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ADHESIVE PRODUCTION FROM CASHEW NUT SHELL LIQUID



Miss Wimonlak Noobutr

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การผลิตกาวจากน้ำมันเปลือกเมล็ดมะม่วงหิมพานต์ในสถานะที่เป็นเบส โดยใช้โซดาไฟเป็นตัวเร่งปฏิกิริยา อัตราส่วนจําแนกของโซดาไฟและกรดอนุคาร์บอิกเท่ากับ 0.1 และเปลี่ยนแปลงปริมาณฟอร์มาลีน ตั้งแต่ 20 ถึง 35 เปอร์เซ็นต์ โดยน้ำหนัก เมื่อคัดจากน้ำมันเปลือกเมล็ดมะม่วงหิมพานต์ และแปรค่าระยะ เวลาการกลั่นแบบย้อนกลับ 10 ถึง 40 นาที เรซินที่สังเคราะห์ได้เป็นเรซินชนิด "รีโซล" ซึ่งสามารถนำไปใช้งานเชื่อมต่อไม้ สภาวะที่เหมาะสมในการเตรียมเรซินรีโซล คือ เมื่อปริมาณของฟอร์มาลีนเท่ากับ 20 เปอร์เซ็นต์ ซึ่งอัตราส่วนจําแนกระหว่างฟอร์แมลดีไฮด์และกรดอนุคาร์บอิกเท่ากับ 1.04 และระยะเวลาการกลั่นย้อนกลับที่เหมาะสมคือ 40 นาที สภาวะที่พิกัดการแข็งตัวคือ การทาแล้วปล่อยให้ผิวหน้าของกาวแห้ง สามารถสัมผัสที่ผิวได้โดยไม่ต้องนึ่ง และใช้ความดันเท่ากับ 10 นาที โดยไม่ให้ความร้อน ซึ่งจะได้อกาวที่มีค่าแรงเหวี่ยงเท่ากับ 18.6 กก/ซม² ค่านี้ใกล้เคียงกับวิธีที่ไม่ต้องรอให้ผิวหน้าของกาวแห้ง ซึ่งแรงเหวี่ยงมีค่าเท่ากับ 18.0 กก/ซม²

ถ้าปริมาณของฟอร์มาลีนเท่ากับ 35 เปอร์เซ็นต์ และกลั่นย้อนกลับเป็นเวลา 10 นาที จะได้อกาวชนิดที่อาศัยความร้อนในการแข็งตัว ที่มีความทนทานต่อแรงเหวี่ยงดีที่สุด เมื่อนำไปทดสอบการใช้งาน ติดแผ่นผ้าในลอนกับยางธรรมชาติที่ผ่านการผสมแล้ว พบว่ากาวนี้ไม่สามารถที่จะยึดแผ่นผ้าในลอนและยางธรรมชาติดังกล่าวเข้าด้วยกัน

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ลายมือชื่ออาจารย์ที่ปรึกษาร่วม -

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The adhesive production from CNSL was produced in the basic condition by using sodium hydroxide as catalyst. The molar ratio between sodium hydroxide and anacardic acid was 0.1. The amount of formalin was varied from 20 to 35 per cent by weight of CNSL with the refluxing time of 10-40 minutes. The resulting resin was resol type which could be used in bonding of plywood to plywood. The optimum condition to produce the resol resin was obtained when the formalin concentration was 20 percent, molar ratio of formaldehyde and anacardic acid was 1.04, and the refluxing time was 40 minutes. The condition for curing it was dry-laminating and 10 minutes cold pressing. It showed shear strength of 18.6 kg/cm^2 which was closed to the one with wet-laminating, 18.0 kg/cm^2 .

In addition, the adhesive of 35 per cent of formalin and 10 minutes refluxing gave the best shear strength as the hot-setting adhesive. The adhesion characteristics of nylon-6 fabric to compounded natural rubber were evaluated at various conditions. It was founded that the adhesion between those substrates was less satisfied when the adhesive was employed.

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ปีการศึกษา 2535.....

ลายมือชื่อนิติกร วิมลลักษณ์ นอบบุตร

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