Application Development of Lignin: thermosets and polymer blends

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1. Outline

2. Epoxy resin based on depolymerized lignin

Approach 1: Preparation of epoxy monomer from PDL\(^1\)

Approach 2: Preparation of curing agent based on PDL (BCD)\(^2\)

3. Thermoplastic applications of lignin

Mechanochemical synthesis of oleated lignin and its blends with PLA

4. Conclusion

- Epoxy monomers based on partially depolymerized lignin (PDL) were prepared and used together with a biobased curing agent to modify the performance of asphalt.
- A polyacid-type curing agent based on PDL was prepared used together with other liquid curing agents for epoxy curing.
- Chemical modification of lignin was effectively achieved via the solvent-free ball milling process. The compatibility between oleated lignin and PLA in the polymer blends is greatly increased.
- Hydrogels based on modified lignosulfonate was successfully prepared.
- Lignin was successfully used as a major ingredient for adhesive application.

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