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# Toughness, elasticity and physical properties for the evaluation of foamed concrete reinforced with hybrid fibers

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## Abstract

This study has been undertaken to investigate the evaluation of Fiber-reinforced Foamed Concrete (FRFC) performance by the use of toughness and non-destructive tests. These tests cover the workability, density, static modulus of elasticity, toughness, ultrasonic pulse velocity and absorption tests. Different FRFC mixes using carbon fibers in the order of 0.5, 1 and 1.5% carbon fibers were used. Also, the combinations of carbon fibers (C) and polypropylene fibers (PP) as 1% C+ 0.5% PP, and 0.5% C+1% PP were prepared. Lastly, the inclusion of polypropylene fibers with the order of 1.5% PP was used to strengthen the foamed concrete mix.

The results showed that the use of 1.5% of C has affected the modulus of elasticity and flexural toughness of foamed concrete.

On the other hand, a strong relationship is found between compressive strength and ultrasonic pulse velocity for FRFC.

Keyword: Civil engineering