

NCHRP Project 9-29 AMPT Interlaboratory Study Findings

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Outline

- Ruggedness Versus Interlaboratory Study
- AMPT Ruggedness Study
 - Findings
- AMPT Interlaboratory Study
 - Findings
 - Areas for Improvement

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Ruggedness Vs Interlaboratory

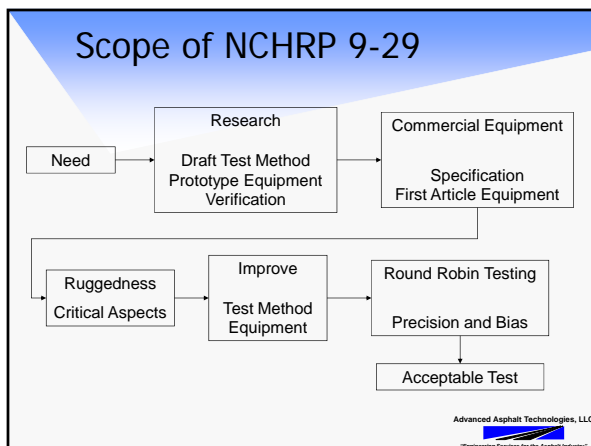
- Ruggedness
 - ASTM E1169
 - Improve test method
 - Determining which controllable testing conditions most influence the results
 - Establishing limits for their control
 - Always perform ruggedness before an interlaboratory study for a test method.

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Ruggedness Vs Interlaboratory

- Interlaboratory Study
 - ASTM E691
 - Determine precision of a test method
 - Within laboratory
 - Between laboratory

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AMPT Ruggedness |E*| Ruggedness Report NCHRP 629

Factor	Finding
• Equilibrium Temperature	• ± 0.5 °C
• Specimen Transfer Time	• < 5 min
• Conditioning Fluid	• Air
• Strain Level	• ± 25 unconfined, ±15 Confined
• Confining Pressure	• ± 2 % no membrane for unconfined
• Specimen End Parallelism	• Sawed
• Friction Reducer	• Teflon of Greased Latex

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AMPT Ruggedness Flow Number Ruggedness Report NCHRP 629

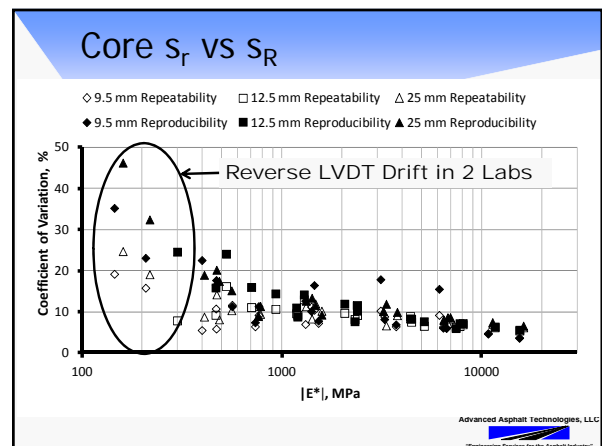
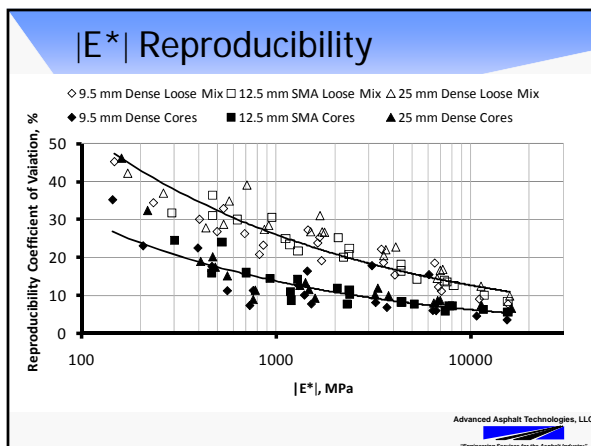
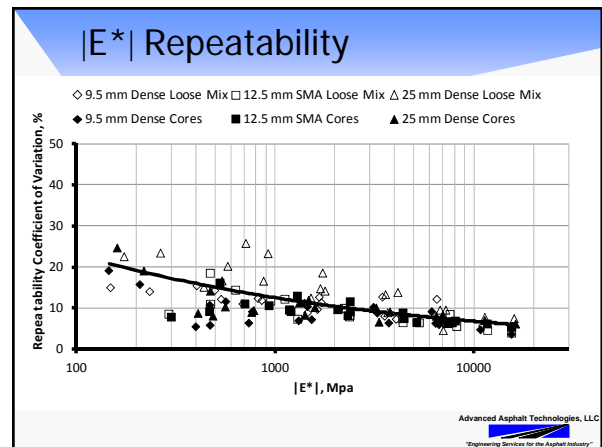
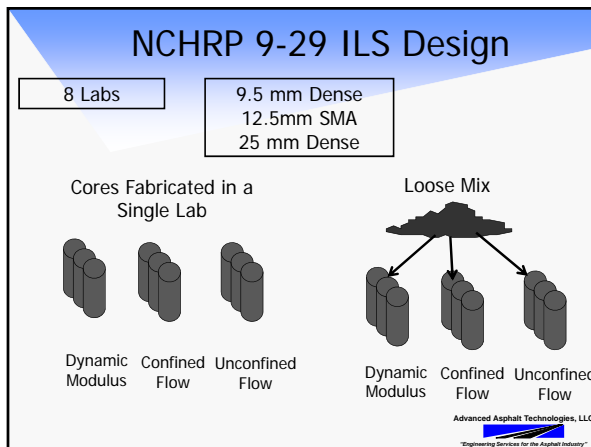
Factor	Finding
• Equilibrium Temperature	• ± 0.5 °C
• Specimen Transfer Time	• < 5 min
• Conditioning Fluid	• Air
• Dwell Time (IPC only)	• ± 0.05 sec
• Contact Stress (ITC only)	• ± 2 %
• Deviatoric Stress	• ± 2 %
• Confining Stress	• ± 2 %
• Specimen End Condition	• Sawed
• Friction Reducer	• Greased Latex

