

Changes agreed to circa June 2008 at PPTG Binder meeting in Sacramento

Modified Binder Specification for Hot Applied Chip Seal Applications <sup>a</sup>

Property	AASHTO Test Method	Grade	
		PG 76-22 PM	PG 76-22 TR <sup>b</sup>
Original Binder			
Flash Point, Minimum °C	T 48	230	230
Solubility, Minimum % <sup>c</sup>	T 44 <sup>d</sup>	98.5	97.5 <sup>e</sup>
Viscosity at 135°C, <sup>f</sup> Maximum, Pa·s	T 316	3.0	3.0
Dynamic Shear, Test Temp. at 10 rad/s, °C Minimum G*/sin(delta), kPa	T 315	76 1.00	76 1.00
RTFO Test , Mass Loss, Maximum, %	T 240	1.00	1.00
RTFO Test Aged Binder			
Dynamic Shear, Test Temp. at 10 rad/s, °C Minimum G*/sin(delta), kPa	T 315	76 2.20	76 2.20
Dynamic Shear, Test Temp. at 10 rad/s, °C Maximum (delta), %	T 315	Note g 80	Note g 80
Elastic Recovery <sup>h</sup> , Test Temp., °C Minimum recovery, %	T 301	25 65	25 65
PAV <sup>i</sup> Aging, Temperature, °C	R 28	110	110
RTFO Test and PAV Aged Binder			
Dynamic Shear, Test Temp. at 10 rad/s, °C Maximum G*/sin(delta), kPa	T 315	31 5000	31 5000
Creep Stiffness, Test Temperature, °C Maximum S-value, MPa Minimum M-value	T 313	-12 300 0.300	-12 300 0.300
Notes:			
a. Do not modify binder using acid modification.			
b. Supplier is required to certify 10% minimum tire rubber modifier in binder.			
c. The Engineer waives this specification if the supplier is a Quality Supplier as defined by the Department's "Certification Program for Suppliers of Asphalt."			
d. The Department allows ASTM D 5546 instead of AASHTO T 44			
e. For hot applied chip seal applications the solubility will be a minimum of 93% and a binder profile is required for supplier who is not a Quality Supplier as defined by the Department's "Certification Program for Suppliers of Asphalt."			
f. The Engineer waives this specification if the supplier certifies the asphalt binder can be adequately pumped and mixed at temperatures meeting applicable safety standards.			
g. Test temperature is the temperature at which G*/sin(delta) is 2.2 kPa. A graph of log G*/sin(delta) plotted against temperature may be used to determine the test temperature when G*/sin(delta) is 2.2 kPa. A graph of (delta) versus temperature may be used to determine delta at the temperature when G*/sin(delta) is 2.2 kPa. The Engineer also accepts direct measurement of (delta) at the temperature when G*/sin(delta) is 2.2 kPa.			
h. Tests without a force ductility clamp may be performed.			
i. "PAV" means Pressurized Aging Vessel.			