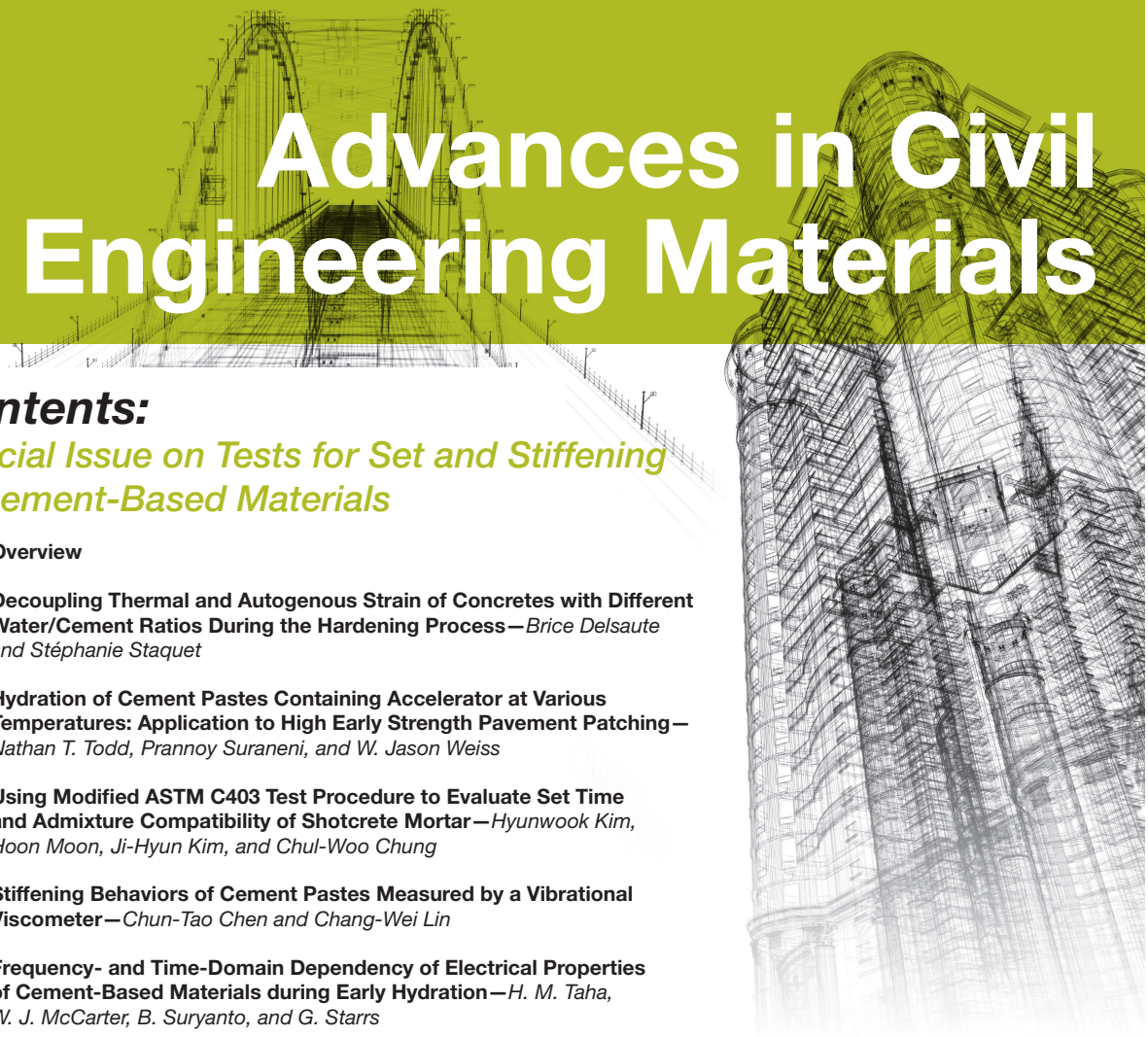
CODEN: ACEM59

Advances in Civil Engineering Materials



Contents:

Special Issue on Tests for Set and Stiffening of Cement-Based Materials

ASTM INTERNATIONAL

Published by ASTM International | 100 Barr Harbor Drive | PO Box C700 | W. Conshohocken, PA 19428-2959

Editorial Objectives

Advances in Civil Engineering Materials (ACEM) is published online by ASTM International, a nonprofit technical organization that develops and publishes voluntary consensus standards and related information for materials, products, systems, and services.

