BASE OIL FACTORY FROM CRUDE PALM OIL WITH ESTERIFICATION PROCESS

Name : 1. Fitria Endarwati NRP 2306 030 033
       2. Deery Adrian NRP 2306 030 061
Department : DIII Chemical Engineering FTI-ITS
Supervisor : Ir Agus Surono

Abstract

One of maintenance for any industrial is a lubricant. The lubricant are made from base oil. Crude Palm Oil can be a fundamental materials for producing of base oil. Generally, the process to producing of base oil are 3 steps, there are purification, hidrolisation dan esterification. The purification of CPO are using deguming acid dan deguming water. The purpose of this process is cleaning any impurities and contents of fosfatid before entering in hidrolisation reactor. In proses hidrolisation process, trigliserida be react with water at temperature 250 °C and pressure 44 atm to forming a fatty acid. And then the fatty acid can be react with trimethyolpropane in esterification process at temperature 220 °C and pressure 5-6 mmHg using ZnCl₂ catalis. the reaction between fatty acid and Trimetyolpropane are produce Trimetyolpropane ester (TMP ester) as a main product and be calling as base oil.

Capacities of base oil 100.000 kg/day can be geting from raw material of Crude Palm Oil about 96099,876 kg/day. The water are needed for all of process about 361312,32 kg/day. This factory are producing by product too. There are glycerol about 9933.109 kg/day. This glycerol can be used to raw material of pharmacy industrial, cosmetic industrial, metanol industrial and plasthic industrial. The base oil factory from crude palm oil are producing the gum wastes too and the other leftovers from ZnCl₂ catalys wastes.

Keyword : Base oil, Crude Palm Oil, Esterification