



Concrete moves...



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Concrete contribution to
a changing world

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EUROPEAN READY MIXED CONCRETE ORGANIZATION

AIR MEASUREMENT AND CONTROL IN CONCRETE PRODUCTION

B. Miller, PE, LEED AP⁽¹⁾, Per Davoust⁽¹⁾, Ed Mansky⁽¹⁾, Doug Loose⁽²⁾

(1) GCP Applied Technologies, Cambridge, MA, USA

(2) CiDRA, Inc, CiDRA Inc., Wallingford, CT, USA

Abstract

The air content in concrete, essential in providing long-term durability in freezing and thawing environments, directly influences workability, finishing ability, strength and other key plastic and hardened properties. For the understanding and management of a component of critical importance, an innovative acoustic sensor has been developed that provides real-time, accurate measurement of the air volume content and temperature of concrete as it is mixed in a stationary outer wall mixer. This technology increases the quality of concrete, reduce batch-to-batch variability, and allows the control of air and temperature in real time.

The paper provides an overview of the technology, and is based on data collected in a laboratory environment as well as from several producers that document the correlation between the acoustically measured air content and via the traditional pressure method in fresh concrete per ASTM C23 / EN12350-7. These findings, as well as lessons learned such as the effect on the air content of concrete of temperature, mixing time, sequencing and the delivery methodology from mixer to formwork will be presented.

Keywords: Air, Pressure meter, Real-time measurement.