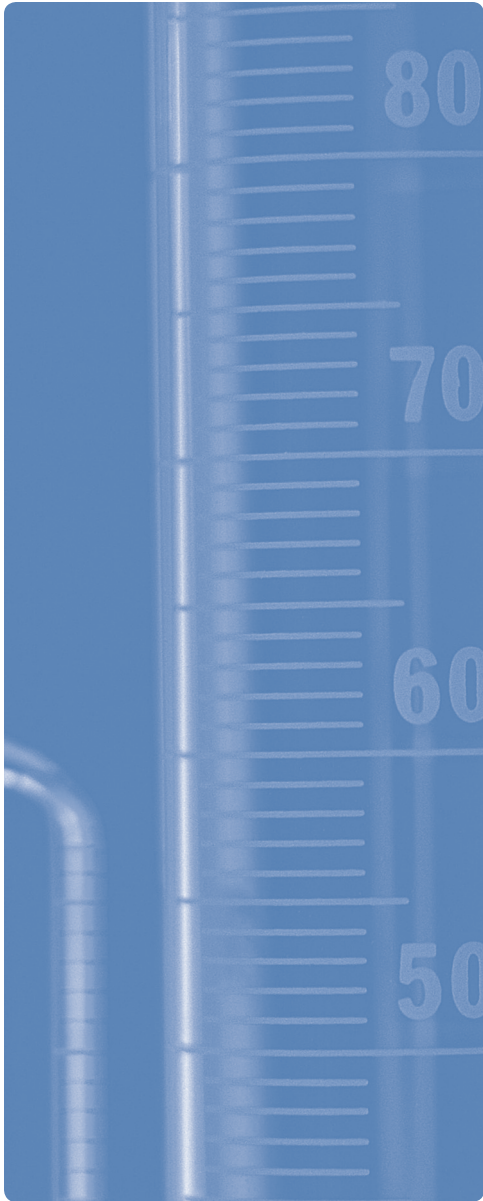


Journal of Testing and Evaluation

Contents:

- 1 Validation of a Clothing Heat Transfer Model in Nonisothermal Test Conditions
Meredith McQuerry
- 8 The Case for Technical Performance Standards for Radiation Inspection Systems
Larry Hudson
- 17 Improvement of Measuring Accuracy for Coating Covered on Conical Steel Shells by Correction of Eddy Current Signals
Meixian Wu, Dongli Zhang, Zhenmao Chen, and Yong Li
- 24 Development of Virtual Visual Sensor Applications for Wood Structural Health Monitoring
K. Walker, T. H. Miller, R. Gupta, A. Shariati, and T. Schumacher
- 33 On the Mechanical Behavior of Granite Material With Particular Emphasis on the Influence From Pre-Existing Cracks and Defects
M. Saadati, P. Forquin, K. Weddfelt, P. L. Larsson, and F. Hild
- 46 Investigation and Modeling of Sound Absorption Properties of Thin Layer Wearing Course
Mingliang Li, Bin Xu, Dongwei Cao, Yongjun Fan, and Shujiang Ping
- 55 3D Quasi-Static Strengths and Elastic Constants of Glass Fiber Reinforced Polyester Composite Extracted From a Wind Turbine Blade
H. G. Kotik and J. E. Perez Ipiña
- 67 Bonding Durability of Two Repair Mortars with Low Modulus Cement and Asphalt Mortar (CA Mortar)
Liu Yunpeng, Wang Fazhou, Hu Shuguang, and Liu Muyu
- 77 Development of an Equibiaxial Tensile Test Device and Associated Test Method for Parameter Identification of Hyperelastic Ogden Model of Soft Material
Jonas A. Pramudita, Harutaka Kubota, Yuji Tanabe, Masato Ito, and Ryoji Watanabe
- 88 Laboratory Investigations of Cold Mix Asphalt for Cold Region Applications
M. Hasanuzzaman, L. Hashemian, and A. Bayat
- 99 Flexible Pavement Interface Bonding: Theoretical Analysis and Shear-Strength Measurement
H. Wang, G. Xu, Z. Wang, and T. Bennert
- 108 Compressive Behavior of Cement Asphalt Mortar Under Low Confinement
X. Wu and J.-F. Wang
- 118 Nondestructive Acoustic Emission Test to Evaluate Thermal Damage in Asphalt Concrete Materials
Behzad Behnia, William G. Buttlar, and Henrique Reis
- 127 Relative Comparison of Complex Dynamic Modulus Predictive Models for Non-Conventional Asphalt Concrete Mixtures
D. J. Mensching, M. M. Jeong, and L. Myers McCarthy
- 141 Investigation on the Effect of Shrinkage Reducing Admixtures on Shrinkage and Durability of High-Performance Concrete
Behzad Hatami, Amir Mohammad Ramezani-pour, and Amir Saedi Daryan
- 151 Experimental Study on Dynamic Strength Improvement Mechanism of Concrete Materials
Dong Lei, Jintao He, Feipeng Zhu, and Pengxiang Bai
- 160 The Study of UHPC Precast Concrete Containing Incinerator Fly Ash
Ming-Ju Lee, Ming-Gin Lee, Yu-Min Su, Yishuo Huang, and Wen-Chih Tung
- 168 Derivation of Complete Stress-Strain Curve for SSTT-Confined High-Strength Concrete in Compression
H.-P. Lee, A. Z. Awang, W. Omar, and P. L. Y. Tiong
- 178 Shear Transfer in Normal- and High-Strength Recycled Aggregate Concrete
S. A. Waseem and B. Singh
- 191 Rietveld Quantitative Stability of Portland Blast Furnace Slag Cement Between Internal and External Standard Methods
P. Zhao, X. Liu, L. Lu, and P. Wang

