Activities of RILEM Technical Committee: Internal Curing of Concrete and Anticipated Research

Novel methods of shrinkage mitigation, based on special advanced methods of internal curing (IC), are currently being intensively studied in research groups in several countries. They have been the focus of the State-of-the-Art report prepared by the Technical Committee TC 196-ICC "Internal Curing of Concrete" of the International Union of Laboratories and Experts in Construction Materials, Systems and Structures (RILEM). The authors of this short communication served as a chair (K. Kovler) and secretary (O.M. Jensen) of the TC. The regular and corresponding members were acknowledged RILEM experts in the domain. To account for the different practices and different standards around the world, the TC included representatives from three different world regions: Europe, North America and Asia. Totally more than 30 members from 17 countries contributed in the committee work. Some of them serve in parallel in ACI, JCI (Japan Concrete Institute) and other well-known research associations in the field of concrete science and engineering. Internal curing, as well as external curing, can be classified into two categories: •Internal water curing (sometimes called “water entrainment”), when the curing agent performs as a water reservoir, which gradually releases water, and •Internal sealing, when the curing agent is intended to delay or prevent loss of water from the hardening concrete. The committee addressed both internal water curing and internal sealing, but focused on the first method, which is much more developed than the internal sealing techniques. The State-of-the-Art report (STAR) published by the TC in 2007 covers the present knowledge about principles, technologies and effects of internal curing of concrete. As a part of the TC work an International RILEM Conference was organized: "Volume Changes of Hardening Concrete: Testing and Mitigation", Lyngby, Denmark, 20-23 August 2006. In addition a DTU-RILEM Doctoral Course was held "Concrete Curing: From the Research Lab to the Construction Site", 13-19 August 2006. One goal of the future research and development in the area of internal curing of concrete would be deeper understanding of the absorption/desorption mechanism of super-absorbent polymers (SAP) introduced into cementitious hardening material. A new RILEM TC on use of SAP in concrete has been recently drafted to follow up on the work of the TC 196-ICC. One of the important instruments for an international cooperation and coordination in further research, development and standardization in the field of Internal Curing of Concrete is a close collaboration with ACI (in particular, with ACI Committee 236 "Materials Science of Concrete"), JCI and other leading international and national research associations. In this sense, it seems to be symbolic to mention that the first meeting of the TC 196-ICC was organized in close cooperation with the ACI in conjunction with one of the ACI conventions (Phoenix, October 2002), and the final communication about the fruits brought by the committee work is being reported in another ACI convention (Puerto-Rico, October 2007).

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