

State: Texas	Materials: Item 300 – Asphalt, Oils, and Emulsions
Date Last Reviewed: 6/13/2024	Web Address: https://www.txdot.gov/business/resources/txdot-specifications.html .
Division Director: Ryan Barborak	Contact: Pravat Karki, Pravat.Karki@txdot.gov

Asphalt Binder		
Section 300	Highlights	Performance-Graded Asphalt Binders must be smooth and homogeneous, show no separation when tested in accordance with Tex-540-C, and meet Table 18 requirements.
	PMA Notes	Separation testing is not required if: a modifier is introduced separately at the mix plant either by injection in the asphalt line or mixer; the binder is blended on site in continuously agitated tanks; or binder acceptance is based on field samples taken from an in-line sampling port at the hot mix plant after the addition of modifiers.
	Exclusions and Limits	Limit the use of polyphosphoric acid to no more than 0.5% by weight of the asphalt binder. The use of re-refined engine oil bottoms (REOB) is not allowed.

Texas		Table 1: Requirements for Performance-Graded Asphalt Binders (Note 4)										
Property	Test Method:	Requirements by Performance Grade										
		58			64			70				
		-22	-28	-34	-16	-22	-28	-34	-16	-22	-28	-34
ORIGINAL												
Flash Point, ° C	T48	230 min.										
Rotational Viscosity, Pa·s	135° C T316 (2, 3)	3.0 max.										
Dynamic Shear, kPa (G*/sin δ, 10 rad./sec)	At Grade Temp. T315 (4)	1.00 min., 2.00 max. (5)										
Elastic Recovery, % min. (6)	50° F D6084	-	30	-	30	50	-	30	50	60		
RTFO RESIDUE												
Mass Change, %	T240	1.0 max.										
Dynamic Shear, kPa (G*/sin δ, 10 rad./sec.)	At Grade Temp. T315	2.20 min., 5.00 max. (5)										
MSCR, % Recovery, 0.1 kPa, % min. (6)	At High Grade Temp. T350	-	20	-	20	30	-	20	30	40		
PAV RESIDUE		100° C, 20 hrs, 2.1 MPa										
Dynamic Shear, kPa (G* · sin δ, 10 rad./sec.)	At Test Temp., ° C T315	25	22	19	28	25	22	19	28	25	22	19
		5000 max. (6000 max. for δ ≥ 42°)										
Creep Stiffness, MPa	At Test Temp., ° C T313 (7, 8)	-12	-18	-24	-6	-12	-18	-24	-6	-12	-18	-24
M-Value		300 max.										
		0.300 min.										
Direct Tension, Failure Strain, % (1)	At Test Temp., ° C T314 (8)	-12	-18	-24	-6	-12	-18	-24	-6	-12	-18	-24
		1.0 min.										
Table 1 Continues On Page 2												

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



<i>Texas</i>		Table 1: Requirements for Performance-Graded Asphalt Binders Continued (Note 4)							
Property		Test Method:	Requirements by Performance Grade						
			76				82		
			-16	-22	-28	-34	-16	-22	-28
ORIGINAL									
Flash Point, ° C		T48	230 min.						
Rotational Viscosity, Pa·s (2,3)	135° C	T316 (2, 3)	3.0 max.						
Dynamic Shear, kPa (G*/sin δ, 10 rad./sec) (4)	At Grade Temperature	T315 (4)	1.00 min., 2.00 max. (5)						
Elastic Recovery, % min. (6)	50° F	D6084	30	50	60	70	50	60	70
RTFO RESIDUE		T240							
Mass Change, %		T240	1.0 max.						
Dynamic Shear, kPa (G*/sin δ, 10 rad./sec.)	At Grade Temperature	T315	2.20 min., 5.00 max. (5)						
MSCR, % Recovery, 0.1 kPa, % min. (6)	At High Grade Temperature	T350	20	30	40	50	30	40	50
PAV RESIDUE		R28	100° C, 20 hrs, 2.1 MPa						
Dynamic Shear, kPa (G* · sin δ, 10 rad./sec.)	At Test Temp., ° C	T315	28	25	22	19	28	25	22
			5000 max. (6000 max. for δ ≥ 42°)						
Creep Stiffness, MPa	At Test Temp., ° C	T313 (7, 8)	-6	-12	-18	-24	-6	-12	-18
			300 max.						
M-Value			0.300 min.						
Direct Tension, Failure Strain, % (1)	At Test Temp., ° C	T314 (8)	-6	-12	-18	-24	-6	-12	-18
			1.0 min.						
NOTES		<ol style="list-style-type: none"> Requirements in addition to M320 are shown in red. This requirement may be waived at the Department's discretion if the supplier warrants that the asphalt binder can be adequately pumped, mixed, and compacted at temperatures that meet all safety, environmental, and constructability requirements. Additional note giving guidance for alternate viscosity measurement in TxDOT Item 300, Table 18. See general disclaimer regarding mixing and compaction temperatures in TxDOT Item 300, Table 18. Additional note giving guidance for alternate viscosity measurement for QC in TxDOT Item 300, Table 18. Max values for unaged and RTFO-aged dynamic shear apply only to materials used as substitute binders, as described in Item 341, "Dense-Graded Hot-Mix Asphalt," and Item 344, "Superpave Mixtures." Elastic Recovery (ASTM D6084) is not required unless MSCR (T 350) is less than the minimum % recovery. Elastic Recovery shall be used for the acceptance criteria in this instance. Silicone beam molds, as described in AASHTO TP 1-93, are acceptable for use. If creep stiffness is below 300MPa, direct tension test is not required. If creep stiffness is between 300 and 600 MPa, the direct tension failure strain requirement can be used instead of the creep stiffness requirement. The m-value requirement must be satisfied in both cases. 							

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