(Contents continued on back cover)



Volume 46, Number 1
January 2018
Codon: JTEVAB



ASTM INTERNATIONAL

EDITOR-IN-CHIEF

Dr. M. R. Mitchell
Mechanics & Materials, LLC
4447 Acrete Lane
Flagstaff, AZ 86004, USA

EDITORIAL OBJECTIVES

The *Journal of Testing and Evaluation* is published in six issues per year by ASTM International, a nonprofit technical organization that develops and publishes voluntary consensus standards and related information for materials, products, systems, and services.

Some issues, in whole or in part, may be Special Issues focused on a topic of interest to our readers.

Contributions are peer reviewed prior to publication.

EDITORIAL SERVICES—SUBMISSIONS

Sara Welliver

Supervisor, Peer Review Services
Journal of Testing and Evaluation Editorial Offices
J&J Editorial Services
201 Shannon Oaks Cir #124
Cary, NC 27551, USA
Tel: (919) 650-1459 ext. 210
E-mail: astm@jjeditorial.com

PURPOSE AND SCOPE

The editorial objectives of the Journal of Testing and Evaluation is to serve a broad-based audience by:

- Publishing new technical information derived from the field and laboratory testing, performance, quantitative characterization, and evaluation of these materials, products, systems, and services.
- Presenting new methods and data and critical evaluations of these methods and data.
- Reporting the users' experience with test methods and the results of interlaboratory testing and analysis.
- Providing the scientific basis for both new and improved ASTM International standards.
- Stimulating new ideas in the fields of testing and evaluation.
- Including papers, technical notes, letters to the editor, discussions of previously published papers, and book reviews as contributions.

POSTMASTER: Send address change to ASTM International—JTE, 100 Barr Harbor Drive, P.O. Box C700, West Conshohocken, PA 19428-2959.

Printed in the U.S.A.

EDITORIAL BOARD

Dr. Ali Abolmaali
University of Texas at Arlington
Arlington, TX, USA

Dr. Aziz Amoozegar
North Carolina State University
Raleigh, NC, USA

Dr. Patricia Annis
University of Georgia
Athens, GA, USA

Dr. Nengkumar Bantia
University of British Columbia
Vancouver, BC, Canada

Dr. Neal S. Berke
Tourney Consulting Group, Ltd.
Kalamazoo, MI, USA

Dr. Filippo Berto
University of Padua, Italy, and Norwegian University of Science and Technology
Trondheim, Norway

Dr. Krishna Prapoorna Biligiri
Indian Institute of Technology
Kharagpur, West Bengal, India

Dr. Nick Birbilis
Monash University
Clayton, VIC, Australia

Dr. Laura Bix
Michigan State University
East Lansing, MI, USA

Dr. Andrew F. Braham
University of Arkansas
Fayetteville, AR, USA

Dr. Andreas Brunner
Empa, Swiss Federal Labs
Switzerland

Prof. Andrea Carpinteri
University of Parma
Parma, Italy

Dr. Wen-Ruey Chang
Liberty Mutual Research Institute for Safety
Hopkinton, MA, USA

