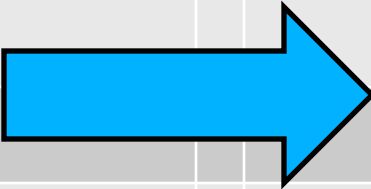



PAV Temperature Selection

(Take No. 3)

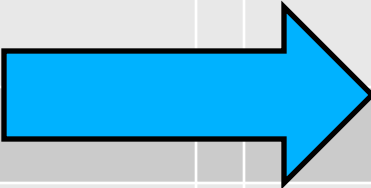
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FHWA Binder ETG
16 Sept 2014
Baton Rouge, LA

April 2014 Binder ETG

PG grade	PAV aging temp, °C ^f		PAV aging temp, °C ^f
PG 46	90		90 (100, 110)
PG 52	90		90 (100, 110)
PG 58	100		100 (90, 110)
PG 64	100		100 (90, 110)
PG 70	100 (110)		110 (90, 100)
PG 76	100 (110)		110 (90, 100)
PG 82	100 (110)		110 (90, 100)

Note *f*: The PAV aging temperature is based on simulated climatic conditions and is one of three temperatures, 90°C, 100°C, or 110°C. Normally the PAV aging temperature is 100°C for PG 58-xx and above. However, in desert climates, the PAV aging temperature for PG 70-xx and above may be specified as 110°C.

PG grade	PAV aging temp, °C ^f	PAV aging temp, °C ^f
PG 46	90	90 <u>(100, 110)</u>
PG 52	90	90 <u>(100, 110)</u>
PG 58	100	100 <u>(110)</u>
PG 64	100	100 <u>(110)</u>
PG 70	100 (110)	<u>100 (110)</u>
PG 76	100 (110)	<u>110 (100)</u>
PG 82	100 (110)	<u>110 (100)</u>



Note *f*: The PAV aging temperature is based on simulated climatic conditions and is one of three temperatures, 90°C for cold climates, 100°C for moderate climates, or 110°C for hot climates. Normally the PAV aging temperature is 90°C for PG 52-xx and below, 100°C for PG 58-xx thru PG 70-xx, and 110°C for PG 76-xx and above. However, ~~in desert climates~~, the PAV aging temperature ~~for PG 70-xx and above~~ may be specified as 100°C when used in moderate climates, or 110°C when used in hot climates.

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Table 1—Performance-Graded Asphalt Binder Specification

Performance Grade	PG 46			PG 52						PG 58					PG 64								
	34	40	46	10	16	22	28	34	40	46	16	22	28	34	40	10	16	22	28	34	40		
Average 7-day maximum pavement design temperature, °C ^a	<46			<52						100 (110)					<64								
Minimum pavement design temperature, °C ^a	>>-34	>>-40	>>-46	>>-10	>>-16	>>-22	>>-28	>>-34	>>-40							>>-16	>>-22	>>-28	>>-34	>>-40			
Flas	Original Bin																						
V	90 (100, 110)																						
D	46			52						58					64								
tes	Rolling Thin-Film Oven Residue (T 240)																						
Mass change, maximum, percent	1.00																						
Dynamic shear, T 315: G* sinδ, minimum 2.20 kPa test temp @ 10 rad/s, °C	46			52						58					64								
PAV aging temperature, °C ^c	90			90						100					100								
Dynamic shear, T 315: G* sinδ, maximum 5000 kPa test temp @ 10 rad/s, °C	10	7	4	25	22	19	16	13	10	7	25	22	19	16	13	31	28	25	22	19	16		
Creep stiffness, T 313: ^a S, maximum 300 MPa																							

^f The PAV aging temperature is based on simulated climatic conditions and is one of three temperatures, 90°C for cold climates, 100°C for moderate climates, or 110°C for hot climates. Normally the PAV aging temperature is 90°C for PG 52-xx and below, 100°C for PG 58-xx thru PG 70-xx, and 110°C for PG 76-xx and above. However, the PAV aging temperature may be specified as 100°C when used in moderate climates, or 110°C when used in hot climates.

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Table 1—Continued

Performance Grade	PG 70						PG 76					PG 82				
	10	16	22	28	34	40	10	16	22	28	34	10	16	22	28	34
Average 7-day maximum pavement design temperature, °C ^a	<70											<82				
Minimum pavement design temperature, °C ^a	>-10	>-16	>-22	>-28	>-34	>-40	>-10						>-16	>-22	>-28	>-34
Flash point temp, T 48, minimum °C	Original B															
Viscosity, T 316: ^b maximum 3 Pa·s, test temp, °C	110 (100)															
Dynamic shear, T 315: ^c G*/sin δ, ^d minimum 1.00 kPa test temp @ 10 rad/s, °C	70						76					82				
Mass change, ^e maximum, percent	Rolling Thin-Film Oven Residue (T 240)															
Dynamic shear, T 315: ^c G*/sin δ, ^d minimum 2.20 kPa test temp @ 10 rad/s, °C	70						76					82				
PAV aging temperature, °C ^f	100 (110)						100 (110)					100 (110)				
Creep stiffness, T 313: ^g	34	31	28	25	22	19	37	34	31	28	25	40	37	34	31	28

^f The PAV aging temperature is based on simulated climatic conditions and is one of three temperatures, 90°C for cold climates, 100°C for moderate climates, or 110°C for hot climates. Normally the PAV aging temperature is 90°C for PG 52-xx and below, 100°C for PG 58-xx thru PG 70-xx, and 110°C for PG 76-xx and above. However, the PAV aging temperature may be specified as 100°C when used in moderate climates, or 110°C when used in hot climates.

and above. However, in desert climates, the PAV aging temperature for PG 70-xx and above may be specified as 110°C.
^g If the creep stiffness is below 300 MPa, the direct tension test is not required. If the creep stiffness is between 300 and 600 MPa, the direct tension failure strain requirement can be used in lieu of the creep stiffness requirement. The *m*-value requirement must be satisfied in both cases.

Discussion / Comments / Questions

