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INVESTIGATION OF WATER-BASED EMULSIONS: SURFACE AND FILM-FORMING PROPERTIES*

Y. Tiğci, A. Saraç

Yildiz Technical University, Chemistry Department, Davutpasa Campus, 34220 Esenler, Istanbul, Turkey (ayfersarac2002@yahoo.com)

Copolymer dispersions of vinyl acetate are a widely used type of synthetic latexes in paint, adhesive and coating industries. Copolymer of acrylics and vinyl acetate has many specific properties such as good film-forming, transparency, and mechanical properties, and their corresponding products have been widely used as coatings, adhesives, paints. However latexes with high percentage hydrophilic monomers and nonionic emulsifier, the poor water resistance and low (or high) temperature resistance limit their application.

Coating technology has long been interested in the preparation of films from water-based and oil-based formulations.

This study presents various results about the influence of the emulsifier concentration, composition, and variation of the ethylene oxide chain in the emulsifier mixture on the properties of the polymer dispersion, and their film properties. Another purpose of this study tries to provide a contribution into the field of polymer latex, their film formation, and surface properties.

It was observed that an increase of the nonionic emulsifier concentration and its degree of ethoxylation lead to dispersions with smaller particles and higher viscosities. It was also found that an increase of the nonionic emulsifier concentration and its degree of ethoxylation resulted films with higher surface tensions and higher glass transition temperatures.

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