

<b>State: Pennsylvania</b>	<b>Materials:</b> Re: Pub. 408, Section 702 - Asphalt Materials (Note 1)
<b>Date Last Reviewed:</b> 4/1/24	<b>Web Address:</b> www.pennDOT.pa.gov
<b>Materials Engineer:</b> Tim Ramirez, P.E.	<b>Contact Info:</b> T.Ramirez@pa.gov

Asphalt Binder		
Pub. 408, Section 702 & Pub. 37	Highlights	PennDOT fully implemented AASHTO M 332 (MSCR) for all grades in April 2020. MSCR recovery is currently being specified using the curve in AASHTO R 92. "Standard" grades are PG 46S-40, PG 58S-28, PG 64S-22, and PG 64E-22; "Non-Standard" grades are PG 52S-28, PG 64S-28, PG 58E28, PG 64H-22, and PG 64E-28.
	PMA Notes	SB or SBS block copolymers.
	Exclusions and Limits	Acid, Air Blown, or any other modifier without preapproval as an experimental binder.

Pennsylvania		Table 1: Requirements for Performance-Graded Asphalt Binders									
Property		Test Method: AASHTO	Requirements by Performance Grade								
			46S-40	52S-28	58S-28	58E-28	64S-22	64H-22	64E-22	64S-28	64E-28
<b>ORIGINAL</b>											
Flash Point, °C		T 48	230 min.								
Specific Gravity	15.6°C	T 228	Report								
Rotational Viscosity, Pa·s	135°C	T 316	3.0 max.								
Dynamic Shear, kPa (G*/sin δ, 10 rad./sec)	At Grade Temp.	T 315	1.00 min.								
<b>RTFO RESIDUE</b>		T 240									
Mass Change, %		T 240	1.00 max.								
MSCR Test temp., °C		T 350	46	52	58	64					
MSCR J <sub>nr3.2</sub> , max., kPa <sup>-1</sup>			4.5	4.5	4.5	0.5	4.5	2.0	0.5	4.5	0.5
MSCR J <sub>nr diff</sub> , max., %			75 max. (Note 2)								
MSCR, % recovery @ 3.2kPa, min.			(Note 3)								
<b>PAV RESIDUE</b>		R 28	100° C, 20 hrs, 300 psi								
DSR Test Temperature, °C		T 315	7	16	19	25		22			
Dynamic Shear, kPa (G*· sin δ, 10 rad./sec.)			6000 max. δ min. 42° (Note 4)	6000 max.	6000 max. δ min. 42° (Note 4)	6000 max.		6000 max. δ min. 42° (Note 4)	6000 max.		
BBR Test Temperature, °C		T 313	-30	-18		-12		-18			
Creep Stiffness, MPa			300 max.								
M-Value			0.300 min.								
<b>NOTES</b>		<ol style="list-style-type: none"> <li>See Bulletin 25 (pub 37) for complete binder specifications.</li> <li>Not applicable for binders with J<sub>nr3.2</sub> &lt; 0.5 kPa<sup>-1</sup>.</li> <li>&gt;29.371*(J<sub>nr3.2</sub>)<sup>0.263</sup> - binder grades H and E must meet the requirements of AASHTO R 92.</li> <li>If G*· sin δ is below 5000 the phase angle minimum limit is not required .</li> </ol>									

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