

Foreword

This report captures the state-of-the-art of the durability of fibre-reinforced strain-hardening cement-based composites (SHCC). It has been compiled by the subcommittee on durability of the RILEM Technical Committee 208-HFC: High performance fibre reinforced cementitious composites. The subcommittee is chaired by Professor Folker Wittmann, and co-chaired by Professor Gideon van Zijl. This subcommittee has been active in the period 2005–2009, with yearly meetings in Honolulu, Hawaii (May 2005), Alexandroupolis, Greece (July 2006), Stuttgart, Germany (July 2007), Gifu, Japan (October 2008) and in Stellenbosch, South Africa (November 2009). The committee was inaugurated by its chairman, Professor Victor Li, at the first meeting in Varenna, Italy (September 2004).

In particular, the eight chapters have been compiled by the following subcommittee members:

Chapter 1 – Introduction

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Chapter 2 – Durability under Mechanical Load – Micro-crack Formation

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Chapter 3 – Durability under Chemical Loads

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Chapter 4 – Durability under Thermal Loads

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Chapter 5 – Durability under Combined Loads

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Chapter 6 – Durability of Fibres

Atsuhisa Ogawa and Hideki Hoshiro, Kuraray Co., Ltd., Japan

Chapter 7 – Durability of Structural Elements and Structures

Viktor Mechtcherine and Frank Altmann, TU Dresden, Germany

Chapter 8 – Durability, Economical, Ecological, and Social Aspects: Life-cycle Considerations

Michael D. Lepech, Stanford University, USA

In addition to a thorough review by the editors, a critical review of the report was performed by Professor Hirozo Mihashi, of Tohoku University, Japan, and Professor Victor C. Li, Michigan University, USA, assisted by Dr. Sahmaran of Gaziantep University, Turkey. We gratefully acknowledge this review panel.

Finally, we hope that this state-of-the-art report contributes to thorough understanding and sound application of this advanced cement-based construction material in civil engineering infrastructure and buildings. It must be born in mind that, however comprehensive we have covered the current knowledge at the time of publication, active research continues to expand and modify the behaviour and characterisation data, but also to address the lack of thorough investigation and understanding of several matters clearly indicated in this report.

Gideon van Zijl
Stellenbosch, January 2010

Durability of Strain-Hardening Fibre-Reinforced
Cement-Based Composites (SHCC)

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2011, XII, 140 p., Hardcover

ISBN: 978-94-007-0337-7