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NCHRP 9-29 |E*| & Flow Number ILS NCHRP Report 702

- Advanced Asphalt Technologies, LLC
- Asphalt Institute
- Dongre Laboratory Services, Inc
- FHWA Mobile Asphalt Lab
- FLDOT
- Mathy Technology and Engineering Services
- NCAT
- UDOT

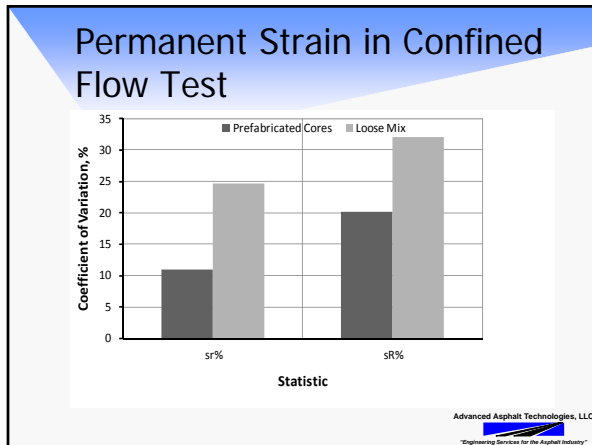
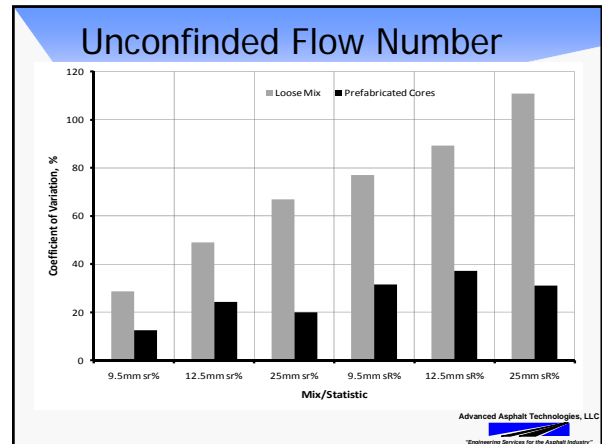
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How Can We Improve For $|E^*|$

- Reproducibility > for loose mix that cores indicates specimen fabrication is the major source of between lab variability
 - Need focused effort to standardize specimen fabrication
- Reproducibility > Repeatability for cores at low modulus indicates need for test improvement
 - Lower spring force sensors
 - Better compensating springs

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How Can We Improve For Flow Number Test

- Reproducibility > for loose mix that cores indicates specimen fabrication is a major source of between lab variability
 - Need focused effort to standardize specimen fabrication
- Reproducibility > Repeatability for cores indicates need for test improvement
 - Friction reducer
 - Spray silicone?

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Questions

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