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Abstract of Paper Number 46 : Fabrication, Mechanical Testing and Scanning Electron Microscopic Study of Short Carbon Fibre Reinforced Reactive Powder Concrete (CFRPC) with Improved Fibre Dispersion

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Abstract : A new type of cement has been developed in Europe and Canada, called Reactive Powder Concrete (RPC), where w/c ratios of 0.1-0.14 fine particles were used. This particular formulation has achieved high compressive and flexural strength. Carbon fibres have been used widely recently due to its long-term durability. Dispersion of short carbon fibres was always a major problem when they were mixed with cement. The present research has concentrated at carbon fibres dispersion in RPC by using two techniques: 1) Mechanical–ultrasound; and 2) Chemical surfactants., The influences caused by these dispersion techniques on mechanical properties of the RPC were studied. Results show that ultrasound has provided better improvements on dispersing fibres and also enhanced overall mechanical properties. Surfactants have contributed lesser significant effects on the mechanical properties due to possible loss in interfacial bonding caused by the surfactant molecule.

