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MORPHOLOGY AND MECHANICAL PROPERTIES OF CATALYTIC  
COKE/POLYPROPYLENE COMPOSITES

Miss Kingkan Muangmaithong

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

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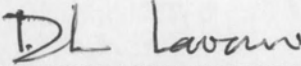
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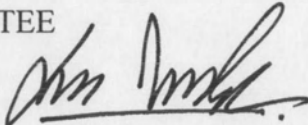
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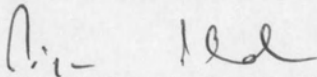
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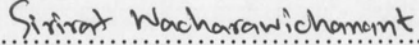
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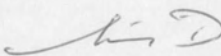
  
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การใช้พอลิพรอพิลีนและคะตะไลต์ดิกโค้กเป็นสารเติมแต่งในการเสริมแรงถูกเตรียมโดย  
เทคนิคการผสมแบบหลอมเหลวในเครื่องการอัดรีดแบบสกรูคู่ และทำการทดสอบคุณสมบัติเชิงกล,  
คุณสมบัติทางความร้อน และลักษณะโครงสร้างพื้นฐานของคะตะไลต์ดิกโค้ก/พอลิพรอพิลีนคอม  
โพสิต ซึ่งชิ้นงานจะถูกวัดคุณสมบัติเชิงกล, คุณสมบัติทางความร้อน และลักษณะโครงสร้าง  
พื้นฐานของรอยแตกพื้นผิวของคอมโพสิตที่ทำด้วยสารเติมแต่งสองชนิดและที่ความเข้มข้นของ  
สารเติมแต่งแตกต่างกัน ซึ่งในส่วนของคุณสมบัติเชิงกล และคุณสมบัติทางความร้อน จะพบว่าค่า  
ความแข็งแรงจะไม่มี ความแตกต่างกัน, ค่า Young's modulus จะเพิ่มขึ้น แต่ในทางตรงข้ามค่าความยืด, ความ  
เหนียว และอุณหภูมิในการสลายตัวจะลดลงเมื่อความเข้มข้นของสารเติมแต่งเพิ่มขึ้นสำหรับคอมพ  
อสิททั้งสองชนิด ซึ่งคอมโพสิตที่มีคะตะไลต์ดิกโค้กเป็นสารเติมแต่งจะให้ค่าความแข็งแรง, ค่า Young's  
modulus, ค่าความยืด, ค่าความเหนียว และอุณหภูมิในการสลายตัวสูงกว่าคอมโพสิตที่มีคะตะไลต์ที่  
ไม่ผ่านการทำปฏิกิริยา ส่วนลักษณะโครงสร้างพื้นฐานของรอยแตกพื้นผิวจะพิสูจน์การ  
เปลี่ยนแปลงและยืนยันผลว่าคอมโพสิตที่มีคะตะไลต์ดิกโค้กเป็นสารเติมแต่งมีคุณสมบัติเชิงกล  
ดีกว่าคอมโพสิตที่มีคะตะไลต์ที่ไม่ผ่านการทำปฏิกิริยา

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KINGKAN MUANGMAITHONG: MORPHOLOGY AND MECHANICAL PROPERTIES OF CATALYTIC COKE/POLYPROPYLENE COMPOSITES.

THESIS ADVISOR: PROF. PIYASAN PRASERTHDAM, Dr.Ing.,

THESIS CO-ADVISOR: SIRIRAT WACHARAWICHANANT, Ph.D.75 pp.

Catalytic coke/polypropylene composites were prepared by melt mixing technique in a twin screw extruder. These composites were examined by assessing their mechanical properties, thermal properties and the morphology of fracture surface. The samples were determined the mechanical properties, thermal properties and the morphology of composites made with two type filler and at different filler contents. In terms of mechanical properties, tensile strength no different, young's modulus increased, whereas elongation at break and toughness decreased with increasing filler content for both types of composite. The degradation temperature decrease with increasing filler contents for both types of composite. Of these composites, the catalytic coke/PP composites exhibited higher tensile strength, young's modulus, elongation at break, toughness and degradation temperature than fresh catalyst/PP composites. The structure of fracture surface was justified the result of PP composites. The spent catalyst/PP composites show the higher mechanical properties than fresh catalyst/PP composites.

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