SL 26

SYNTHESIS AND EVALUATION OF WATER-SOLUBLE POLYMER FOR APPLICATIONS IN CONCRETE

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Three composition ratios of poly[acrylic acid (AA)-co-vinyl butyl ether (VBE)] were prepared in alcoholic solution using azo-bis-isobutyro-nitrile as initiator (ABIN) at 60 ^{o}C. The water-soluble copolymers were characterized through FT-IR, ^{1}H NMR, mass spectra, ESEM, as well as viscosity. The effect of water-soluble copolymers and their sodium salts on the physico-mechanical properties of Ordaniary Portland Cement (O.P.C.) pastes was investigated. The results showed that the addition of aqueous solutions from the prepared copolymers and their sodium salts to the cement improve most of the specific characteristics of (O.P.C.). As the concentration of the water-soluble copolymer increases, the setting time increases. The combined water content increases with the addition of copolymer to the mixing water. The compressive strength was sharply increased at all hydration. The results of the solution of the prepared sodium salt copolymers are better than its copolymers.