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Research Notes

Performance Related Specifications for Rubberized Asphalt Binder

Development of Testing Procedures and Criteria for Performance Based Specifications (PRS) for Rubberized Asphalt Binder.

Pavement

November 2025

Project Title: Partnered Pavement Research Center (PPRC) 20: Performance Related Specifications

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WHAT IS THE NEED?

The current specification used for testing and acceptance of wet-process asphalt rubber binders focuses mainly on measuring viscosity in the field using a handheld rotational viscometer. However, viscosity does not directly relate to the in-service performance of the binder in Rubberized Hot Mix Asphalt (RHMA). This project aims to develop supporting data and information for performance-related Superior Performing Asphalt Pavement (Superpave) Quality Control / Quality Assurance (QC/QA) specifications for mix design and mix placement of all types of asphalt rubber binders.

WHAT ARE WE DOING?

This task involves reviewing and revising base binder selection criteria for Aging Resistance (AR) binders based on an investigation of statewide performance and experience. Criteria for performance testing of RHMA mixes have been examined and updated based on high-temperature properties.

This study includes the following sub-tasks:

- Completing outstanding testing on field-produced binders
- Preparing and implementing a statewide round-robin study to develop precision and bias statements for the proposed PG testing procedure
- Reviewing, and if appropriate, updating base binder selection criteria for asphalt rubber binders and preparing a provisional PG map for AR binders
- Investigating the use of fine dry rubber and polymerized soluble rubber as additional approaches for incorporating recycled tire rubber in asphalt mixes, primarily dense-graded mixes

Caltrans

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WHAT IS OUR GOAL?

The goal is to update specification language for asphalt rubber binders and RHMA mix testing, recommend QC/QA methods, and support the California Department of Transportation (Caltrans) in its implementation.

WHAT IS THE BENEFIT?

This research is expected to lead to simplified PRS for specification development and deployment in asphalt concrete (AC) long-life projects. The simplified PRS will be easier for contractors and districts to understand and communicate without increasing the risk of poor performance to Caltrans.

WHAT IS THE PROGRESS TO DATE?

Research activities are complete, and the research team is preparing the final report.