

TENTATIVE TECHNICAL PROGRAM



SYMPOSIUM ON REACTIVITY TESTS FOR CEMENT-BASED MATERIALS – FROM LAB TESTING TO STANDARDS AND SPECIFICATIONS

Sponsored by ASTM Committee C09 on Concrete and Concrete Aggregates.

June 12, 2022
Hyatt Regency Seattle
Seattle, WA, USA

Symposium Chairs: Prannoy Suraneni
University of Miami
Coral Gables, FL, USA

Lisa Burris
The Ohio State University
Columbus, OH, USA

ABOUT THE SYMPOSIUM

Tests that can differentiate inert materials from reactive supplementary cementitious materials are critical because the two types of materials have substantially different impacts on concrete. Several recently developed methods for quantifying the reactivity of supplementary cementitious materials using model systems are described. Results are presented for a range of supplementary cementitious materials, including unconventional fly ashes, bottom ash, calcined clays. Advances in measurement of reactivity in cement paste systems are also discussed. Links between reactivity, cement paste properties, and concrete durability are developed, which allows to use reactivity tests for durability screening. The potential for standardizing these new reactivity tests is discussed.

SUNDAY, JUNE 12, 2022
(All Times in U.S. Pacific Daylight Time)

8:00 AM **Opening Remarks**
Prannoy Suraneni, Symposium Chair

**SESSION 1: SUPPLEMENTARY CEMENTITIOUS MATERIALS REACTIVITY:
MODEL SYSTEMS**

Session Chair: Prannoy Suraneni
University of Miami
Coral Gables, FL, USA

8:10 AM **Development of Precision Statements and Definition of Scope of the R³ Test Method (ASTM C1897-20) for Determination of the Reactivity of Supplementary Cementitious Materials**
K. Scrivener, EPFL, Lausanne, Switzerland

8:30 AM **Multi-technique Approaches to Evaluate the Pozzolanic Properties of Calcined Kaolinite and Bentonite Clay Blends**
W. Ashraf, The University of Texas at Arlington, Arlington, TX, USA

8:50 AM **Reactivity Testing at 40 & 60 °C using Isothermal Calorimetry**
P. Sandberg, Calmetrix, Beverly, MA, USA

9:10 AM **Reactivity of Unconventional Fly Ashes, SCMs, and Fillers: Effects of Sulfates, Carbonates, and Temperature**
Y. Wang, University of Miami, Coral Gables, FL, USA

9:30 AM **Reactivity of Ground Bottom Ash**
W.C. Spencer, Boral Resources, Taylorsville, GA, USA

9:50 AM **Determining Pozzolanicity for Natural Pozzolans by Calcium Hydroxide Consumption**
C. Fagouri, Burgess Pigment, Sandersville, GA, USA

10:10 AM **Fly ash-Ca(OH)₂ Reactivity in Single- and Mixed-Salt Brines**
M. Collin, University of California at Los Angeles, Los Angeles, CA, USA

10:30 AM BREAK

SESSION 2: SUPPLEMENTARY CEMENTITIOUS MATERIALS REACTIVITY: CEMENT PASTES AND MORTARS

Session Chair: Lisa Burris
The Ohio State University
Columbus, OH, USA

- 10:45 AM **Using Pozzolanic Reactivity to Estimate Concrete Performance**
K. Bharadwaj, Oregon State University, Corvallis, OR, USA
- 11:05 AM **Impounded Class C Fly Ash Beneficiation and Reactivity Evaluation**
K. Riding, University of Florida, Gainesville, FL, USA
- 11:25 AM **The Determination of Pozzolanic Reactivity: Comparison of ASTM and EN Strength Activity Methods and Electrical Resistivity**
T. Robl, University of Kentucky, Lexington, KY, USA
- 11:45 AM **Comparative Study of the Reactivity and Performance of Different Non-Traditional and Natural Pozzolans in Cementitious System**
R. Tokpatayeva, Purdue University, West Lafayette, IN, USA
- 12:05 PM **Waste Incineration Ash: A Complex Beast**
N. Garg, University of Illinois at Urbana-Champaign, Urbana, IL, USA
- 12:25 PM LUNCH (on your own)

SESSION 3: LINKING REACTIVITY TO CONCRETE PROPERTIES INCLUDING DURABILITY

Session Chair: Prannoy Suraneni
University of Miami
Coral Gables, Florida, USA

- 1:05 PM **Linking Reactivity Testing Outputs with Performance in Cement-Based Mixtures**
S. Al-Shmaisani, The University of Texas at Austin, Austin, TX, USA
- 1:25 PM **Reactivity of Fly Ashes and Natural Pozzolans and their Efficiency to Prevent Alkali-Silica Reaction**
K.S.T. Chopperla, Oregon State University, Corvallis, OR, USA
- 1:45 PM **Pozzolanic Materials: Reactivity Assessment and Durability Performance**
M. Kasaniya, University of New Brunswick, Fredericton, New Brunswick, Canada

- 2:05 PM **Predicting Surface Resistivity on Concretes Containing Supplementary Cementitious Materials Cured at Non-Elevated and Elevated Temperatures**
R. Rios, Georgia Institute of Technology, Atlanta, GA, USA
- 2:25 PM **Evaluating the Inclusion of ASR Mitigation as a Performance Metric in ASTM C618**
D. Benkeser, Georgia Institute of Technology, Atlanta, GA, USA
- 2:45 PM **Examination of the Available Alkali Test Method for Supplementary Cementitious Materials**
M. Juenger, The University of Texas at Austin, Austin, TX, USA
- 3:05 PM **Predicting Fly Ash Performance in Cement-Based Mixtures by Machine Learning**
Mathieu Bauchy, University of California at Los Angeles, Los Angeles, CA, USA
- 3:25 PM **Closing Remarks**
Lisa Burris, Symposium Chair
- 3:35 PM SYMPOSIUM ADJOURNS