

Extension of Phenol-Based Laminating Resins with Depolymerized Rice and Wood Lignin Resins

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Categories:

- Chemical Engineering
- Materials and Manufacturing

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- Chemical Engineering
- Composites
- construction materials
- forestry waste
- Formaldehyde
- Furniture
- Green Technology
- laminate
- Lignin
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- resin
- sustainable

Researchers at Purdue University have determined the optimal composition and processing conditions for a phenol resin extended with a resin containing depolymerized rice and wood lignin. This technology is a continuation of work previously done to create formaldehyde-free laminates for use in furniture, construction materials, and more (69444). This formulation of resin minimizes the risk of blistering and warping while in the production process. It also minimizes the thickness swell and water absorption of the panels that underwent a boiling water test. This technology offers further refinement to the development of formaldehyde-free laminate materials

Advantages:

- Optimized for blister and warp free processing
- Thickness swell and water absorption within industry standards
- Repurposes waste materials
- Aligned with goals of regulatory organizations (formaldehyde-free)

Applications:

- Medium density fiber (MDF) board
- Laminate composite manufacturing

- Outdoor furniture, façade elements, bathroom stalls

Technology Validation:

This technology was validated by fabricating 8.5" x 11" test panels and subjecting them to boiling water tests to determine thickness swell and water absorption. For the 25% by weight wood lignin composite, both results were within the limit of 15%.

People:

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Intellectual Property:

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