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**RHODIUM COMPLEXES IN ZEOLITE Y AS HYBRID CATALYSTS
FOR HYDROFORMYLATION OF OLEFINS**

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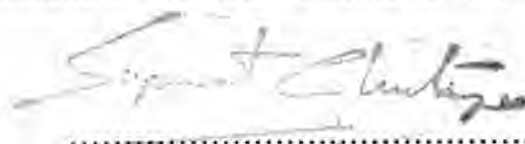
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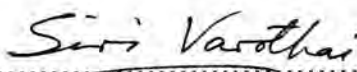
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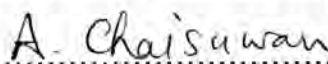
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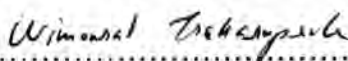
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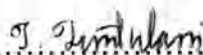
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พิมพ์ต้นฉบับบทคัดย่อวิทยานิพนธ์ภายในกรอบสี่เหลี่ยมนี้เพียงแผ่นเดียว

จิระนุช นิตยาอารีกุล : สารประกอบเชิงซ้อนโรเดียมในซีโอไลต์ด้วยเพื่อเป็นตัวเร่งปฏิกิริยาไฮโดรจิเนชันสำหรับปฏิกิริยาไฮโดร

ฟอร์มิลชันของโอเลฟินส์ (RHODIUM COMPLEXES IN ZEOLITE Y AS HYBRID CATALYSTS FOR

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ได้สังเคราะห์ซีโอไลต์ด้วยจากส่วนผสมของโซเดียมซิลิเกต โซเดียมอลูมิเนต โซเดียมไฮดรอกไซด์ อลูมิเนียมซิลเฟต และน้ำ
องค์ประกอบของเจลที่ได้ คือ $1.9\text{Na}_2\text{O} \cdot \text{Al}_2\text{O}_3 \cdot 6\text{SiO}_2 \cdot 100\text{H}_2\text{O}$ เติมน้ำในเจลผสมให้เข้ากันและตกผลึกที่ 100°C โดยใช้เวลานาน 40 ถึง 60 ชั่วโมง ซีโอไลต์ที่ได้คือ
 $16.2\text{Na}_2\text{O} \cdot 1.2\text{Al}_2\text{O}_3 \cdot 15\text{SiO}_2 \cdot 640\text{H}_2\text{O}$ ลงไปในเจลผสมให้เข้ากันและตกผลึกที่ 100°C โดยใช้เวลานาน 40 ถึง 60 ชั่วโมง ซีโอไลต์ที่ได้คือ
โซเดียมวายเป็นผลึกสูง มีซิลิกอน/อลูมิเนียม=2.3 เตรียมซีโอไลต์ไฮโดรเจนวายเป็นซีโอไลต์โซเดียมวายเป็นแลกเปลี่ยนไอออน
ด้วยสารละลายแอมโมเนียมคลอไรด์และตามด้วยการเผาที่ 450°C เพื่อกำจัดแอมโมเนียม ออกซิเจนโซเดียมไฮดรอกไซด์เป็นสารตั้ง
ต้นที่เตรียมตัวเร่งปฏิกิริยาซึ่งทำให้อยู่บนผิวซีโอไลต์โซเดียมวายเป็นไฮโดรเจนวายเป็นผ่านการกำจัดน้ำแล้วโดยการผสมสารในนอร์
มัล-เฮกเซนและคนเป็นเวลา 10 ชั่วโมงภายใต้ไฮโดรเจน จากข้อมูลอินฟราเรดพบว่าการแทนที่ลิแกนด์ออกซิเจนโซเดียมเป็นออกซิเจน
โรเดียมด้วยออกซิเจนของซีโอไลต์ ซีโอไลต์ทั้งสองซึ่งใส่ออกซิเจนโซเดียมไฮดรอกไซด์เข้าไปแล้วสามารถเร่งปฏิกิริยาไฮโดร
ฟอร์มิลชันของโพรพิลีน และ 1-เฮกซีนได้

ภาควิชาเคมี
สาขาวิชาเคมี
ปีการศึกษา 2540

ลายมือชื่อนิสิต จิระนุช นิตยาอารีกุล
ลายมือชื่ออาจารย์ที่ปรึกษา อธิชา ฉายสุวรรณ
ลายมือชื่ออาจารย์ที่ปรึกษาร่วม

พิมพ์ต้นฉบับบทความวิทยานิพนธ์ภายในกรอบสี่เหลี่ยมนี้เพียงแผ่นเดียว

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KEY WORD: ZEOLITE Y / NUCLEATION CENTERS / SEEDS / ZEOLITE HY / ZEOLITE NaY⁺ / ACETYLACETONATODICARBONYLRHODIUM / HYDROFORMYLATION

JIRANUCH NITTAYATHAREEKUL : RHODIUM COMPLEXES IN ZEOLITE Y AS HYBRID CATALYSTS FOR HYDROFORMYLATION OF OLEFINS. THESIS ADVISOR : ATICHA CHAISUWAN, Ph.D. 116 pp. ISBN 974-637-349-8.

Zeolite Y was synthesized from a mixture of sodium silicate, sodium aluminate, sodium hydroxide, aluminium sulfate and water. The gel component obtained was $1.9 \text{ Na}_2\text{O} : \text{Al}_2\text{O}_3 : 6\text{SiO}_2 : 100 \text{ H}_2\text{O}$. A slurry of nucleation centers or seeds containing $16.2\text{Na}_2\text{O} : 1.2\text{Al}_2\text{O}_3 : 15\text{SiO}_2 : 640\text{H}_2\text{O}$ was added to the gel. The mixture was thoroughly stirred and crystallized at 100°C for 40 to 60 hours. The zeolite obtained was highly crystalline NaY with $\text{Si}/\text{Al} = 2.3$. To form zeolite HY, the zeolite NaY was ion exchanged with ammonium chloride solution and subsequently heated at 450°C to remove ammonia. Acetylacetonatodicarbonylrhodium was a catalytic precursor which was anchored to the surface of dehydrated zeolites NaY or HY by mixing them in n-hexane and stirred for 10 hours under nitrogen. From IR data it was found that the acetylacetonate ligand on the rhodium atom was substituted by zeolitic oxygen. Both zeolites loaded with acetylacetonatodicarbonylrhodium can catalyze hydroformylation of propylene and 1-hexene.

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ลายมือชื่อนิสิต.....จิระนุชา นิตยาธารีกุล.....

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