Dr. Dar-Hao Chen
Texas Dept. Of Transportation
Austin, TX, USA

Dr. Haiqiang Chen
Xiamen University
Fujian, China

Dr. Kuen-Suan Chen
National Chin-Yi University of Technology
Taiwan

Dr. Richard A. Coffman
University of Arkansas
Fayetteville, AR, USA

Dr. Tong Cui
Qualcomm Packaging
San Diego, CA, USA

John S. Dick
Alpha Technologies
Akron, OH, USA

Prof. Ying Fang
Xiamen University
Xiamen, China

Dr. Yu-Ning Louis Ge
National Taiwan University
Taipei, Taiwan

Dr. T. Russell Gentry
Georgia Institute of Technology
Atlanta, GA, USA

Dr. Meng Guo
University of Science and Technology Beijing
Beijing, China

Dr. Rajeev Kumar Gupta
University of Akron, Akron, OH, USA

Dr. Marcelo Hirschler
Mill Valley, CA, USA

Mr. Hui-Min Huang
NIST
Gaithersburg, MD, USA

Dr. Xiaoming Huang
Southeast University
Nanjing, China

Dr. Jiancheng Jiang
University of North Carolina, Charlotte
Charlotte, NC, USA

Dr. Tao Jiang
University of Connecticut Health Center
Farmington, CT, USA

Dr. Thomas Jones
Alcoa Howmet Corp.
Whitehall, MI, USA

Dr. Sreeramesh Kalluri
Ohio Aerospace Institute
Brook Park, OH, USA

Dr. Sivakumar Kandasami
L&T Construction
Chennai, India

Dr. Xin Kang
TerraSense Geotechnical Lab
Totowa, NJ, USA

Dr. Vistas M. Karbhari
University of Texas at Arlington
Arlington, TX, USA

Dr. Yong-Rak Kim
University of Nebraska-Lincoln
Lincoln, NE, USA

Dr. Govindaraju Kondaswamy
Massey University
Palmerston, North New Zealand

Dr. Chaker Larabi
University of Poitiers
Poitiers, France

Dr. Robert J. Leichti
Simpson Strong-Tie Company Inc.
Pleasanton, CA, USA

Dr. Gang Li
Xi'an Jiaotong University
Shaanxi Province, China

Dr. William Luecke
National Institute of Standards and Technology
Gaithersburg, MD, USA

Douglas C. Meier
National Institute of Standards and Technology
Gaithersburg, MD, USA

Mr. Thomas F. O'Connor
Milan, MI, USA

Dr. Khim Chye Gary Ong
National University of Singapore
Singapore

Dr. William T. Riddell
Rowan University
Haddonfield, NJ, USA

Mr. John Riegel, III
R3 Technology, Inc.
Springfield, VA, USA

Dr. Roberto Sabatini
RMIT University
Melbourne, VIC, Australia

Dr. Rajarshi Saha
Bridgelux, Inc.
Livermore, CA, USA

Dr. Christopher G. Scott
Lubrizol Corporation
Wickliffe, OH, USA

Dr. Steven J. Shaffer
Bruker Nano Surfaces Division
San Jose, CA, USA

Dr. Ranganath K. Shastri
Plastics Solutions
Midland, MI, USA

Dr. Punith Veeralinga Shivaprasad
Clemson University
Clemson, SC, USA

Dr. Cy (Chor-yiu) Sin
National Tsing Hua University
Hsinchu, Taiwan, R.O.C.

