

State: Minnesota	Materials: Re: 2360/2350 Combined Specification, December 9,2003
Date Last Reviewed: 2/25/25	Web Address: www.dot.state.mn.us
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Asphalt Binder		
Section 3151	Highlights	MNDOT - a member of the Combined States Binder Group (CSBG) - implemented the use of % Rec3.2 to replace current % recovery testing for all modified binders in 2015. This requirement varies depending on the binder grade and the specified test temperature (see table below). They fully implemented M332 for all grades beginning in 2016.
	PMA Notes	See table below.
	Exclusions and Limits	Air Blown materials w/o DOT Approval. Tankage shall not be used for distillate fuels. (Note 1)

Minnesota		Table 1: Requirements for Performance-Graded Asphalt Binders (Note 2)											
Property	Test Method	Requirements by Performance Grade (Note 3)											
		58S-28	58H-28	58V-28	58E-28	58S-34	58H-34	58V-34	58E-34	46S-34	52S-34	64S-22	
ORIGINAL													
Flash Point, ° C	T48	230 min.											
Rotational Viscosity, Pa·s	135° C	3.0 max.											
Dynamic Shear, kPa (G*/sin δ, 10 rad./sec)	At Grade Temp.	1.00 min.											
RTFO RESIDUE		T240											
Mass Change, %	T240	1.00 max.											
MSCR: J _{nr} @3.2kPa, max.	At Grade Temp.	4.5	2.0	1.0	0.5	4.5	2.0	1.0	0.5	4.5			
MSCR: % Recovery @ 3.2kPa, min.		N/A	30	55	75	N/A	30	55	75	N/A			
MSCR: J _{nr} % Difference, Max.		75		N/A		75			N/A		75		
PAV RESIDUE		R28											
		100° C, 20 hrs, 300 psi											
Dynamic Shear, kPa (G* · sin δ, 10 rad./sec.)	At Test Temp.	19° C			16° C				10° C	13° C	25° C		
		5000 max.	6000 max.		5000 max.	6000 max.			5000 max.				
Creep Stiffness, MPa	At Test Temp.	-18° C			-24° C						-12° C		
		300 max.											
M-Value		0.300 min.											
NOTES		<ol style="list-style-type: none"> Anti-Strip when added cannot reduce the PG. Mix & Compaction Temperatures to be furnished by binder supplier. Random samples from the supplier are required to meet the specification without tolerances. The tolerances are applied to field verification samples only. Requirements in addition to M332 are shown in red. LTPP Bind temperature for Minnesota is 58°C for the high PG Binder Grade temperature. The bottom three grades are special use binders and are to be tested at the high temperature indicated by the grade (example: PG 49S-34 is tested @ 49C). 											

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