ABSTRACT

In this research, water born adhesive resin (wood glue) for wood was produced through the process of emulsion polymerization. After testing different methods, batch process was selected best for this type of polymerization. Optimum conditions like time, temperature, pressure, monomer rate, initiator ratio and their concentration, etc. were established after several experiments. Water dispersed adhesive resin was produced through special monomer types like vinyl acetate monomer (VAM), butyl acrylate (BA), meth acrylic acid (MAA), 2-ethyl hexyl acrylate (2-EHA), etc. The initiators chosen for this research were potassium persulphate and ammonium persulphate which gave the best results in the synthesis of required resin. The best optimum temperature selected for the polymerization process was 88-90 ^{0}C in order to avoid any kind of gelation or agglomeration. After several experiments, special polyvinyl alcohols with a particular degree of hydrolysis were chosen. Several physical and mechanical tests were performed to characterize the effect of the finished product. After analysis, it was found that resin produced with the monomers like VAM, BA and 2-EHA showed better properties than others.