

ABSTRAK

PRARANCANGAN PABRIK ETIL AKRILAT DARI ASAM AKRILAT DAN ETANOL DENGAN KAPASITAS 50.000 TON/TAHUN (Perancangan Kolom Distilasi (DC-301))

Oleh

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Pabrik etil akrilat berbahan baku asam akrilat dan etanol direncanakan didirikan di Cilegon, Banten. Pendirian pabrik berdasarkan pertimbangan ketersediaan bahan baku, sarana transportasi yang memadai, tenaga kerja yang mudah didapatkan, dan kondisi lingkungan. Pabrik direncanakan memproduksi etil akrilat sebanyak 50.000 ton/tahun, dengan waktu operasi 24 jam/hari, 330 hari/tahun. Bahan baku yang digunakan adalah asam akrilat sebanyak 5.051,0160 kg/jam dan etanol sebanyak 3.227,0380 kg/jam. Penyediaan kebutuhan utilitas pabrik terdiri dari unit pengadaan air, pengadaan *steam*, pengadaan listrik dan udara *instrument*, pengadaan air pendingin, dan pengolahan limbah. Bentuk perusahaan adalah Perseroan Terbatas (PT) menggunakan struktur organisasi *line* dan *staff* dengan jumlah karyawan sebanyak 130 orang.

Dari analisis ekonomi diperoleh:

<i>Fixed Capital Investment</i>	(FCI)	=	Rp 251.603.594.524
<i>Working Capital Investment</i>	(WCI)	=	Rp 44.400.634.328
<i>Total Capital Investment</i>	(TCI)	=	Rp 296.004.228.852
<i>Break Even Point</i>	(BEP)	=	47,78%
<i>Shut Down Point</i>	(SDP)	=	24,01%
<i>Pay Out Time before taxes</i>	(POT) _b	=	2,4 tahun
<i>Pay Out Time after taxes</i>	(POT) _a	=	2,8 tahun
<i>Return on Investment before taxes</i>	(ROI) _b	=	27,42%
<i>Return on Investment after taxes</i>	(ROI) _a	=	21,93%
<i>Discounted cash flow</i>	(DCF)	=	21,90%

Mempertimbangkan paparan di atas, maka dapat diambil kesimpulan bahwa pabrik etil akrilat layak untuk dikaji lebih lanjut dari segi proses maupun ekonominya.

Kata kunci: asam akrilat, etanol, etil akrilat.

ABSTRACT

THE CONSTRUCTION OF A PLANT PRODUCING 50.000 TONS OF ETHYL ACRYLATE PER YEAR FROM ACRYLIC ACID AND ETHANOL (The Construction of Distillation Column DC-301)

By

ADE OKTAVIANI

A plant producing ethyl acrylate is going to be built at Cilegon, Banten. The establishment of the plant is based on several aspects: the availability of raw materials, adequate transportation facilities, the convenience of hiring the manpower, and the environmental conditions. With 24 hours/day, 330 days/year manufacturing time, the plant is targeted to produce 50.000 tons of ethyl acrylate per year. The materials are 5.051,0160 kg/hour of acrylic acid and 3.227,0380 kg/hour of ethanol. The utility requirements of the plant consist of water supply, steam generator, electricity and air instrument, cooling water supply, and waste treatment unit. A Limited Liability (LL) corporation manages the plant, using line and staff organization structure, employing 130 people.

The data below was obtained from the economic analysis:

<i>Fixed Capital Investment</i>	(FCI)	=	IDR 251.603.594.524
<i>Working Capital Investment</i>	(WCI)	=	IDR 44.400.634.328
<i>Total Capital Investment</i>	(TCI)	=	IDR 296.004.228.852
<i>Break Even Point</i>	(BEP)	=	47,78%
<i>Shut Down Point</i>	(SDP)	=	24,01%
<i>Pay Out Time before taxes</i>	(POT) ^b	=	2,4 years
<i>Pay Out Time after taxes</i>	(POT) ^a	=	2,8 years
<i>Return on Investment before taxes</i>	(ROI) ^b	=	27,42%
<i>Return on Investment after taxes</i>	(ROI) ^a	=	21,93%
<i>Discounted cash flow</i>	(DCF)	=	21,90%

Considering the explanation above, it can be concluded that the ethyl acrylate plant is feasible for further study, in terms of its process and economy.

Keywords: acrylate acid, ethanol, ethyl acrylate.