

Emulsion Copolymerizations of Vinyl Pivalate and Methacrylated Methyl Oleate

Ana Carolina Oliveira, Alan T. Jensen, Fabricio Machado, Institute of Chemistry, University of Brasília, Brasília, Brazil.

The present work addresses the synthesis of a new class of copolymeric latices based on vinyl pivalate and modified acid oleic through emulsion polymerization process. The effect of the concentration of methacrylate methyl oleate (OMEM) from chemically modified acid oleic on the thermal stability and glass transition temperature of the copolymers was evaluated, showing that the incorporation of OMEM into the polymer chains resulted in a significant decrease of the glass transition temperature (T_g) of the final material, exhibiting a decrease of approximately 40 °C, in comparison to the T_g value observed for the pure poly(vinyl pivalate), which was determined to be equal to 81 °C, as illustrated in Figure 1. Thermogravimetric analyses showed that the thermal stability of the copolymers was slightly reduced as the OMEM concentration is increased in the reaction medium. It was also observed that the polymer latices with high colloidal stability were formed at high rate of polymerization and elevated conversion ranged from 90 % to 100 %.

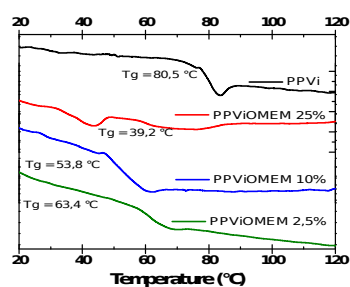


Figure 1. Glass Transition Temperature and Stability of the Polymeric Materials.