

Reinforcement of Natural Rubber Latex Films through Surface Modified Silica with Macromolecular Coupling Agent

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Abstract: *The surface of precipitated silica particles was modified by reacting with a macromolecular coupling agent containing both hydrophilic and hydrophobic monomer units. Interfacial interactions between -OH groups of silica and -COOH groups of macromolecule were created through H-bonds and covalent bonds confirmed by Fourier Transform Infrared Spectroscopy. Two different dispersions of unmodified/modified silica were prepared and incorporated to natural Rubber Latex (NRL). Physical properties of NRL films containing modified silica fillers were compared with those of films containing unmodified filler. Even distribution of modified filler was seen in microstructures of film cross sections obtained from Scanning Electron Microscope.*

Keywords: Reinforcement, Natural Rubber latex, Silica, Surface modification and Macromolecular coupling agents