

**SEMINAR ANNOUNCEMENT**

## Extent of Organoclay Miscibility and The Physical Properties of Poly(L-lactic acid) Nanocomposite Films and Nanofibers

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In this investigation the physical properties of a novel silicate layered nanocomposite based on a biocompatible/biodegradable polymer matrix was studied. Three types of commercially available organophilic clays were employed in order to concurrently study the effect of organic modifier miscibility with the polymer matrix on the over all mechanical properties of nanocomposites. The nanocomposites were fabricated via the exfoliation adsorption and fiber electrospinning techniques using Poly(L-lactic acid), PLLA, as the polymeric matrix. Changing the extent of exfoliation while the polymer matrix and reinforcement phase are intact, makes this system ideal for studying the effect of degree of exfoliation on overall mechanical and crystallization properties. Wide Angle X-ray Scattering (WAXS) data reveals that increasing the miscibility of the organic modifier with the matrix increases the tendency of the system to exfoliate and randomly distribute the silicate layers throughout the matrix. Mechanical properties of the fabricated nanocomposites both in the fiber mat form and solution cast films show significant improvements both in terms of toughness and stiffness when compared to neat PLLA.

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For further details see Christopher M. Stafford