Ground Tire Rubber: ETG - DSR
Concentric Cylinder Task Force

Mobile Asphalt Testing Trailer Program (MATT)
Long-Life Asphalt Pavements for the 21st Century

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Outline

- Task Group Objective
- Work Items
- Summary of Activities & Findings
- Future Step
Task Force Members

- Matthew Corrigan: Task Force Lead

- Industry & Academia
  - Dave Jones
  - John D’Angelo
  - Norbert Ponweiser
  - Andreas Lutz
  - Farhad Rad
  - Bharath Rajaram
  - John Casola
  - Codrin Daranga
  - Bill Buttlar

- State DOTs & FHWA
  - David Mensching
  - Amir Golalipour
  - Joe Devol
  - Steve Landers
  - Steve Davis
  - Al Vasquez
  - Tim Ramirez
  - Troy Lehigh
  - Jay Sengoz

*Their efforts for this task force are greatly appreciated.*
“This Task Force was created on ground tire rubber (GTR) modified asphalt testing standard development with a goal to develop a **draft provisional AASHTO standard** using the **Concentric Cylinder** (cup & bob).”
Advantages

- GTR modified asphalt can be measured with particle sizes up to 2 mm.
- No trimming problems and filling problems.
- No edge effects.

Images: FHWA
Work Items – recap from last meeting

- Geometry fixture & details
  - Cup & Bob size
  - Temperature Control

- Equilibrium time needed for Concentric Cylinder geometry

- Calibration of Concentric Cylinder for CSS and CSR factors

- Draft of Standard
Changes to Standard Draft

- Raise the high temperature limit from 88 to 120 °C
  - Asphalt rubber binders used specially in California and Arizona

- Including AASHTO M 332 standard
  - This standard needs to include different aspects of high temperature characterization

- Standard oil to be used for calibration or verification purposes
  - Cannon N2,700,000 and S600 oils
  - Torque verification is independent from temperature calibration

- Temperature calibration kit
  - A passive cap to cover the cup to ensure temperature equilibrium
Add details about MSCR test
  - Creep & recovery procedure

Add details on temperature calibration procedure
  - Using oil to ensure the contact between dummy and geometry

Add information on zero gap procedure for concentric cylinder geometry

Revised draft submitted to ETG
Future Step

Standard Method of Test for

Determining the Rheological Properties of Asphalt Binder Containing Ground Tire Rubber Particulates Using Concentric Cylinder Geometry in the Dynamic Shear Rheometer (DSR)

AASHTO Designation: TP XX-XX
Thank You!

FHWA’s Mobile Asphalt Testing Trailer
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www.fhwa.dot.gov/pavement/asphalt