Florida Department of Transportation

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January 15, 2019

Khoa Nguyen
Director, Office of Technical Services
Federal Highway Administration
3500 Financial Plaza, Suite 400
Tallahassee, Florida 32312

Re: State Specifications Office
Section: **916**
Proposed Specification: **9160203 Bituminous Materials.**

Dear Mr. Nguyen:

We are submitting, for your approval, two copies of the above referenced Supplemental Specification.

The changes are proposed by Wayne Rilko of the State Materials Office to modify the language.

Please review and transmit your comments, if any, within two weeks. Comments should be sent via email to dan.hurtado@dot.state.fl.us.

If you have any questions relating to this specification change, please call me at 414-4130.

Sincerely,

Signature on file

Dan Hurtado, P.E.
State Specifications Engineer

DH/dt
Attachment
cc: Florida Transportation Builders' Assoc.
State Construction Engineer

BITUMINOUS MATERIALS.
(REV 11-13-18)

SUBARTICLE 916-2.3 is deleted and the following substituted:

916-2.3 Reporting: Specification compliance testing results shall be reported for the tests in the table below, unless noted otherwise. Quality control (QC) testing results shall be reported for original binder DSR (G/sin δ and phase angle, as applicable).

SUPERPAVE PG ASPHALT BINDER		
Test and Method	Conditions	Specification Minimum/Maximum Value
Superpave PG Asphalt Binder Grade		Report
APL Number		Report
Modifier (name and type)	Polymer, Ground Tire Rubber with Approved Product List (APL) number, Sulfur, PPA, REOB, and any Rejuvenating Agents	Report
Original Binder		
Solubility, AASHTO T44-14	in Trichloroethylene	Minimum 99.0% (Not applicable for PG 76-22 (ARB))
Flash Point, AASHTO T48-17	Cleveland Open Cup	Minimum 450ºF
Rotational Viscosity, AASHTO T316-13 (2017)	275ºF	Maximum 3 Pa·s[(a)]
Dynamic Shear Rheometer [(b)], AASHTO T315-12 (2016)	$G^*/\sin\delta$	Minimum 1.00 kPa
	Phase Angle, δ[(c)] PG 76-22 (PMA) and PG 76-22 (ARB)[(d)]	Maximum 75 degrees
Separation Test, ASTM D7173-14 and Softening Point, AASHTO T53-09 (2013)	163±5°C 48 hours	Maximum 15°F (PG 76-22 (ARB) only)
Rolling Thin Film Oven Test Residue (AASHTO T240-13 (2017))		
Rolling Thin Film Oven, AASHTO T240-13 (2017)	Mass Change %	Maximum 1.00
Multiple Stress Creep Recovery, $J_{nr,\ 3.2}$ AASHTO T350-14	Grade Temperature (Unmodified binders only)	"S" = 4.50 kPa^{-1} max

Multiple Stress Creep Recovery, $J_{nr,\ 3.2}$[d, e, f] AASHTO T350-14	67°C (Modified binders only) 76°C (High Polymer binder only)	"V" = 1.00 kPa^{-1} max Maximum $J_{nr,diff}$ = 75% 0.10 kPa^{-1} max
Multiple Stress Creep Recovery, %Recovery[d, e] AASHTO T350-14	67°C (Modified binders only) 76°C (High Polymer binder only)	$\%R_{3.2} \geq 29.37\ (J_{nr,\ 3.2})^{-0.2633}$ $\%R_{3.2} \geq 90.0$
Pressure Aging Vessel Residue (AASHTO R28-12)		
Dynamic Shear Rheometer, AASHTO T315-12 (2016)	$G^*\sin\delta$, 10 rad/sec.	Maximum 5000 kPa[f, g, h]
Creep Stiffness, AASHTO T313-12 (2016)	S (Stiffness), @ 60 sec. m-value, @ 60 sec.	Maximum 300 MPa Minimum 0.300
ΔTc, ASTM D7643-16	20 hours PAV aging S (Stiffness), @ 60 sec. m-value, @ 60 sec.	$\Delta Tc \geq -5.0°C$

(a) Binders with values higher than 3 Pa·s should be used with caution and only after consulting with the supplier as to any special handling procedures, including pumping capabilities.
(b) Dynamic Shear Rheometer (AASHTO T315-12 (2016)) shall be performed on original binders for the purposes of QC testing only.
(c) The original binder phase angle (AASHTO T315-12 (2016)) shall be performed at grade temperature.
(d) AASHTO T315-12 (2016) and AASHTO T350-14 will be performed at a 2-mm gap for PG 76-22 (ARB).
(e) All binders with a high temperature designation >67 will be tested at 67°C. PG 76-22 (PMA) and PG 76-22 (ARB) shall pass a "V" grade per AASHTO M332-14.
(f) A maximum Jnr diff = 75% does not apply for any Jnr value ≤ 0.50 kPa-1.
(g) For all PG grades of a PG 67 or higher, perform the PAV residue testing at 26.5°C with a maximum of 5000 kPa.
(h) For all PG grades of a PG 76 or higher, perform the PAV residue testing at 26.5°C with a maximum of 6000 kPa.

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