Emulsion copolymerization and thermal properties of Vinyl acetate/Alkyl acrylates

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Water soluble vinyl acetate/alkyl acrylate copolymer were prepared by the emulsion copolymerization of vinyl acetate and various methacrylate such as methyl acrylate (MA), ehtyl acrylate (EA), and butyl acrylate (BA). Potassium persulfate (KPS) and ammonium persulfate (APS) were used as an initiator. Polyvinyl alcohol (PVA 217) was used as a protective colloid. The thermal decomposition characteristics of the prepared poly(vinyl acetate-*co*-methyl acrylate) (PVAc/PMA), poly(vinyl acetate-*co*-ethyl acrylate) (PVAc/PEA), poly(vinyl acetate-*co*-butyl acrylate) (PVAc/PBA) were studied using moisture meter at the temperature between 100 and 200 ℃. With 0.4 wt% APS and 15 wt% PVA, high conversions of vinyl acetate monomer and the acrylates comonomers over 95 % were obtained after 240 mins of polymerization at 80 ℃.