

ABSTRACT

PREDESIGN OF TRIETHANOLAMINE FROM ETHYLENE OXIDE AND AMMONIA CAPACITY 37.000 TONS/YEARS (Design Plug Flow Reactor (RE-101))

By

Hermawan

Triethanolamine plant produced by reacting ethylene oxide and ammonia, will be build in Cikampek, Jawa Barat. Establishment of this plant by raw material resources, transportation, labors and also environmental condition.

Plant's production capacity is planned 37,000 tons/year, with operating time 24 hours/day and 330 working days in a year. The raw materials used are ethylene oxide 4,167.98 kg/hr and ammonia 533.72 kg/hr. The plant has utility unit for supply water, steam, power generation, and instrument air.

The bussines entity of this plant is limited liability company (PT) and using line and staff structure with 182 labors.

From teh economic analysis is obtained :

<i>Fixed Capital Investment</i>	(FCI) = Rp 179.867.689.033
<i>Working Capital Investment</i>	(WCI) = Rp 33.725.191.694
<i>Total Capital Investment</i>	(TCI) = Rp 213.592.880.727
<i>Break Even Point</i>	(BEP) = 50,25%
<i>Shut Down Point</i>	(SDP) = 25,41%
<i>Pay Out Time before taxes</i>	(POT) _b = 1,68 years
<i>Pay Out Time after taxes</i>	(POT) _a = 2,24 years
<i>Return onInvestment before taxes</i>	(ROI) _b = 41,68%
<i>Return onInvestment after taxes</i>	(ROI) _a = 29,17%
<i>Discounted cash flow</i>	(DCF) = 21,59%

By considering above the summary, it is proper establishment of *triethanolamine* plant for studied further, because the plant is profitable and has good prospects future.

ABSTRAK

PRARANCANGAN PABRIK *TRIETHANOLAMINE* DARI ETILEN OKSIDA DAN AMMONIA DENGAN KAPASITAS 37.000 TON/TAHUN (Perancangan *Plug Flow Reactor* (RE-101))

Oleh

Hermawan

Pabrik *triethanolamine* berbahan baku etilen oksida dan ammonia, akan didirikan di Cikampek, Jawa Barat. Pemilihan lokasi untuk pabrik ini mempertimbangkan ketersediaan bahan baku, sarana transportasi yang memadai, tenaga kerja yang mudah didapatkan dan kondisi lingkungan.

Pabrik ini direncanakan dengan kapasitas 37.000 ton/tahun, waktu operasi 24 jam/hari, 330 hari/tahun. Bahan baku yang digunakan adalah etilen oksida sebanyak 4,167,98 kg/jam dan ammonia sebanyak 533,72 kg/jam. Pabrik ini memiliki unit utilitas untuk memenuhi air, *steam*, listrik, bahan bakar, dan udara instrumentasi.

Bentuk perusahaan adalah Perseroan Terbatas (PT) menggunakan struktur organisasi *line and staff* dengan jumlah karyawan 182 orang.

Dari analisis ekonomi diperoleh:

<i>Fixed Capital Investment</i>	(FCI) = Rp 179.867.689.033
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Berdasarkan beberapa paparan di atas, maka pendirian pabrik *triethanolamine* ini layak untuk dikaji lebih lanjut, karena merupakan pabrik yang menguntungkan dari sisi ekonomi dan mempunyai prospek yang relatif cukup baik.