Dr. Stein Sture
University of Colorado, Boulder, CO, USA

Dr. Julian Tao
University of Akron, Akron, OH, USA

Dr. Ingrid Tomac
University of California, San Diego
San Diego, CA, USA

Dr. Sabrina Vantadori
University of Parma
Parma, Italy

Dr. Matthieu Vignes
Massey University Manawatu
Palmerston North, New Zealand

Dr. Hao Wang
Rutgers, The State University of New Jersey
Piscataway, NJ, USA

Dr. Shuying Wang
Central South University
Hunan, China

Dr. Xuexin Wang
Xiamen University
Xiamen, China

Dr. Shaopeng Wu
Wuhan University of Technology
Wuhan, China

Dr. Shenghua Wu
University of Illinois, Champaign, IL, USA

Dr. Feipeng Xiao
Clemson University
Clemson, SC, USA

Dr. Ming Xiao
The Pennsylvania State University
University Park, PA, USA

Dr. Xiong (Bill) Yu
Case Western Reserve University
Cleveland, OH, USA

Prof. Menglan Zeng
Hunan University
Changsha, Hunan, China

Dr. Xibin (Bill) Zhang
Monash University, Caulfield East
Victoria, Australia

EXECUTIVE COMMITTEE

Dale F. Bohn, Chairman
Taco van der Maten, Vice Chairman
Andrew G. Kireta, Jr., Vice Chairman
John R. Logar, Chairman of Finance and Audit Committee
Ralph M. Paroli, Past Chairman
D. Thomas Marsh, Past Chairman
Katharine E. Morgan, President

DIRECTORS

Ferdinando E. Aspesi
Dale F. Bohn
Joannie W. Chin
Cesar A. Constantino
Oliver S. Delery, Jr.
William Ells
John Fletcher
R. James Galipeau
John Germaine
William C. Griesse
Alan Kaufman
Andrew G. Kireta, Jr.
John R. Logar
D. Thomas Marsh
R. Christopher Mathis
Katharine E. Morgan
Deryck M.S. Omar
Ralph M. Paroli
Irving S. Scher
Arman Shakkaliyev
James A. Tann
Vicky Taylor
Taco van der Maten
Jeff Weiss
Terry O. Woods

INFORMATION FOR AUTHORS

For details regarding paper submission go to <http://mc04.manuscript-central.com/astm-jote>.

The subject matter must not be of a speculative nature and the contents must not include materials of an advertising nature. The paper must not be seriously defective as to literary form and structure, continuity of thought, and clarity of expression. The substance of the paper should not have been published previously in the open literature.

Authors preparing papers for submittal should observe the conventions of style explained in the ASTM Style Manual. Since the journal does not request page charges, the author is expected to conform to these standard conventions for style and the inclusion of complete references and high-quality figures. SI units are to be used throughout; if data were not measured in SI units, a note should appear to that effect and the original units should be included in parentheses after the SI units.

IN APPRECIATION OF THE REVIEWERS

The high quality of the papers that appear in this publication is a tribute not only to the obvious efforts of the authors represented but to the unheralded, though essential, efforts of their reviewers. It is to the reviewers dedication to upholding the high standards of their profession that this note pays tribute. On behalf of ASTM International and the authors as well, we acknowledge with appreciation their important contribution to the success of this journal.

COMMITTEE ON PUBLICATIONS

Dee Magnoni, Chairman
William J. Likos, Vice Chairman
Dale F. Bohn, ex officio
K. Russell DePriest
Nikhil Gupta
John E. Haddock
Jason H. Ideker
M. R. Mitchell
Richard W. Neu
Majdi A. Othman
Suzanne Pecore
Sudarsan Rachuri
George E. Totten
W. Jason Weiss

Journal of Testing and Evaluation (ISSN 0090-3973) is published in six issues per year by ASTM International. Some issues, in whole or in part, may be Special Issues focused on a topic of interest to our readers. The views expressed in this journal are not those of ASTM International. The data and opinions appearing in the published material were prepared by and are the responsibility of the contributors, not of ASTM International.

Copyright © 2018 by ASTM International, 100 Barr Harbor Drive, West Conshohocken, PA 19428-2959. All rights reserved. This material may not be reproduced or copied, in whole or in part, in any printed, mechanical, electronic, film, or other distribution and storage media without the written consent of the publisher.

Subscriptions include two formats—online access only or online access plus printed volumes. Individual subscriptions: \$273.00 for 1 year online access and \$391.00 for 1 year online access plus printed volumes. Institutional subscriptions (one geographic site via IP access): \$422.00 for 1 year online access and \$629.00 for 1 year online access plus printed volumes. Single copies are \$55.00. For multi-site subscription and pricing, please contact Sales or call 1-877-909-ASTM. To subscribe, please send prepaid order to ASTM International, Customer Service, 100 Barr Harbor Drive, P.O. Box C700, West Conshohocken, PA 19428-2959 or visit www.astm.org.

