

NEWS



TRANSPORTATION RESEARCH BOARD

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PAPER DESCRIBING THE BEHAVIOR OF BITUMINOUS CRACK SEALANTS AT LOW TEMPERATURE WINS TRB'S MICKLE AWARD

"Viscoelastic Model to Describe Mechanical Response of Bituminous Sealants at Low Temperature" is the winner of the Transportation Research Board's (TRB's) 2006 D. Grant Mickle Award for the outstanding paper in the field of operation, safety, and maintenance of transportation facilities. The award, named for the Board's Executive Director from 1964 to 1966, will be presented on January 22, 2007, at the Thomas B. Deen Distinguished Lecture and Presentation of Outstanding Paper Awards during the Board's 86th Annual Meeting. The authors are, Mostafa A. Elseifi of Bradley University, Illinois; Samer H. Dessouky and Shih-Hsien Yang, both of the Advanced Transportation Research and Engineering Laboratory (ATREL), University of Illinois at Urbana-Champaign (UIUC); and Imad L. Al-Qadi, Illinois Center for Transportation (ICT), UIUC. The award-winning paper has been published in the *Transportation Research Record: Journal of the Transportation Research Board*, No. 1958.

The award-winning paper describes the behavior of hot-poured bituminous-based crack sealants at low service temperature using linear viscoelastic modeling (Prony series expansion). The objective of the research was to predict the field performance of crack sealants and to better understand the constitutive stress-strain relationship. Creep measurements obtained from a modified bending beam rheometer test environment were applied to the model and three soft crack sealants having a relatively high level of polymer modification content at a temperature ranging from -28°C to -40°C were evaluated. The results suggest that the constitutive behavior of crack sealants can be accurately described by the linear viscoelastic regime at low service temperatures.

Mostafa A. Elseifi is an Assistant Professor of Civil Engineering at Bradley University. He holds a bachelor's degree in civil and environmental engineering from Cairo University, Egypt; and master's and Ph.D. degrees from the Virginia Polytechnic and State University (Virginia Tech). Prior to joining Bradley University, Elseifi was a Research Scientist at UIUC. His research interests include pavement design and evaluation using finite element methods, fracture behavior of hot-mix asphalt, and modeling of binder and asphalt mixtures performance.

Samer H. Dessouky is a Research Scientist at ICT and ATREL. He holds a bachelor's degree from Ain Shams University in Cairo, Egypt; a master's degree from Washington State University; and a Ph.D. from Texas A&M University—all in civil engineering. Dessouky's primary areas of research are on constitutive modeling, finite element analysis, microstructure characterization, and performance testing of granular materials with emphasis on asphalt mixes. A member of the American Society of Civil Engineers (ASCE), Dessouky is a registered professional engineer in the state of Ohio.

Imad Al-Qadi is a Founder Professor of Engineering at the UIUC, and the Director of both ICT and ATREL. Prior to joining UIUC, he served as the Charles E. Via, Jr., Professor of Civil and Environmental Engineering at Virginia Tech and was the Group Leader of The Roadway Infrastructure Group. Al-Qadi holds three degrees in civil engineering—a B.S. degree from Yarmouk University, Jordan, and M.Eng. and Ph.D. degrees from The Pennsylvania State University. His research interests focus primarily on pavements, nondestructive testing, and pavement interlayer system mechanisms, modelling, and fracture mechanics. A Fellow of the ASCE, Al-Qadi chairs the TRB Maintenance Section, which has oversight of 12 standing committees.

Shih-Hsien Yang is a Ph.D. student in the Department of Civil and Environmental Engineering at UIUC. He holds a bachelor's degree in civil engineering from the Chung Yuan Christian University in Taiwan, and a master's degree from Virginia Tech. Yang's current research focuses on the development of performance-based guidelines for the selection of hot-poured crack sealants with an emphasis on the rheological behavior of crack sealants at low temperature.

More than 10,000 policy makers, administrators, practitioners, researchers, and representatives of government, industry, and academic institutions are expected to attend the Transportation Research Board (TRB) 86th Annual Meeting, in Washington, DC, January 21-25, 2007. The meeting, held at the Marriott Wardman Park, Omni Shoreham, and Hilton Washington hotels, includes more than 2,800 presentations in 500 sessions, 75 workshops, and 400 TRB committee meetings covering all aspects of transportation.

TRB's mission is to promote innovation and progress in transportation through research. In an objective and interdisciplinary setting, TRB facilitates the sharing of information on transportation practice and policy by researchers and practitioners; stimulates research and offers research management services that promote technical excellence; provides expert advice on transportation policy and programs; and disseminates research results broadly and encourages their implementation. A major focal point of TRB's activities, the Annual Meeting provides an opportunity for transportation professionals from all over the world to exchange information of common interest.

Organized in 1920, TRB is a division of the National Academies, which include the National Academy of Sciences, National Academy of Engineering, Institute of Medicine, and National Research Council. The nation turns to the National Academies for independent, objective advice on issues that affect people's lives worldwide.

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