



Florida Department of Transportation

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ANANTH PRASAD, P.E.
SECRETARY

January 15, 2013

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. REVISED.**

Dear Ms. Gourdine:

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

These changes were proposed by Gregory Sholar, of the State Materials Office, for the removal of ARB 5 and ARB 12. These binders are to be replaced with PG 76-22 (ARB 20) specified in Section 916. This specification also changes the viscosity requirements of ARB 20 to reflect the change in the base binder from a PG 64-22 to a PG 67-22, since PG 64-22 is being eliminated.

Please review and transmit your comments, if any, within two weeks. Comments should be sent via email to SP965TT or trey.tillander@dot.state.fl.us.

If you have any questions relating to this specification change, please call me at 414-4140.

Sincerely,

V. Y. "Trey" Tillander, III, P.E.
State Specifications Engineer

TT/cah

Attachment

cc: Florida Transportation Builders' Assoc.
State Construction Engineer

ASPHALT RUBBER BINDER.

(REV 11-1520-132)

ARTICLE 336-3 (Page 280) 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 or asphalt plant, or at the supplier's terminal.

Table 336-1			
Asphalt Rubber Binder			
Binder Type	ARB-5	ARB-12 ⁽¹⁾	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 64/67-22
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 @ 60°F ⁽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
<p>(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 60°F 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.</p>			

Table 336-1	
Asphalt Rubber Binder	
<i>Binder Type</i>	<i>ARB 20</i>
<i>Rubber Type</i>	<i>TYPE C (or B)⁽¹⁾</i>
<i>Minimum Ground Tire Rubber (by weight of asphalt binder)</i>	<i>20%</i>
<i>Binder Grade</i>	<i>PG 67-22</i>
<i>Temperature Range</i>	<i>335 - 375°F</i>
<i>Minimum Reaction Time</i>	<i>30 minutes (Type C)</i>

<i>Table 336-1</i>	
<i>Asphalt Rubber Binder</i>	
<i>Unit Weight @ 60°F⁽²¹⁾</i>	<i>8.8 lbs/gal.</i>
<i>Viscosity Range⁽³²⁾</i>	<i>15.0 - 20.0 Poises —@ 350°F⁽³⁾</i>
<p><i>(1) Use of finer rubber could result in the reduction of the minimum reaction time.</i></p> <p><i>(12) Conversions to standard 60°F are as specified in 300-9.3.</i></p> <p><i>(23) 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.</i></p> <p><i>(3) Binders with values higher than 20.0 Poises should be used with caution and only after consulting with the supplier as to any special handling procedures, including pumping capabilities.</i></p> <p><i>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.</i></p>	

ASPHALT RUBBER BINDER.**(REV 1-15-13)**

ARTICLE 336-3 (Page 280) 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 or asphalt plant, or at the supplier's terminal.

Table 336-1	
Asphalt Rubber Binder	
Binder Type	ARB 20
Minimum Ground Tire Rubber (by weight of asphalt binder)	20%
Binder Grade	PG 67-22
Temperature Range	335 - 375°F
Minimum Reaction Time	30 minutes
Unit Weight @ 60°F ⁽¹⁾	8.8 lbs/gal.
Viscosity Range ⁽²⁾	15.0 - 20.0 Poises @ 350°F ⁽³⁾

(1) Conversions to standard 60°F are as specified in 300-9.3.
(2) 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.
(3) Binders with values higher than 20.0 Poises should be used with caution and only after consulting with the supplier as to any special handling procedures, including pumping capabilities.
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.