Photocopy Rights: Authorization to photocopy items for internal, personal, or educational classroom use, or the internal, personal, or educational classroom use of specific clients, is granted by ASTM International provided that the appropriate fee is paid to the Copyright Clearance Center, 222 Rosewood Drive, Danvers, MA 01923, Tel: (978) 646-2600; <http://www.copyright.com/>

Periodicals postage paid at W. Conshohocken, Pa., and at additional mailing offices.

199	A New Multicoefficients Creep Model for Concrete Wenzhong Zheng and Can Tang
215	Laboratory Evaluation of Aging on Engineering Properties of Fine-Graded Porous-Asphalt Concrete M.-C. Liao, Y.-Y. Lin, and M.-Y. Tseng
227	Physiological Information for Pavement Ride Quality Verification K. Tomiyama and A. Kawamura
236	Vibration Levels in Vans as a Function of Payload and Leaf Spring Sheet Number Péter Böröcz
244	Research on Load Spectrum Construction of Bench Test Based on Automotive Proving Ground Xiaobing Yang, Xintian Liu, Jiachi Tong, Yansong Wang, and Xiaolan Wang
252	Voltage Sensorless Controller for Photovoltaic Integrated Shunt Active Power Filter for Enhancement of Power Quality C. Ramakrishnan and R. Pradeep
266	Performance Evaluation of PV-Supported STATCOM for Voltage and Frequency Regulation of Standalone SEIG System K. Tamilselvan and R. Anita
283	A Strategy to Determine Partial Discharge in XLPE Power Cables Using Acoustic Emission Detection Technique D. F. Jingle Jabha, K. Selvi, and R. Joselin
294	Strength of Aluminum Alloys Under Static Mixed-Mode I/II Loading Conditions F. Tariq, M. Khan, M. Farhan, and M. Z. Siddiqui
305	Design and Fabrication of Jominy End-Quench Testing Machine: Hardenability Evaluation of AISI-8620 Case-Hardening Steel Muhammad Aqib Hassan, Muhammad Mehdi, Muhammad Owais, Muhammad Nasir, and Syed Muhammad Kumail Haider
317	Improved Artificial Bee Colony Optimization Approach in UWBOFDM for Frequency Offset Estimation R. Eswaramoorthi and G. Singaravel
331	An Evaluation of Vacation Lifestyle Scale—Using International and Theme Resort Hotels in Taiwan as Examples S.-Y. Lin, P.-J. Juan, and T.-Y. Hsu
340	Production Yield for Multiple Line Processes: Product Acceptance Determination W. L. Pearn, Y. T. Tai, and Y. T. Chiu
351	Extracting More from Dynamic Modulus Data Using Split-Plot Repeated Measures Analysis Ashley Buss, Mohamed Elkashef, and W. Robert Stephenson
365	Bayesian Estimates and the Effectiveness of Metal Detection Devices Paul B. Kantor

REVIEW PAPER

370	Definition and Quantification of Anchor Ductility and Implications on Seismic Design P. Mahrenholtz and R. Eligehausen
-----	--

TECHNICAL NOTES

385	Application of Nonlinear Ultrasonic Technique to Characterize the Damage Evolution in Structural Steel after Tensile Deformation Xiao Wang, Xue Wang, Lei Hu, Cheng-chao Du, and Yong Li
394	Effect of Tensile or Compressive Overload on the Fatigue Crack Growth of Friction Stir Welded 19501 Aluminum Alloy Prakash Chandra Gope, Harshit Kumar, and Himanshu Purohit
405	Simulated Road Profiles According to ISO 8608 in Vibration Analysis P. Múčka
419	Depth-from-Focus-Based 3D Reconstruction of Asphalt Pavement Micro-Texture X. Cui, X. Zhou, J. Lou, J. Zhang, and M. Ran
428	Assessment of Compaction Quality Based on Two Index Parameters from Roller-Integrated Compaction Measurements Z.-H. Nie, T. Jiao, X. Wang, and T. Qiu

Journal of Testing and Evaluation is online.

TAKE ADVANTAGE OF THESE BENEFITS:

- Search Papers and Authors
- View Abstracts
- View Table of Contents
- Download Individual Papers
- IP access is available

For information, visit: www.astm.org