



## Colorado School of Mines Office for Technology Transfer

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### **Poly lactide-graft-lignin copolymers**

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**Description:** As the lignocellulosic biorefining industry emerges as a viable fuels technology, the availability of lignins, which are a byproduct, will expand. Lignin's physicochemical features that allow the creation of value-added products includes a three dimensional aromatic-based structure and an abundance of reactive functional groups. 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. Although the copolymer is of low molecular weight, it could have a number of potential uses.

#### **Potential Areas of Application**

- Paper by-product recycling
- Biofuels

#### **Main Advantages of this Invention**

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

**Intellectual Property Status:** Provisional patent filed March 16, 2012

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

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