

การพัฒนาบรรจุภัณฑ์โพลียูรีเทนราคาต่ำที่สลายตัวได้ทางชีวภาพ

นางสาว วิภา บุญเจริญสุข



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จุฬาลงกรณ์มหาวิทยาลัย

วิทยานิพนธ์นี้เป็นส่วนหนึ่งของการศึกษาตามหลักสูตรปริญญาวิศวกรรมศาสตรมหาบัณฑิต

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DEVELOPMENT OF LOW COST BIODEGRADABLE  
POLYURETHANE PACKAGING MATERIAL



Miss Wipayu Booncharunsook

A Thesis Submitted in Partial Fulfillment of the Requirements  
for the Degree of Master of Engineering

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                                 Packaging Material  
By                            Miss Wipayu Booncharunsook  
Department            Chemical Engineering  
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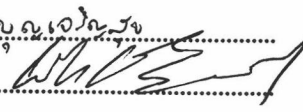
## พิมพ์ต้นฉบับบทคัดย่อวิทยานิพนธ์ภายในกรอบสี่เหลี่ยมนี้เพียงแผ่นเดียว

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งานวิจัยนี้มีวัตถุประสงค์เพื่อพัฒนาบรรจุภัณฑ์สำหรับใช้เป็นวัสดุกันกระแทกในระหว่าง  
การขนส่ง จากโพลียูรีเทนที่มีราคาประหยัดและสามารถย่อยสลายได้ทางชีวภาพ โดยใช้วัตถุดิบและ  
สารเติมแต่งที่มีราคาต่ำ หาได้ง่ายในประเทศ และสามารถย่อยสลายได้ทางชีวภาพ คือ โมลาส แกลบ  
และจีเลื้อย มาเป็นองค์ประกอบในการศึกษาปัจจัยที่มีผลต่อคุณสมบัติของผลิตภัณฑ์ โดยปัจจัยดัง  
กล่าวได้แก่ สัดส่วนปริมาณของโมลาสในโพลีเอสเตอร์ ชนิดและปริมาณของตัวเติมที่เหมาะสม จากการ  
ศึกษาพบว่าโมลาสและตัวเติมจะช่วยเพิ่มความแข็งแรงให้กับผลิตภัณฑ์ สัดส่วนองค์ประกอบของ  
บรรจุภัณฑ์ที่เหมาะสมขึ้นอยู่กับลักษณะใช้งาน บรรจุภัณฑ์ที่เหมาะสมสำหรับวัตถุที่มีน้ำหนักเบา คือ  
สัดส่วนปริมาณของโมลาสในโพลีเอสเตอร์ เท่ากับร้อยละ 20 และตัวเติมที่เหมาะสม คือ แกลบ หรือจี  
เลื้อย ในปริมาณร้อยละ 9 และ บรรจุภัณฑ์ที่เหมาะสมสำหรับวัตถุที่มีน้ำหนักมาก คือ สัดส่วนปริมาณ  
ของโมลาสในโพลีเอสเตอร์ เท่ากับร้อยละ 35 และตัวเติมที่เหมาะสม คือ แกลบ ในปริมาณร้อยละ 3.5

ศูนย์วิทยทรัพยากร  
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ภาควิชา ..... วิศวกรรมเคมี .....  
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A low cost package cushioning material of polyurethane which is biodegradable was developed in this work. The raw materials were locally available and biodegradable, i.e. molasses, husk, and sawdust. The effect on properties of polyurethane products by the following variables, i.e. the quantity of molasses, and type and quantity of fillers, were studied. It was found that increasing molasses and fillers content would give higher compressive strength products. The suitable compositions for packaging depend on its duty. For light duty, % molasses of 20 filled with 9 % of either husk or sawdust is suitable, and % molasses of 35 filled with 3.5 % of husk is suitable for heavy duty.

ศูนย์วิทยทรัพยากร  
จุฬาลงกรณ์มหาวิทยาลัย

ภาควิชา.....วิศวกรรมเคมี

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ลายมือชื่ออาจารย์ที่ปรึกษา.....

ลายมือชื่ออาจารย์ที่ปรึกษาร่วม.....

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จุฬาลงกรณ์มหาวิทยาลัย

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