ABSTRACT

FACTORY DESIGN OF N-BUTYL ETHANOATE FROM ACETIC ACID AND BUTYL ALCOHOL WITH CAPACITY 46,000 TONS/YEAR (Distillation Tower Design (MD-301)

By
TALITA FREYA LIDIAN

N-Butyl Ethanoate is one of the chemical industry products that is used as a solvent, paint, coating agents. N-Butyl Ethanoate can be produced by several processes, namely the estrification process of anhydride acid and butyl alcohol, the estrification process of acetic acid and butyl alcohol, and the estrification process of acetic acid and butyl alcohol. The provision of factory utility unit in the form of water treatment and supply systems, steam supply systems, cooling water, and power generation systems.

The production capacity of the N-Butyl Ethanoate plant is planned for 46,000 tons/year with 330 working days in a year. The location of the factory is planned to be established in the Manyar area, Gresik, East Java. The workforce needed is 180 people in the form of a limited liability company (PT) with a line and staff organizational structure.

From the economic analysis, it is obtained that :

Fixed Capital Investment	(FCI)	= Rp 2,528,050,756,785.49
Working Capital Investment	(WCI)	= Rp 446,126,604,138.62
Total Capital Investment	(TCI)	= Rp 2,974,177,360,924.11
Break Even Point	(BEP)	= 46%
Shut Down Point	(SDP)	= 27%
Pay Out Time before taxes	(POT)b	= 2,331 years
Pay Out Time after taxes	(POT)a	= 2,753
years Return on Investment before taxes	(ROI)b	= 28%
Return on Investment after taxes	(ROI)a	= 22%
Discounted cash flow	(DCF)	= 22.78%

Based on the explanations above, the establishment of the N-Butyl Ethanoate plant deserves to be studied further, because it is a profitable factory from an economic point of view and has relatively good prospects.

ABSTRAK

PRARANCANGAN PABRIK N-BUTIL ETANOAT DARI ASAM ASETAT DAN BUTIL ALKOHOL DENGAN KAPASITAS 46.000 TON/TAHUN
(Perancangan Menara Distilasi 301 (MD-301)

Oleh

TALITA FREYA LIDIAN

N-Butil Etanoat merupakan salah satu produk industri kimia yang digunakan sebagai bahan *solvent*, cat, *coating agents*. N-Butil Etanoat dapat diproduksi dengan beberapa proses yaitu proses estrifikasi dari asam anhidrid dan butil alkohol, proses estrifikasi dari asam asetat dan butil alkohol, serta proses estrifikasi dari asam asetat dan butilen. Penyediaan kebutuhan utilitas pabrik berupa sistem pengolahan dan penyediaan air, sistem penyediaan *steam*, *cooling water*, dan sistem pembangkit tenaga listrik.

Kapasitas produksi pabrik N-Butil Etanoat direncanakan 46.000 ton/tahun dengan 330 hari kerja dalam 1 tahun. Lokasi pabrik direncanakan didirikan di daerah Manyar, Gresik, Jawa Timur. Tenaga kerja yang dibutuhkan sebanyak 180 orang dengan bentuk badan usaha Perseroan Terbatas (PT) dengan struktur organisasi *line and staff.*

Dari analisisekonomidiperoleh:

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Berdasarkan beberapa paparan di atas, maka pendirian pabrik N-Butil Etanoat ini layak untuk dikaji lebih lanjut, karena merupakan pabrik yang menguntungkan dari sisi ekonomi dan mempunyai prospek yang relatif cukup baik.