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STUDY ON POLYMER CONCRETES WITH WASTE OF POLYSTYRENE GRANULES

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Abstract

This paper presents the results of experimental tests on polymer concrete prepared with different wastes. Two types of polymer concrete mixes were compared. The control polymer concrete was obtained with epoxy resin, natural aggregates in two sorts (0-4 mm and 4-8 mm) and fly ash waste used as filler. To the control mix, both sorts of natural aggregate were replaced in different dosages by polystyrene granules waste. The influence of polystyrene granules as substitution of aggregate on density, compressive strength, flexural strength and split tensile strength was analyzed in comparison with the properties of control polymer concrete. All mixes with aggregate substitution had densities of lightweight concrete, smaller than that of control mix. The compressive strength and flexural strength presented smaller values than that of control mix. The split tensile strength presented two values higher than the control mix. The values of mechanical properties decreased with increasing the substitution dosage of aggregate with polystyrene granules.

Key words: epoxy resin, fly ash, mechanical properties, polymer concrete, polystyrene granules waste

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