شبكة المعلومات الجامعية

التوثيق الإلكتروني والميكروفيلم

بسم الله الرحمن الرحيم

HANAA ALY

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جامعة عين شمس

التوثيق الإلكتروني والميكروفيلم

قسم

نقسم بالله العظيم أن المادة التي تم توثيقها وتسجيلها
علي هذه الأقراص المدمجة قد أعدت دون أية تغيرات

يجب أن

تحفظ هذه الأقراص المدمجة بعيدا عن الغبار

HANAA ALY

CO-HYDROPROCESSING AND HYDROCRACKING OF ALTERNATIVE FEED MIXTURE (VACUUM GASOIL/USED LUBRICATING OIL/WASTE COOKING OIL) FOR PRODUCTION OF HIGH-QUALITY FUELS

By

Mohamed Sayed Abdo Mohamed

A Thesis Submitted to the
Faculty of Engineering at Cairo University
In Partial Fulfillment of the
Requirements for the Degree of
DOCTOR OF PHILOSOPHY
in
Chemical Engineering

FACULTY OF ENGINEEREING, CAIRO UNIVERSITY
GIZA, EGYPT
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Title of Thesis:

Co-hydroprocessing and hydrocracking of alternative feed mixture (vacuum gas oil/used lubricating oil/waste cooking oil) for Production of high-quality fuels

Keywords:

Used lubricating oil, vacuum gasoil, waste cooking oil, co-hydroprocessing, simulation.

Summary:

The aim of this thesis was to make a semi complete study about co-hydroprocessing of vacuum gasoil (VGO), waste cooking oil (WCO) and waste lube oil (WLO). This alternative feed mixture is studied under different reaction temperature and different mixture feed compositions, then industrial calibrated simulation case of hydrocracking unit is built to illustrate the effects new unconventional feed on unit integration and economics. Experimental work was conducted at the “Egyptian Petroleum Research Institute”. Waste cooking oil (WCO) feedstock was acquired and collected from daily home use. Waste lube oil was sampled from “Suez Oil Processing Company”. Vacuum gasoil (VGO) feedstock was acquired from Middle East Oil Refinery (MIDOR) in Alexandria, Egypt. The target of the experimental work is to determine the effect of feed mixture composition and reaction temperature on high-quality product fuels. The obtained results revealed that: adding WCO increases the reaction conversion and jet fuel yield, while adding WLO increases diesel product quality (cetane index).

Disclaimer

I hereby declare that this thesis is my own original work and that no part of it has been submitted for a degree qualification at any other university or institute. I further declare that I have appropriately acknowledged all sources used and have cited them in the references section.

Name: Mohamed Sayed Abdo Date: / /2021

Signature:

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Table of Contents

List of Figures