

Preface

Dear Colleagues,

We are pleased to provide you with this state-of-the-art report on the mechanical properties of Self-Compacting Concrete (SCC). Given to the fast growth of research output in the field of SCC and the growing acceptance of this high-performance material around the world in both precast and cast-in-place applications, the members of the RILEM Technical Committee TC 228-MPS “Mechanical Properties of SCC” have worked diligently to provide a concise summary of key topics pertaining to the mechanical properties of SCC. This report comprises of eight chapters covering various topics pertaining to mechanical properties of SCC. This includes compressive, tensile, flexural, and shear strengths and elastic modulus, stress–strain behaviour, and mechanical properties at elevated temperatures. The report also discusses creep, drying and autogenous shrinkage behaviours of SCC and the applicability of various models to SCC. Bond strength to reinforcement, existing concrete, and freshly cast SCC are discussed. A review of the main structural behaviour characteristics of SCC used in various structural elements is provided. A comprehensive review of the behaviour of fibre-reinforced SCC (FR-SCC) is provided. Finally, the report discusses the properties of specialty SCC including lightweight and heavyweight SCC, preplaced aggregate SCC, underwater concrete, self-levelling concrete, and self-compacting repair mortar and concrete.

I would like to acknowledge the contributions of all 26 members of this TC 228-MPS who have worked diligently since 2008 to gather a large body of technical knowledge literature that is synthesized in report. Particular thanks go to the lead authors of the various chapters listed below for championing the efforts in analysing large body of technical literature and synthesizing the findings and the Committee’s option in their respective chapters. Special thanks are extended to the Secretary of the Committee, Prof. Geert De Schutter, for his help in coordinating the work of the Committee and the preparation of this state-of-the-art report on the mechanical properties of SCC.

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