

Validation of Advanced Flexible Pavement Modeling with Accelerated Pavement Testing Data

TRB Committee Workshop 110

TRB Annual Meeting

January 13, 2008



Schedule (1/2)

- **8:30 am - 8:35 am**
Goals and Scope
Imad L. Al-Qadi, University of Illinois, Urbana-Champaign
Nelson Harold Gibson, Federal Highway Administration
- **8:35 am – 9:05 am**
Impact of Accelerated Pavement Testing on Pavement Engineering
Chantal de La Roche, Laboratoire Central des Ponts et Chaussées, France
- **9:05 am - 9:35 am**
State of the Art in Pavement Instrumentation and Accurate Measurements
Per Ullidtz, Dynatest International, Denmark
John Harvey, University of California Pavement Research Center
- **9:35 am – 10:05 am**
Needs for Accurate Pavement Modeling
Tom Scarpas, Delft University of Technology, The Netherlands

Schedule (2/2)

- **10:05 am - 10:35 am**
Modeling of Hot-Mix Asphalt
Eyad A. Masad, Texas A&M University
- **10:35 am – 11:05 am**
State of the Art in Hot-Mix Asphalt Testing and Characterization
Andrew Collop, University of Nottingham, United Kingdom
- **11:05 am - 11:35 am**
Model Validation Using Accelerated Facility Measurements
Imad L. Al-Qadi, University of Illinois, Urbana-Champaign
- **11:35 am - 12:00 pm**
Panel Discussion
Nelson Harold Gibson, Federal Highway Administration
- **12:00 pm**
Break

Please...

- Hold questions until the end of the presentation
- Two questions will be selected after each presentation
- More questions taken during panel discussion
 - Try to pose questions for a particular presenter or presenters rather than more general

Sponsors



- Full-Scale and Accelerated Pavement Testing Committee (AFD40)
- Characteristics of Bituminous Paving Mixtures to Meet Structural Requirements Committee (AFK50)
- Advanced Models to Understand Behavior and Performance of Asphalt Mixtures Subcommittee (AFK50(1))
- Pavement Rehabilitation Committee (AFD70)



- International Society for Asphalt Pavements

Important Questions

- Why do we need pavement models?
- How to validate these models?
- Why incrementing pavements?
- How to optimize the utilization of accelerated pavement testing

Why do we need models?

- 2007 TRB Workshop – ***“Advanced Models for Asphalt Pavement Mixtures and Pavements: What Are they Good For?”***

Characterization of Bituminous Paving Mixtures to Meet Structure Requirements.

- How emerging models are being developed
- Understand and design better asphalt pavement mixes and pavements
- Model inputs and necessary laboratory testing
- Model verification

How to validate the developed models?

- In an sense, this is the primary goal of the workshop.
 - An example from the automobile safety industry

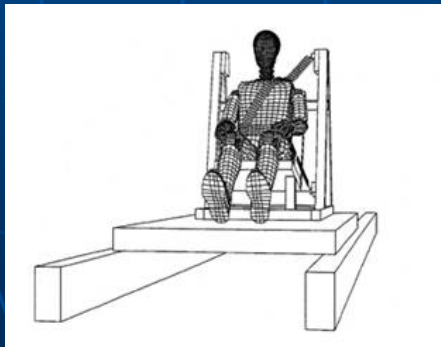


Fig. 28 Model Time 0ms



Fig. 30 Test Time 0ms



Fig. 29 Model Time 100ms



Fig. 31 Test Time 100ms

Goals and Objectives of Workshop (1/2)

- I.D. important aspects of modeling that are relevant to APT community
- Current experience in model validation with APT experiments

Goals and Objectives of Workshop (2/2)

- Present the realistic characteristics of pavement materials that must be captured by material models in the laboratory
- I.D. areas where models can be improved based on APT data