

Thesis Title: Modification of Polyester Fabric Properties by Admicellar Polymerization.
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ABSTRACT

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Polyester fabric is known to have very low moisture absorption, which leads to discomfort in wear. In this work, attempts were made to improve the hydrophilicity of a polyester fabric by coating it with a hydrophilic polymer by admicellar polymerization. The effects of varying surfactant, monomer, initiator and electrolyte concentrations on the polymerization process were studied. The polymeric films formed were characterized by SEM and FTIR. The SEM micrographs showed that the polymer successfully coated the fabric by admicellar polymerization. The improvement in the hydrophilicity of fabric was determined by comparing the moisture absorption of the treated fabric with untreated fabric. The results showed that the process led to a significant increase in moisture absorption of the treated fabric.

บทคัดย่อ

อัมพรพรรณ ศิริวิริยานันท์ : การปรับปรุงคุณสมบัติผ้าพอลิเอสเตอร์ด้วยวิธีแอคไมเซลลาร์พอลิเมอไรเซชัน (Modification of Polyester Fabric Properties by Admicellar Polymerization) อ. ที่ปรึกษา : รศ. ดร. นันทยา ชานูเมศ และ ศ. ดร. เอ็ดการ์ เอ โอเรียร์ 61 หน้า ISBN 974-9937-11-2

ผ้าพอลิเอสเตอร์เป็นผ้าที่มีความสามารถในการดูดซับน้ำน้อยมาก ซึ่งทำให้สวมใส่ไม่สบายตัว งานวิจัยนี้ได้ทำการปรับปรุงคุณสมบัติของผ้าพอลิเอสเตอร์โดยการเคลือบพื้นผิวของผ้าด้วยพอลิเมอร์ที่มีความสามารถในการดูดซับความชื้นได้ดีด้วยวิธีแอคไมเซลลาร์พอลิเมอไรเซชัน นอกจากนี้ยังได้ศึกษาผลของความเข้มข้นของสารลดแรงตึงผิว, มอนอเมอร์, ตัวเร่งปฏิกิริยา และเกลือ ต่อกระบวนการพอลิเมอไรเซชัน พอลิเมอร์ที่เคลือบบนเส้นใยผ้าถูกตรวจวิเคราะห์โดยใช้กล้องจุลทรรศน์อิเล็กตรอนแบบส่องกราดและเครื่องอินฟราเรดสเปกโตรสโคปี ผลที่ได้จากภาพถ่ายจากกล้องจุลทรรศน์อิเล็กตรอนแบบส่องกราดและสเปกตรัมจากเครื่องอินฟราเรดสเปกโตรสโคปี แสดงให้เห็นว่าพอลิเมอร์ได้เคลือบลงบนผ้าได้สำเร็จด้วยวิธีแอคไมเซลลาร์พอลิเมอไรเซชัน เมื่อเปรียบเทียบความสามารถในการดูดซับความชื้นของผ้าก่อนและหลังการผ่านการเคลือบพอลิเมอร์พบว่าผ้าที่ผ่านการเคลือบพอลิเมอร์มีความสามารถในการดูดซับความชื้นดีขึ้น

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