

**THIN FILM COATING OF POLY(METHYL METHACRYLATE)
THROUGH VAPOR PHASE MONOMER DEPOSITION**

Ms. Watchanida Chinpa

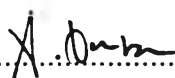
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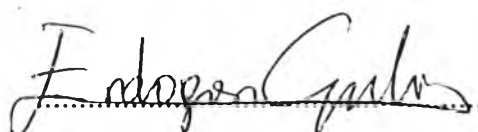
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Through Vapor Phase Monomer Deposition
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Program : Polymer Science
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ABSTRACT

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A polymer film of poly(methyl methacrylate) (PMMA) on a quartz substrate was obtained by monomer vapor deposition polymerization at atmospheric pressure. A 100 W ultraviolet lamp was used as the irradiation source of initiation in the presence of diphenyl (2,4,6-trimethylbenzoyl) phosphine oxide photoinitiator. The molecular weight, thickness, and uniformity of deposited film were all found to increase with an increase of percent photoinitiator, deposition time and N₂ flow rate. Decrease in substrate temperature resulted in an increase in thickness, molecular weight and film uniformity.

บทคัดย่อ

วัชนิดา ชินผา: การเคลือบแผ่นฟิล์มบางของพอลิเมทิล เมทาคริเลต โดยการเกาะติดของมอนอเมอร์ในสถานะที่เป็นไอ (Thin Film Coating of Poly(methyl methacrylate) Through Vapor Phase Deposition) อาจารย์ที่ปรึกษา: ศ.ดร. เอโดแกน กุลารี และ ดร.นันทยา ขานูเมศ 54 หน้า ISBN 974-638-521-6

การเคลือบแผ่นฟิล์มบางพอลิเมทิล เมทาคริเลต บนควอตซ์สามารถทำได้โดยอาศัยกระบวนการเกาะติดของมอนอเมอร์ในสถานะไอ ณ ความดันบรรยากาศ หลอดกำเนิดแสงสีม่วงที่มีกำลัง 100 วัตต์ สามารถกระตุ้นปฏิกิริยาพอลิเมอไรเซชันได้เมื่อมี 2,4,6 ไตรเมทิลเบนโซอิลฟอสฟีน ออกไซด์ เป็นตัวกระตุ้นปฏิกิริยาโดยแสง ในการทดลองนี้พบว่า น้ำหนักโมเลกุล ความหนาและความสม่ำเสมอของฟิล์มเพิ่มขึ้น เมื่อปริมาณของสารกระตุ้นปฏิกิริยาโดยแสง ช่วงเวลาในการเกาะติด และอัตราการใช้ของก๊าซในโตรเจนเพิ่มขึ้น การลดลงของอุณหภูมิของฐานเกาะติดมีผลทำให้ความหนา น้ำหนักโมเลกุล และความสม่ำเสมอของฟิล์มเพิ่มขึ้น

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