Contributions are peer reviewed prior to publication.

Purpose and Scope

The journal publishes high-quality, original papers, including review papers and technical notes, on topics relating to the properties and performance of civil engineering materials. These are materials such as concrete, asphalt, steel, polymers and polymeric composites, and wood for use in civil and environmental engineering applications-for example, pavements, bridges, buildings (including nonstructural elements such as insulation, and roofing) and environmental systems (including water treatment). The journal core topics are characterization, physical properties, constructability, and durability of these materials. Papers may present experimental or modeling studies based on laboratory or field observations. Characterization may include chemical composition, nanostructure, and microstructure. Physical properties include, but are not limited to, strength, stiffness and fracture behavior. Constructability includes such topics as construction methods, quality control and quality assurance, life cycle analysis, and sustainability. Durability may be determined using either fi eld performance or accelerated laboratory testing. Papers relating to sustainability of engineering materials or to the impact of materials on sustainability of engineering structures are especially encouraged.

Editor-in-Chief

Editorial Services

Editorial Board

Advances in Civil Engineering Materials (Print ISSN 2379-1357; E-ISSN 2165-3984) is published online by ASTM International. 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.

Subscriptions include online access. Individual subscriptions: $252.00 for 1 year online access. Institutional subscriptions (one geographic site via IP access): $422.00 for 1 year online access. Multisite access also available; please contact sales@astm.org or call 1-877-909-ASTM. To subscribe, please send prepaid order to ASTM International, Customer Service, 100 Barr Harbor Drive, PO Box C700, West Conshohocken, PA 19428-2959 or visit www.astm.org.

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

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

Printed in the U.S.A.

Visit our website: www.astm.org.

Overview

Special Issue on Tests for Set and Stiffening of Cement-Based Materials

The term "set and stiffening" indicates an increase in stiffness of the fresh cement-based material as a result of hydration. Set is generally used to describe the transition from a liquid (or a slurry) to a solid state, whereas stiffening is used to describe the gradual increase in stiffness caused by development of solid microstructure. The concept of set and stiffening is important because it affects the workability, finishability, and load carrying capacity of the early age cement based materials. However, current standard procedures available for set and stiffening measurements have some drawbacks.

Much research has been performed to develop or to suggest an alternative test method in order to overcome such drawbacks. Electrical measurements (conductivity, capacitance, impedance, etc.), sound wave based approaches (ultrasonic wave transmission, reflection, resonant frequency, etc.), and calorimetric based methods using temperature rise (thermal set) are good examples of such efforts. However, there are still some needs in the construction market to develop a suitable test procedures that are applicable for specific purposes. In this special issue, various test methods for set and stiffening measurements of cement-based materials are presented to introduce current level of knowledge on this topic.

As a guest editor, I deeply appreciate all authors and reviewers who participated in this special issue on "Tests for Set and Stiffening of Cement-Based Materials". I believe that all the works that are presented in this special issue have a unique contribution and significance. Hopefully, this special issue can be used as good information package for researchers who are actively working in the area of set and stiffening. It would be even better if the information from this special issue can be considered or used to develop a future ASTM standard test procedure.

Finally, I would like to thank Profs. Leslie J. Struble and W. Jason Weiss. It was a great and enjoyable experience for me to work as a guest editor for ASTM. I am also thankful for the assistance provided by ASTM staff members, Alyssa Conaway and Sara Welliver, especially for their endurance in communication delay caused by the time difference between United States and South Korea. Without their help, this special issue could not have been organized as smoothly.

Chul-Woo Chung
Guest Editor

ASTM INTERNATIONAL
Helping our world work better

ISSN: 2379-1357
Stock #: ACEM1702

www.astm.org