

Abstract Submitted
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Natural Rubber - Layered Silicates Nanocomposites: Mechanical Properties, Structure & Dynamics HARIS RETSOS, MSE CORNELL UNIVERSITY, ITHACA, NY TEAM, IPST-CSIC, MADRID, SPAIN TEAM — Natural Rubber (NR) is one of the most industrially relevant elastomers due to unique elastic properties. Recently we have been developed NR composites with incorporated natural or synthetic clays. We present structural, dynamical and mechanical properties to justify the influence of different parameters, like silicate dispersion, cross-linking density and strength of polymer/silicate interface, on the reinforcement phenomena of those composites. To understand the improvement of the mechanical properties we have investigated the possibility of any bound rubber formation on the outer surface of fillers like in carbon black or silica composites. Evidence from a rather similar situation have been found in silicate nanocomposites by dielectric spectroscopy and the existence of a possible relaxation mode suggests a strong adhesion with the fillers (interfacially adsorbed polymer IA) that corresponds to a glass transition around 100 °C higher than the bulk glass transition.

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