

Transition from Fluid to Solid: Re-examining the Behavior of Concrete at Early Ages

**Technical Session at the 2009 ACI Spring Conference
ACI Special Publications Series SP-259**

**San Antonio, Texas
15-19 March 2009**

ISBN: 978-1-61567-146-5

Printed from e-media with permission by:

Curran Associates, Inc.
57 Morehouse Lane
Red Hook, NY 12571
www.proceedings.com

Some format issues inherent in the e-media version may also appear in this print version.

Copyright© (2009) by ACI
All rights reserved.

Printed by Curran Associates, Inc. (2009)

For permission requests, please contact ACI
at the address below.

ACI
38800 Country Club Drive
Farmington Hills, MI 48333 USA

Phone: (248) 848-3700
Fax: (248) 848-3701

BKStore@concrete.org

TABLE OF CONTENTS

Early Age Stiffening of Cement Paste Using Ultrasonic Wave Reflection	1
<i>C. Chung, J.S. Popovics, L.J. Struble</i>	
Experimental Study on Restrained Drying Shrinkage Cracking of Concrete Using Acoustic Emission	10
<i>M. Ozawa, S. Uchida, T. Kamada, H. Morimoto</i>	
Continuous Ultrasonic Assessment of Elastic Modulus of Cementitious Materials through Setting and Early Strength Gain	25
<i>K.V. Subramaniam</i>	
Early Age Properties Development of Concrete with Different Slag Contents	35
<i>A. Darquennes, S. Staquet, A. Kamen, M.-P. Delplancke-Ogletree, B. Espion</i>	
Identifying the Fluid-to-Solid Transition in Cementitious Materials at Early Ages Using Ultrasonic Wave Velocity and Computer Simulation	58
<i>M. Dehadrai, G. Sant, D. Bentz, J. Weiss</i>	
Detecting Solidification Using Moisture Transport from Saturated Lightweight Aggregate	68
<i>R. Henskensiefken, G. Sant, T. Nantung, J. Weiss</i>	
Evaluation of a Quick Heat Generation Index Test for Characterization of Cementitious Materials	79
<i>T.D. Rupnow, V.R. Schaefer, K. Wang</i>	
Flocculation in Cement Pastes Measured through Use of Laser Microscopy	96
<i>R.P. Ferron, C. Negro, S.P. Shah</i>	
Effects of Accelerating Admixture on Flowable Fill Strength	109
<i>W. Lovencin, F.T. Najafi</i>	
Flocculation Behavior of Cement Pastes Containing Clays and Fly Ash	127
<i>N. Tregger, H. Knai, S.P. Shah</i>	
Monitoring the Liquid to Solid Transition in Concrete with Conventional Tests	139
<i>J. Abel, R.C.A. Pinto, K.C. Hover</i>	
Simulation of Volume Changes of Cement Paste at Early Age	155
<i>I. Jaouadi, A. Guidoum, K. Scrivener</i>	
Author Index	