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Program Area: CELL: Division of Cellulose and Renewable Materials

Symposium Title: (CELL011A) Renewable Resources for Materials and Energy: Recent Research and Developments in Latin America

INSTITUTIONS

1. Instituto de Desarrollo Tecnológico para la Industria Química (INTEC), Grupo de Polimeros y Reactores de Polimerización, Santa Fe, Santa Fe, 3000, Argentina

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Reason for Abstract Submission: I was specifically invited to submit this paper.

Invitation from: Maria Auad, Orlando Rojas, Gisela Buschle-diller

Email of Inviter: MLA0001@auburn.edu

Criteria are met: Are not Applicable

Presenting author will register: Yes

Abstract will be withdrawn if author cannot attend: Yes, I agree

Abstract will be withdrawn if presenter is a no-show: Yes, I agree

Abstract submitted only once: Yes, I agree

Equipment Needs: No response indicated

Comments to Organizers: No response indicated

Preferred Presentation Method: Oral Preferred

Should this Paper be Considered for a SCI-MIX? Yes

Student Type: Graduate Student

Citizenship Argentina

Country of Birth Argentina

Residence Argentina

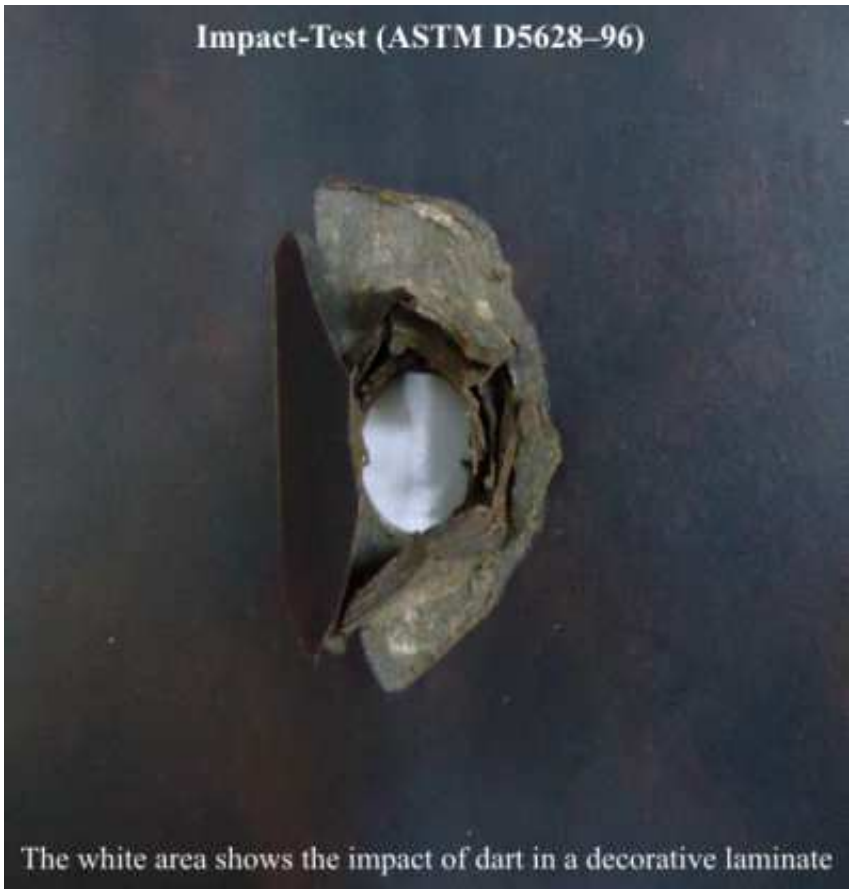
Title: Decorative laminates based on phenolic resins modified with sodium lignosulfonate and kraft lignin: Evaluation of mechanical properties.

Abstract Body: The substitution of phenol in the production of resol-type phenolic resins by environmentally-friendly compounds such as lignin and its derivatives is of great technological and academic interest, due to the similarity between resols and the aromatic structure of lignins. However, lignins must be chemically-modified in order to increase their reactivity toward formaldehyde. In this work, the addition of commercial lignins (sodium lignosulfonate and Kraft-type) as partial replacement of phenol in the resols used for the production of decorative laminates is experimentally studied. The work involved: the characterization and reactivation of commercial lignins, the industrial synthesis of traditional and modified resols by replacement of 10 and 20% w/w of phenol, the industrial impregnation of Kraft-type papers with the produced resins and the production of laminates at laboratory and industrial scales.

The mechanical performance of the laminates was deeply assessed by determining tensile modulus, bending strength, biaxial flexural, impact strength and Mode- I Interlaminar Fracture Toughness in both processing directions.

Modified laminates exhibited mechanical properties comparable with those of traditional laminates, indicating a negligible depreciation.

Industrial tests were carried out at Centro S.A, San Francisco, Córdoba.



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