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Dual-curable PVB based adhesive formulations for cord/rubber composites: The influence of reactive diluents

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Abstract

In this study, the effects of reactive diluent type on the adhesion strength of cord/rubber surfaces were investigated. For this purpose, a urethane acrylate oligomer was synthesized by the reaction of 2,4-toluene diisocyanate (TDI), 2-hydroxyethyl methacrylate (HEMA) and polyvinyl butyral (PVB) in the presence of di-n-butyltin dilaurate (T12) as catalyst. The structure of the oligomer was characterized by nuclear magnetic resonance (NMR) spectroscopy. Then the oligomer was included in adhesive formulations together with trimethylolpropane trimethacrylate (TMPTMA) and tricyclodecane dimethanol diacrylate (TCDDA) as reactive diluents and thermal and photo initiator respectively. Polyester/polyamide cord fabrics were dipped into the adhesive solution and cured by UV-light. Then coated fabrics were characterized by Fourier transform infrared (FTIR)

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