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Разработка полимерных цементных пластификаторов на основе гидрофильных сополимеров

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Polyethylene glycol-g-acrylic acid was prepared by grafting polymerization in presence of benzyl peroxide as an initiator. The grafted copolymer was characterized through FTIR, TGA and DSC. The presence of a new absorption peak in the region of acrylic acid at 1615 cm⁻¹ for carbonyl group. The thermal stability of the copolymer was confirmed by TGA. Copolymer has single T_g is attributed to the miscibility of copolymer.

The effect of copolymer concentrations on physico-mechanical properties including permeability, strength and frost resistance was investigated. The concentrations of copolymer were in the range from 0.25 to 1.0 %. The results indicate that the copolymer causes improvement in cement properties. However, as the concentrations of copolymer decreased, the permeability decreased, and strength as well as frost resistance of cement increased.

Keywords: Polyethylene glycols, Acrylic acid, polymer concretes, polymeric softeners