

ABSTRACT

MANUFACTURING OF ALKYD RESIN ($2C_{24}H_{34}O_6$) FACTORY FROM CRUDE PALM OIL ($C_{47}H_{88}O_6$) AND GLYCEROL ($C_3H_8O_3$) WITH CAPACITY 30.000 TON/YEAR (Design of Esterification Reactor (RE-202))

By:

Nabila Rizqi 'Afifah

Alkyd Resin plant with raw materials crude palm oil and glycerol is planned to be built in Gresik, East Java. Establishment of this plant is based on some consideration due to the raw material resources, the transportation, the labors availability and also the environmental condition.

The factory's production capacity is planned 30.000 tons/year with 330 working days in 1 year. The raw materials used consist of 3.283,014 kg/hour of tryglyceride and 348,484 kg/hour of glycerol. The bussines entity form is Limited Liability Company (Ltd) using line and staff organizational structure with 220 labors.

An economic analysis of preliminary plant design of Alkyd Resin are:

<i>Fixed Capital Investment</i>	(FCI)	= Rp. 252.790.440.635,966,-
<i>Working Capital Investment</i>	(WCI)	= Rp. 27.806.948.469,956,-
<i>Total Capital Investment</i>	(TCI)	= Rp. 280.597.389.105,922,-
<i>Break Even Point</i>	(BEP)	= 38,60%
<i>Shut Down Point</i>	(SDP)	= 22,86%
<i>Pay Out Time after taxes</i>	(POT)	= 2,92 tahun
<i>Return on Investment after taxes</i>	(ROI)	= 11,87%
<i>Discounted Cash Flow</i>	(DCF)	= 69,90%

Based on the above considerations, it is proper to study the establishment of Alkyd Resin plant further, because the plant is profitable and has good prospects.

Keywords: Alkyd Resin, Crude Palm Oil, Glycerol, Economs.

ABSTRAK

PRARANCANGAN PABRIK ALKYD RESIN ($2C_{24}H_{34}O_6$) DARI MINYAK KELAPA SAWIT ($C_{47}H_{88}O_6$) DAN GLISEROL ($C_3H_8O_3$) KAPASITAS 30.000 TON/TAHUN (Perancangan Reaktor Esterifikasi (RE-202))

Oleh:

Nabila Rizqi 'Afifah

Pabrik Alkyd Resin berbahan baku minyak kelapa sawit (CPO) dan gliserol ini akan didirikan di Gresik, Jawa Timur. Pendirian pabrik berdasarkan pada pertimbangan ketersediaan bahan baku, sarana transportasi yang memadai, tenaga kerja yang mudah didapatkan dan kondisi lingkungan.

Kapasitas produksi pabrik direncanakan sebesar 30.000 ton/tahun dengan 330 hari kerja dalam 1 tahun. Bahan baku yang digunakan adalah trigliserida sebanyak 3.283,014 kg/jam dan Gliserol sebanyak 348,484 kg/jam. Bentuk perusahaan adalah Perseroan Terbatas (PT) menggunakan struktur organisasi *line* dan *staff* dengan jumlah karyawan sebanyak 220 orang.

Analisa kelayakan Perancangan Pabrik Alkyd Resin adalah sebagai berikut:

<i>Fixed Capital Investment</i>	(FCI)	= Rp. 252.790.440.635,966,-
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Berdasarkan pertimbangan diatas, sudah selayaknya pendirian pabrik Alkyd Resin ini dikaji lebih lanjut, karena merupakan pabrik yang menguntungkan dan mempunyai prospek yang baik.

Kata kunci: Alkyd Resin, Minyak Kelapa Sawit (CPO), Gliserol, Ekonomi.