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Polylactide-Graft-Lignin Copolymers

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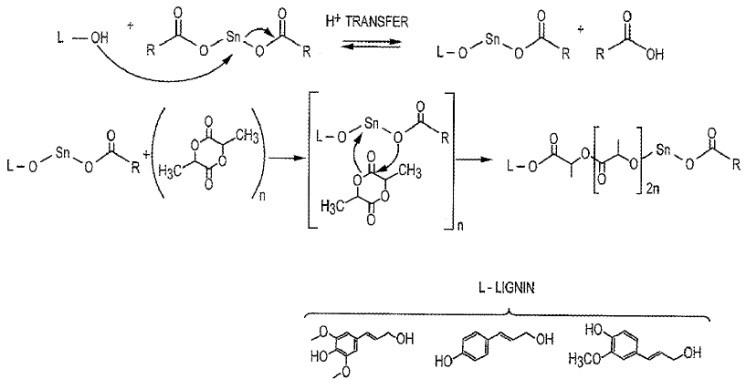
Summary: Methods to produce renewable polyactide-graft-lignin blends and copolymers

Description: Poly(lactic acid) (PLA) is an aliphatic renewable thermoplastic that is biodegradable. However, PLA is limited thermally by a low glass transition and heat distortion temperatures. Lignin is expected to improve the properties of bioplastics and plastics by acting as a toughening agent. This work presents methods to produce renewable polyactide-graft-lignin blends and copolymers that have improved physical properties. Both alkali lignin and organosolv lignin were butyrated before being grafted with poly(lactic acid). Gas permeation chromatography, differential scanning calorimetry, Fourier transform inferred spectroscopy, and solubility tests proved that the different functionalized lignins were successfully synthesized via solution polymerization to form a renewable PLA-graft-lignin copolymer.

Main Advantages of this Invention

- Can make biodegradable and renewable plastics
- Uses waste products of other processes
- Low costs



Potential Areas of Application

- Paper by-product recycling
- Biofuels

Patent Application: 12020

Intellectual Property Status: US utility patent pending (application #13/850,447)

Opportunity: We are seeking an exclusive or non-exclusive licensee for marketing, manufacturing, and sale of this technology.

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