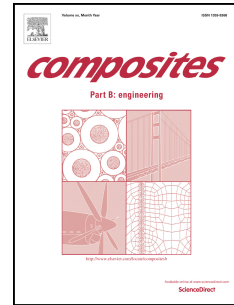


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SYNERGY ASSESSMENT OF HYBRID REINFORCEMENTS IN CONCRETE

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ABSTRACT

The present paper is devoted to the assessment of synergy due to the combined use of metallic and synthetic fibres in concrete matrix. Such an evaluation is performed both at first cracking stage by computing fracture toughness, and at post-peak stage by determining two toughness indexes. The results from experimental three-point bending tests on concrete specimens reinforced with copper-coated steel fibres and polypropylene fibres are employed for such computations. The novelty of this research work is that the Mixed Mode loading effect occurring at crack tip is taken into account when computing fracture toughness. Plain concrete specimens and specimens reinforced with only one type of fibres are experimentally and analytically examined for comparison.

KEYWORDS: concrete, fibres, fracture toughness, hybrid reinforcement, synergy, toughness index

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