Effect of silica fume on the mechanical properties of low quality coarse aggregate concrete

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Cement and Concrete Composites
Vol. 26, Issue.7, 2004

Abstract: This paper reports results of a study conducted to evaluate the effect of silica fume on the compressive strength and split tensile strength and modulus of elasticity of low quality coarse aggregate concrete. Concrete specimens were prepared with four types of low quality aggregates, namely calcareous, dolomitic and quartzitic limestone and steel slag. Results indicate that the type of coarse aggregate influenced the compressive strength and split tensile strength and modulus of elasticity of both plain and silica fume cement concretes. Both the compressive and split tensile strengths of steel-slag aggregate concrete were more than those of limestone aggregate concretes. Incorporation of silica fume enhanced the compressive strength and split tensile strength of all concretes, especially that of the low quality limestone aggregates.