

<p>Name of Test Hamburg Wheel-Tracking Test</p>	<p>Developer(s) Developed in Germany</p>
<p>Test Method(s) AASHTO T 324-19</p>	<p>Adoption by Agencies California, Georgia, Idaho, Iowa, Illinois, Kentucky, Louisiana, Massachusetts, Maine, Missouri, Montana, Oklahoma, Oregon, Tennessee, Texas, Utah, Vermont, Washington</p>
<p>Description During the test, two sets of cylinder or slab specimens are placed side by side, submerged in water, and subjected to repetitive applications of wheel loads. Rut depths at different positions along the specimens are recorded for each wheel pass. The specimens are loaded for a maximum of 20,000 wheel passes or until the specimens deforms by a pre-determined rut depth (typically 12.5mm). Typical result curves consist of post-compaction phase, creep phase, and stripping phase.</p>	<p>Photographs/Illustrations</p> 
<p>Test Results Rut depths, stripping inflection point, creep slope, stripping slope, stripping number, stripping life, rutting resistance parameter</p>	<p>Test Temperature(s) 40 to 70°C</p>
<p>Equipment & Approximate Cost Hamburg Wheel-Tracking Device \$40,000-75,000 Saw for cutting specimens \$6,000</p>	
<p>Specimen Fabrication Gyratory specimens, 1 cut (30 minutes) Slab specimens</p>	<p>Number of Replicate Specimens 4 specimens</p>
<p>Specimen Conditioning Conditioning for 45 minutes at the test temperature under water</p>	<p>Testing Time 6.5 hours after conditioning</p>
<p>Data Analysis Complexity Simple</p>	<p>Test Variability Medium (10-30% COV)</p>
<p>Field Validations Good (pavement sections in Colorado, Texas)</p>	<p>Overall Practicality for Mix Design and QA Good for Mix Design Fair for QA</p>
<p>Key References</p> <ul style="list-style-type: none"> Aschenbrener, T., Terrel, R. and Zamora, R. (1994). "Comparison of the Hamburg Wheel-Tracking Device And The Environmental Conditioning System To Pavements Of Known Stripping Performance," Final Report (No. CDOT-DTD-R-94-1). Izzo, R. and Tahmoressi, M. (1999). "Use of the Hamburg wheel-tracking device for evaluating moisture susceptibility of hot-mix asphalt," Transportation Research Record: Journal of the Transportation Research Board, (1681), pp.76-85. Solaimanian, M., Bonaquist, R.F. and Tandon, V. (2007). "Improved conditioning and testing for HMA moisture susceptibility," NCHRP Report 589, Washington, D.C. Mohammad, L.N., Elseifi, M.A., Raghavendra, A. and Ye, M. (2015). "Hamburg Wheel-Track Test Equipment Requirements and Improvements to AASHTO T 324." NCHRP Web-Only Document 219, Washington, D.C. 	