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**FLUORESCENCE EMISSION PROPERTIES OF
POLY[4-CHLORO-2-(4'-VINYLPHENYL)-5-PHENYLOXAZOLE-
CO-STYRENE]**

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สถาบันวิทยบริการ
จุฬาลงกรณ์มหาวิทยาลัย

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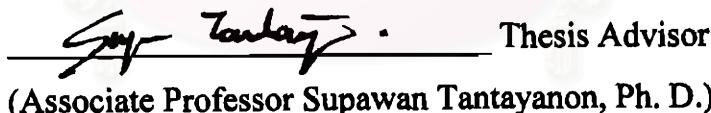
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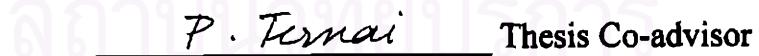


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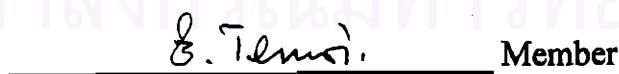


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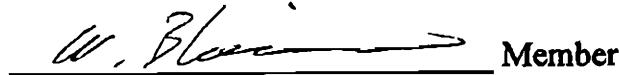
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นางสาวอธินี วิยกัญจน์ : สมบัติการเปลี่ยนแสงฟลูออเรสเซนซ์ของพอลิ[4-คลอโร-2-(4'-ไวนิลฟีนิล)-5-ฟีนิลออกชาโซล-โโค-สไตรีน] (Fluorescence emission properties of poly[4-chloro-2-(4'-vinylphenyl)-5-phenyloxazole-co-styrene])
อาจารย์ที่ปรึกษา : รศ. ดร. ศุภวรรณ ดันดยานนท์, อาจารย์ที่ปรึกษาร่วม : Professor James W. Pavlik, ผศ. ดร. ประไพพิพ แจ่มสุกใส เทอร์รีน, 109 หน้า. ISBN 974-639-427-4.

4-คลอโร-2-(4'-เอทิลฟีนิล)-5-ฟีนิลออกชาโซล สามารถเครื่องมือได้ถึงร้อยละ 68 จากปฏิกิริยาระหว่างพารา-เอทิลเบนซัลเดอีด และเบนโซอิกไซด์ในสารละลายน้ำที่อิ่มตัวด้วยเก๊าไซโคลอเจนคลอไรค์ ในการมีเนชันของสารดังกล่าวโดยอีน-ไบรอนซ์คัชニมีด แล้วทำด้วยไครโบโนร์มีเนชันโดยใช้โปแพตสเซ็นท์ ไอครอฟอกไซด์ในอุตสาหกรรม จะได้ 4-คลอโร-2-(4'-ไวนิลฟีนิล)-5-ฟีนิลออกชาโซล ซึ่งใช้เป็นสารชิโนโลเกตอร์ที่มีประสิทธิภาพ

ได้สังเคราะห์พอลิ[4-คลอโร-2-(4'-ไวนิลฟีนิล)-5-ฟีนิลออกชาโซล-โโค-สไตรีน] ที่มีสัดส่วนมอนอยเมอร์ต่างๆ กัน โดยใช้วิธีบล็อกพอลิเมอร์เรซิซที่อุณหภูมิ 70 องศาเซลเซียส และมีเอไอบีอีนเป็นตัวเริ่มต้นปฏิกิริยา ได้ตรวจสอบสมบัติของพีล์มของโโคพอลิเมอร์และสารละลายน้ำของโโคพอลิเมอร์ในไคคลอโรมีเทนที่มีความเข้มข้นต่างๆ กัน โดยใช้เทคนิควิเคราะห์การคุณภาพ แสงและการเปลี่ยนแสงฟลูออเรสเซนซ์ พนว่าหมู่ฟีนิลในพอลิสไตรีนสามารถถ่ายเทพลังงานไปยังส่วนของออกชาโซลในสายไฟ พอลิเมอร์ และสามารถตรวจสอบการเกิดเชิงไไซเมอร์ในโโคพอลิเมอร์ พีล์มซึ่งแปรผันกับความเข้มข้นของไคฟีนิลออกชาโซล นอกจากนี้ยังหาค่าฟลูออเรสเซนซ์ความต้านทานของโโคพอลิเมอร์ในไคคลอโรมีเทน

ภาควิชา ๗
สาขาวิชา วิทยาศาสตร์เคมีและวิทยาศาสตร์ทางชีวภาพ

ตามน้องชื่อนิติ มีวันที่ ๒๖๐๑๒๕๔
ตามน้องชื่ออาจารย์ที่ปรึกษา ท่าน มนต์ตาล
ตามน้องชื่ออาจารย์ที่ปรึกษาร่วม วันที่ ๒๖๐๑๒๕๔

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KEY WORD: 2,5-DIPHENYLOXAZOLE / PLASTIC SCINTILLATOR/ FLUORESCENCE
POLYMER / EXCIMER / ENERGY TRANSFER

ATHINEE VIYAKARN : FLUORESCENCE EMISSION PROPERTIES OF
POLY[4-CHLORO-2-(4'-VINYLPHENYL)-5-PHENYLOXAZOLE-CO-
STYRENE]

THESIS ADVISOR : ASSOC. PROF. SUPAWAN TANTAYANON, Ph.D.
THESIS COADVISOR : PROF. JAMES W. PAVLIK, Ph.D., ASSIST. PROF.
PRAPAIPIIT CHAMSUKSAI TERNAI, Ph.D. 109 pp. ISBN 974-639-427-4.

The reaction between *p*-ethylbenzaldehyde and benzoyl cyanide in an ethereal solution and saturated with hydrogen chloride gas gave 4-chloro-2-(4'-ethylphenyl)-5-phenyloxazole in 68% yield. Its bromination by *N*-bromosuccinimide followed by dehydrobromination with potassium hydroxide in ethanol gave 4-chloro-2-(4'-vinylphenyl)-5-phenyloxazole as an effective scintillator.

Poly[4-chloro-2-(4'-vinylphenyl)-5-phenyloxazole-co-styrene] with different mol ratios were synthesized using bulk polymerization at 70 °C. AIBN was used as the initiator. The copolymer films and its various solutions in dichloromethane with various concentration have been characterized by absorption and fluorescence emission spectroscopy. It is found that the phenyl chromophores of polystyrene transfer excitation energy to the oxazole moiety in the region in which they strongly absorb. The excimer formation of the copolymer films has been monitored as a function of mol percent of diphenyloxazole content. The fluorescence quantum yields of the copolymer solutions in air and in degassed solution at the excitation wavelength of 260 nm were investigated.

ภาควิชา.....

สาขาวิชา.....

ปีการศึกษา.....

ลายมือชื่อนิสิต.....

ลายมือชื่ออาจารย์ที่ปรึกษา.....

ลายมือชื่ออาจารย์ที่ปรึกษาร่วม.....



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