

## Comparison of Aspen Plus and CHEMCAD of Re-refining Process of Used Lubricant Oil = Perbedaan antara Aspen Plus dan CHEMCAD untuk Re-refining Process of Used Lubricant Oil

Fadhilah Abdul Manan Usman, author

Deskripsi Lengkap: <https://lib.ui.ac.id/detail?id=20421567&lokasi=lokal>

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### Abstrak

[<b>ABSTRAK</b><br>

Lubricant Oil diproses untuk berbagai keperluan dalam bentuk cairan, padat atau gas. Tujuan utama adalah untuk mengurangi gesekan dan menghaluskan gerakan dan menghaluskan gerakan satu permukaan atas yang lain. Used Lubricant Oil yang digunakan biasanya dibuang ke lingkungan dan menyebabkan banyak kerusakan seperti kesehatan (penyakit kanker). Sebagai pencegahan, re-refining adalah satu treatment untuk menghasilkan base oil yang berkualitas bagus. Tujuan dari penelitian ini adalah untuk memodelkan dan mensimulasikan used lubricating oil re-refining process menggunakan Aspen Plus. Hasil simulasi dibandingkan dengan Abdul Karim (2004) bersama kalkulasi Percent Sludge Removal (PSR). Hasil PSR menggunakan Aspen Plus di bandingkan dengan data eksperimen dan data simulasi CHEMCAD dalam bentuk grafik yang menunjukkan bahwa Aspen Plus memiliki trend yang mirip dengan eksperimen dan CHEMCAD. Hasil yang di dapat menunjukkan bahwa PSR meningkat dengan meningkatnya optimum value pada 2g KOH/L isopropanol.

<b>ABSTRACT</b><br>

Lubricant oil is processed to various purposes in a form of liquids and might be in a form of solid or gas. The main purpose is to reduce the friction and smoothens the movement of one surface over another. The used lubricant oil usually disposed to the environment and the contaminated oil causes many damages to many aspect such as health (cancer disease). As a prevention of any damages, re-refining is one of the treatments to produce high quality of base oil. The aim of this research study is to model and simulate a used lubricating oil re-refining process using Aspen Plus. The simulation result is compared with Abdul Karim (2004) along with the Percent Sludge Removal (PSR) calculation. The resulted PSR using Aspen Plus data is compared to experiment data and simulation data of CHEMCAD in a graph which shows that the Aspen Plus has similar tred to both experiment and CHEMCAD. Results have shown the amount of Sludge removed increases to the optimum value at 2g KOH/L isopropanol;Lubricant oil is processed to various purposes in a form of liquids and might be in a form of solid or gas. The main purpose is to reduce the friction and smoothens the movement of one surface over another. The used lubricant oil usually disposed to the environment and the contaminated oil causes many damages to many aspect such as health (cancer disease). As a prevention of any damages, re-refining is one of the treatments to produce high quality of base oil. The aim of this research study is to model and simulate a used lubricating oil re-refining process using Aspen Plus. The simulation result is compared with Abdul Karim (2004) along with the Percent Sludge Removal (PSR) calculation. The resulted PSR using Aspen Plus data is compared to experiment data and simulation data of CHEMCAD in a graph which shows that the Aspen Plus has similar tred to both experiment and CHEMCAD. Results have shown the amount of Sludge removed increases to the optimum value at 2g KOH/L isopropanol, Lubricant oil is processed to various purposes in a form of liquids and might be in a form of solid or gas. The main purpose is to reduce the friction and smoothens the movement

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