec	T49	30	
Residue Properties From Low Temp Evaporation			
AASHTO R78, Procedure B			
MSCR, 52°C, J _{nr} , 3.2/kPa	T350		4.0
MSCR, 52°C, % Recovery, 0.1/kPa	T350	30	
Polymer Properties ⁽²⁾			
Swelling in rejuvenating agent, % max weight increase:	ASTM D471 Modified ⁽²⁾		40
Tensile Strength (psi)	ASTM D412A Modified ⁽²⁾	800	
Rejuvenating Agent Properties ⁽¹⁾			
Flash Point, COC, °F	T48	380	
Viscosity, 140 °F, cSt	T201	50	300
Saturates, %	ASTM D4124		30
Asphaltenes, %	ASTM D4124		1.0
Residue Properties from RTFO			
Mass change, %	T240		6.5
Viscosity Ratio, (RTFO/Orig.)	T201		3

1. Exception to AASHTO T59: Bring the temperature on the lower thermometer slowly to 350°F plus or minus 10°F. Maintain this temperature for 20 minutes. Complete the total distillation in 60 plus or minus 5 minutes.
2. Refer to Appendix A for Test Modifications.
3. The emulsion supplier shall receive quarterly certificates of analysis from both the polymer and rejuvenating agent manufacturers. The COAs will be provided to the agency upon request.

Appendix A Test Modifications

ASTM D471 Standard Test Method for Rubber Property-Effect of Liquids: Modifications for Polymer Testing, Resistance to Swelling:

1. Using a syringe, place 0.8g of latex into an 18 mm diameter DSR mold.
2. Allow the sample to dry at ambient lab conditions (air conditioned) on the bench for 72 hours.
Sample should be easily removable from the mold.
3. Take the "button" out of the mold and place the sample into a forced air oven at 40°C (104°F) for 48 hours (on release paper).
If at the end of the ambient dry, the sample sticks to the mold, place it into the oven and check it after 1-2 hours.
4. After 48 hours cool and weigh the sample to the nearest 0.0001 gram and record the weight.
5. Put ½ inch of Rejuvenating Agent into a 3 oz. penetration tin.
6. Place the "button" on the Rejuvenating Agent, and add another ½ inch of Rejuvenating Agent, so that the "button" is covered.
7. Put the cap on the penetration tin and place it into the 40°C oven for 48 hours.
8. Remove the "button" from the Rejuvenating Agent, blot surface of the "button" to remove excess Rejuvenating Agent, cool the "button" to room temperature and weigh it.
9. Calculate weight gain of the "button", express as %.

ASTM D412A Standard Test Methods for Vulcanized Rubber and Thermoplastic Elastomers-Tension: Modifications

1. To prepare the polymer film, dilute the waterborne polymer to 40% Total Solids Content and pour 57g into a Teflon or silicone release mold of dimensions 7" X 7" X ¼".
2. Allow to dry at 23°C (73°F) and 50% RH (controlled conditions) for 7 - 10 days total time, during which time the film should be flipped over once, preferably after 3 or 4 days. The film should be transparent in the end.
3. To drive out any residual water, place the film in an oven at 50°C for 30 min. Dried film thickness should be 25 mil ± 5 mils. Discard films <20 mil.
4. Cut out dumbbell-shaped test specimens of dimension 75 mm total length, 25 mm mid-section (L) and 4 mm width of mid-section.
5. Grip in Instron machine with gap size 1 inch, use 8 inch/min cross-head speed.