Florida Department of Transportation

CHARLIE CRIST
GOVERNOR

605 Suwannee Street
Tallahassee, FL 32399-0450

STEPHANIE KOPELOUSOS
SECRETARY

January 19, 2010

Monica Gourdine
Program Operations Engineer
Federal Highway Administration
545 John Knox Road, Suite 200
Tallahassee, Florida 32303

Re: Office of Design, Specifications
Section 336
Proposed Specification: **3360300 Asphalt Rubber Binder.**

Dear Ms. Gourdine:

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

These changes were proposed by Greg Sholar of the State Materials Office to add viscosity ranges for asphalt rubber and AASHTO test procedure T 316 as an approved procedure for determining the viscosity of asphalt rubber.

Please review and transmit your comments, if any, within two weeks. Comments should be sent via Email to ST986RP or rudy.powell@dot.state.fl.us.

If you have any questions relating to this specification change, please call Rudy Powell, State Specifications Engineer at 414-4280.

Sincerely,

Rudy Powell, Jr., P.E.
State Specifications Engineer

RP/dt
Attachment
cc: Gregory Jones, Chief Civil Litigation
Florida Transportation Builders' Assoc.
State Construction Engineer

ASPHALT RUBBER BINDER.
(REV 11-13-09)

SUBARTICLE 336-3 (of the Supplemental Specifications) is deleted and the following substituted:

336-3 Asphalt Rubber Binder.

Thoroughly mix and react the asphalt binder and ground tire rubber in accordance with the requirements of Table 336-1. Accomplish blending of the asphalt binder and ground tire rubber at the project site/asphalt plant or at the supplier's terminal.

Table 336-1
Asphalt Rubber Binder

Binder Type	ARB 5	ARB 12	ARB 20
Rubber Type	TYPE A (or B)(1)	TYPE B (or A)(2)	TYPE C (or B or A)(2)
Minimum Ground Tire Rubber (by weight of asphalt binder)	5%	12%	20%
Binder Grade	PG 67-22	PG 67-22	PG 64-22
Temperature Range	300 - 335°F	300 - 350°F	335 - 375°F
Minimum Reaction Time	10 minutes	15 minutes (Type B)	30 minutes (Type C)
Unit Weight @ 60ºF(3)	8.6 lbs/gal	8.7 lbs/gal	8.8 lbs/gal
Viscosity Range(4)	4.0 - 6.0 Poises @ 300°F	10.0 - 15.0 Poises @ 300°F	15.0 - 20.0 Poises @ 350°F

(1) Use of Type B rubber may require an increase in the mix temperature in order to offset higher viscosity values.
(2) Use of finer rubber could result in the reduction of the minimum reaction time.
(3) Conversions to standard 60ºF are as specified in 300-9.3.
(4) FM 5-548, Viscosity of Asphalt Rubber by Rotational (Dip-N-Read) Viscometer or AASHTO T 316, Viscosity Determination of Asphalt Binder Using Rotational Viscometer.
NOTE: The Contractor may adjust the minimum reaction time if approved by the Engineer depending upon the temperature, size of the ground tire rubber and viscosity measurement determined from the asphalt rubber binder material prior to or during production. Apply the asphalt rubber binder for use in membrane interlayers within a period of six hours, unless some form of corrective action such as cooling and reheating is approved by the Engineer.

SUBARTICLE 336-5.2 (of the Supplemental Specifications) is deleted and the following substituted:

336-5.2 Verification Requirements: The Engineer will test the asphalt rubber in accordance with FM 5-548 or AASHTO T 316 randomly on an as needed basis at the project site/asphalt plant or supplier's terminal to ensure conformance with the minimum viscosity requirement as specified in Table 336-1.

336-5.2.1: Action at Project Site/Asphalt Plant: If the asphalt rubber binder does not meet the viscosity requirements at the project site/asphalt plant, stop use of asphalt rubber binder. Do not use asphalt rubber binder with a viscosity outside of the

specified range in mix and interlayer construction until corrective actions, as necessary to meet the requirements of Table 336-1, have been made, verified by passing test results, and the Engineer grants approval. The Engineer may require that any mix and interlayer placed with an asphalt rubber binder with a viscosity outside of the specified range be evaluated in accordance with 334-5.1.9.5. In the event that the viscosity of the asphalt rubber binder adversely affects plant production or paving operations, stop plant and paving operations and resolve the problem to the Engineer's satisfaction.

336-5.2.2: Action at Supplier's Terminal: If the asphalt rubber binder does not meet the viscosity requirements at the supplier's terminal, stop shipment and blending of asphalt rubber binder until corrective actions are made to meet the requirements of Table 336-1.

ASPHALT RUBBER BINDER.
(REV 11-13-09)

SUBARTICLE 336-3 (of the Supplemental Specifications) is deleted and the following substituted:

336-3 Asphalt Rubber Binder.

Thoroughly mix and react the asphalt binder and ground tire rubber in accordance with the requirements of Table 336-1. Accomplish blending of the asphalt binder and ground tire rubber at the project site/asphalt plant or at the supplier's terminal.

Table 336-1
Asphalt Rubber Binder

Binder Type	ARB 5	ARB 12	ARB 20
Rubber Type	TYPE A (or B)(1)	TYPE B (or A)(2)	TYPE C (or B or A)(2)
Minimum Ground Tire Rubber (by weight of asphalt binder)	5%	12%	20%
Binder Grade	PG 67-22	PG 67-22	PG 64-22
Temperature Range	300 - 335°F	300 - 350°F	335 - 375°F
Minimum Reaction Time	10 minutes	15 minutes (Type B)	30 minutes (Type C)
Unit Weight @ 60ºF(3)	8.6 lbs/gal	8.7 lbs/gal	8.8 lbs/gal
Viscosity Range(4)	4.0 - 6.0 Poises @ 300°F	10.0 - 15.0 Poises @ 300°F	15.0 - 20.0 Poises @ 350°F

(1) Use of Type B rubber may require an increase in the mix temperature in order to offset higher viscosity values.
(2) Use of finer rubber could result in the reduction of the minimum reaction time.
(3) Conversions to standard 60ºF are as specified in 300-9.3.
(4) FM 5-548, Viscosity of Asphalt Rubber by Rotational (Dip-N-Read) Viscometer or AASHTO T 316, Viscosity Determination of Asphalt Binder Using Rotational Viscometer.
NOTE: The Contractor may adjust the minimum reaction time if approved by the Engineer depending upon the temperature, size of the ground tire rubber and viscosity measurement determined from the asphalt rubber binder material prior to or during production. Apply the asphalt rubber binder for use in membrane interlayers within a period of six hours, unless some form of corrective action such as cooling and reheating is approved by the Engineer.