

ไฮโดรไอโซเมอไรเซชันของไซจากส่วนกลั่นที่มีไซปน

นายสุรชัย พรภคกุล



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HYDROISOMERIZATION OF WAX FROM WAXY DISTILLATE

Mr. Surachai Pornpakakul

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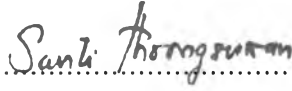
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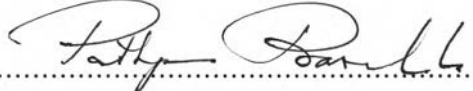
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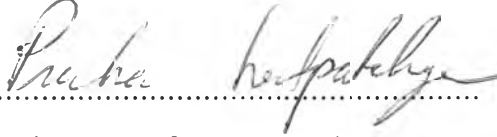
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พิมพ์ต้นฉบับบทความวิทยานิพนธ์ภายในกรอบสี่เหลี่ยมนี้เพียงแผ่นเดียว

สุรัชย์ พรภคกุล : ไฮโดรไอโซเมอไรเซชันของไขจากส่วนกลั่นที่มีไขปน (HYDROISOMERIZATION OF WAX FROM WAXY DISTILLATE) อ.ที่ปรึกษา : รศ.ดร.โสภณ เรืองสำราญ อ.ที่ปรึกษาร่วม : นางรัตนาวลี อินโธษานนท์, 152 หน้า. ISBN 974-631-516-1

น้ำมันเตาโสหนักจากแหล่งฝางประกอบด้วยไข 53.67 % ถูกปรับปรุงคุณภาพโดยกระบวนการอันประกอบด้วยขั้นตอนการแยกน้ำมันออกและการบำบัดไขด้วยไฮโดรเจนภายใต้สภาวะการกำจัดกำมะถันโดยใช้ตัวเร่งที่ทนทานต่อกำมะถันอันประกอบด้วย 10 %Mo, 5 %Co และ 5 %Ni บนตัวรองรับอลูมินา จากนั้นไฮโดรไอโซเมอไรเซชันไขต่อโดยใช้ตัวเร่งปฏิกิริยาที่ประกอบด้วย 0.3 %Pt และ 0.5 %F บนตัวรองรับอลูมินา

สภาวะที่เหมาะสมสำหรับการกำจัดกำมะถัน คือ ที่อุณหภูมิ 400 °C ภายใต้ความดันไฮโดรเจน 600 psig และปริมาณตัวเร่งปฏิกิริยา MoCoNi 0.5 % โดยน้ำหนักของไขเป็นเวลา 8 ชั่วโมงและไฮโดรไอโซเมอไรเซชันที่ 300 °C ภายใต้ความดันไฮโดรเจน 600 psig และปริมาณตัวเร่งปฏิกิริยา Pt/F 6 % โดยน้ำหนักของไขเป็นเวลา 12 ชั่วโมง

ผลิตภัณฑ์ที่ได้จากไฮโดรไอโซเมอไรเซชันเป็นผลิตภัณฑ์ที่มีมูลค่าสูงขึ้น ได้แก่ ไขที่ไม่มีสีและมีความบริสุทธิ์สูง และน้ำมันหล่อลื่นพื้นฐานมีตราชนิคมความหนืดเป็น 85 และจุดไหลเท -5 °C

ภาควิชา สหสาขาวิชาปิโตรเคมีและโพลีเมอร์
สาขาวิชา ปิโตรเคมี
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Fang heavy distillate containing 53.67 %wax was upgraded by a process comprising the step of deoiling and hydrotreating the wax under conditions to hydrodesulfurize by sulfur resistance catalyst containing 10 % Mo, 5 %Co and 5% Ni on alumina support and then to hydroisomerize wax by catalyst containing 0.3 % Pt and 0.5 % F on alumina support.

The optimum condition for hydrodesulfurization was to operate at temperature 400 °C under hydrogen pressure 600 psig, concentration of MoCoNi catalyst 0.5 % by weight of wax for 8 hours, and for hydroisomerization was to operate at temperature 300 °C under hydrogen pressure 600 psig, concentration of Pt/F catalyst 6 % by weight of wax for 12 hours.

The products from hydroisomerization process were higher value products such as colorless and high purity wax and lube base oil having viscosity index of 85 and pour point of -5 °C.

ภาควิชา..... สหสาขาวิชาปิโตรเคมีและโพลีเมอร์
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ลายมือชื่อนิสิต..... สุรชัช พรหมกุล
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ลายมือชื่ออาจารย์ที่ปรึกษาร่วม..... Ch



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ABBREVIATIONS

°C	=	Celcius degree
°F	=	Fahrenheit degree
VI	=	Viscosity index
cSt	=	Centistoke unit
DSC	=	Differential Scanning Calorimetry
TG	=	Thermal Gravimetry
rpm	=	revolutions per minute
ppm		part per million
HD	=	Heavy distillate
HDS	=	Hydrodesulfurization
HDI	=	Hydroisomerization
%wt	=	percent by weight
MEK	=	Methyl ethyl ketone
SUS	=	Saybolt Universal Viscosity