
Standard Practice for Evaluation of Asphalt Additives and Modifiers

AASHTO Designation: R 15-18 (2022)

Technically Revised: 2018

Reviewed but Not Updated: 2022

Technical Subcommittee: 2b, Liquid Asphalt



**American Association of State Highway and Transportation Officials
555 12th Street NW, Suite 1000
Washington, D.C. 20004**

Standard Practice for

Evaluation of Asphalt Additives and Modifiers

AASHTO Designation: R 15-18 (2022)

AASHTO

Technically Revised: 2018

Reviewed but Not Updated: 2022

Technical Subcommittee: 2b, Liquid Asphalt

1. SCOPE

- 1.1. This standard practice covers the laboratory testing required to evaluate asphalt additives and modifiers in both asphalt binders and mixtures. The terms “additive” and “modifier” are used interchangeably and are broadly interpreted to include any materials added to asphalt binder in minor amounts, other than mineral fillers, sand, and aggregates, whose purported effect is to change the effective performance grade of the asphalt binder, or to otherwise improve the performance and service life of pavements or maintenance materials by improving the properties of the asphalt binder or asphalt mixture, or both. This standard does not include modifications due to the use of recycled materials.
- 1.2. *Following is a list of the common purposes for which an additive/modifier may be added:*
- 1.2.1. *Anti-Rutting* (permanent deformation).
- 1.2.2. *Anti-Cracking:*
- 1.2.2.1. Thermal Cracking (low-temperature cracking, thermal-fatigue cracking).
- 1.2.2.2. Load-Associated Fatigue Cracking.
- 1.2.3. *Anti-Stripping*—Moisture susceptibility of the asphalt–aggregate bond.
- 1.2.4. *Warm Mix Asphalt (WMA) Technologies/Compaction Aids.*
- 1.2.5. *Extenders/Softeners.*
- 1.3. The values stated in SI units are to be regarded as the standard.

2. REFERENCED DOCUMENTS

- 2.1. *AASHTO Standards:*
- 2.1.1. *Asphalt Binders:*
- [M 320](#), Performance-Graded Asphalt Binder
 - [M 332](#), Performance-Graded Asphalt Binder Using Multiple Stress Creep Recovery (MSCR) Test
 - [R 28](#), Accelerated Aging of Asphalt Binder Using a Pressurized Aging Vessel (PAV)
 - [R 29](#), Grading or Verifying the Performance Grade (PG) of an Asphalt Binder
 - [R 66](#), Sampling Asphalt Materials

- [R 114](#), Design Considerations When Using Reclaimed Asphalt Shingles (RAS) in Asphalt Mixtures
- [T 44](#), Solubility of Bituminous Materials
- [T 48](#), Flash and Fire Points by Cleveland Open Cup
- [T 228](#), Specific Gravity of Semi-Solid Asphalt Materials
- [T 240](#), Effect of Heat and Air on a Moving Film of Asphalt Binder (Rolling Thin-Film Oven Test)
- [T 313](#), Determining the Flexural Creep Stiffness of Asphalt Binder Using the Bending Beam Rheometer (BBR)
- [T 314](#), Determining the Fracture Properties of Asphalt Binder in Direct Tension (DT)
- [T 315](#), Determining the Rheological Properties of Asphalt Binder Using a Dynamic Shear Rheometer (DSR)
- [T 350](#), Multiple Stress Creep Recovery (MSCR) Test of Asphalt Binder Using a Dynamic Shear Rheometer (DSR)
- [T 387](#), Determining the Cracking Temperature of Asphalt Binder Using the Asphalt Binder Cracking Device (ABCD)
- [T 391](#), Estimating Fatigue Resistance of Asphalt Binders Using the Linear Amplitude Sweep
- [TP 113](#), Determination of Asphalt Binder Resistance to Ductile Fracture Using Double-Edge Notch Tension (DENT) Test
- [TP 122](#), Determination of Performance Grade of Physically Aged Asphalt Binder Using Extended Bending Beam Rheometer (BBR) Method

2.1.2.

Aggregates:

- [T 84](#), Specific Gravity and Absorption of Fine Aggregate
- [T 85](#), Specific Gravity and Absorption of Coarse Aggregate
- [T 133](#), Density of Hydraulic Cement

2.1.3.

Mixtures:

- [M 323](#), Superpave Volumetric Mix Design
- [R 30](#), Laboratory Conditioning of Asphalt Mixtures
- [R 35](#), Superpave Volumetric Design for Asphalt Mixtures
- [R 83](#), Preparation of Cylindrical Performance Test Specimens Using the Superpave Gyratory Compactor (SGC)
- [R 84](#), Developing Dynamic Modulus Master Curves for Asphalt Mixtures Using the Asphalt Mixture Performance Tester (AMPT)
- [T 166](#), Bulk Specific Gravity (G_{mb}) of Compacted Asphalt Mixtures Using Saturated Surface-Dry Specimens
- [T 209](#), Theoretical Maximum Specific Gravity (G_{mm}) and Density of Asphalt Mixtures
- [T 269](#), Percent Air Voids in Compacted Dense and Open Asphalt Mixtures
- [T 275](#), Bulk Specific Gravity (G_{mb}) of Compacted Asphalt Mixtures Using Paraffin-Coated Specimens
- [T 283](#), Resistance of Compacted Asphalt Mixtures to Moisture-Induced Damage
- [T 312](#), Preparing and Determining the Density of Asphalt Mixture Specimens by Means of the Superpave Gyratory Compactor
- [T 321](#), Determining the Fatigue Life of Compacted Asphalt Mixtures Subjected to Repeated Flexural Bending
- [T 324](#), Hamburg Wheel-Track Testing of Compacted Asphalt Mixtures
- [T 331](#), Bulk Specific Gravity (G_{mb}) and Density of Compacted Asphalt Mixtures Using the Automatic Vacuum Sealing Method