ABSTRAK

PRARANCANGAN PABRIK PABRIK *BUTYL ETHANOATE* DARI *ACETIC ACID* DAN N-BUTANOL DENGAN KAPASITAS 44.000 TON/TAHUN
(Perancangan Menara Distilasi – 301 (MD-301))

Oleh

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Butil Etanoat adalah salah satu bahan kimia industri dengan kegunaan sebagai pelarut, cat, dan pelapis. Proses produksi Butil Etanoat dilakukan dengan proses esterifikasi antara asam asetat dan butanol. Kebutuhan utilitas pabrik dalam bentuk sistem pengolahan dan penyediaan air, penyediaan uap, air pendingin, dan sistem pembangkit listrik. Pabrik direncakan dibangun di Gresik, Jawa Timur dan beroperasi dengan kapasitas produksi 44.000 ton/tahun dengan 330 hari kerja dalam 1 tahun. Tenaga kerja dibutuhkan sebanyak 147 orang, pabrik berbentuk badan usaha Perseroan Terbatas (PT) dan struktur organisasi *line and staff*.

Dari analisis ekonomi diperoleh:

Fixed Capital Investment	(FCI)	= Rp 854.318.736.854
Working Capital Investment	(WCI)	= Rp 213.579.684.214
Total Capital Investment	(TCI)	= Rp 1.067.898.421.068
Break Even Point	(BEP)	= 45,38%
Shut Down Point	(SDP)	= 27,71%
Pay Out Time before taxes	$(POT)_b$	= 2,03 years
Pay Out Time after taxes	$(POT)_a$	= 2,41 years
Return on Investment before taxes	$(ROI)_b$	= 31,36%
Return on Investment after taxes	$(ROI)_a$	= 25,08%
Discounted cash flow	(DCF)	= 32,16%

Berdasarkan paparan di atas, maka pendirian pabrik Butil Etanoat dinilai layak untuk dipertimbangkan kedepannya karena menguntungkan secara ekonomi dan memiliki masa depan yang relatif menjanjikan.

Kata kunci: esterifikasi, *line and staff*, $C_6H_{12}O_2$

ABSTRACT

DESIGN OF BUTYL ETHANOATE FACTORY FROM ACETIC ACID DAN N-BUTANOL CAPACITY 44.000 TON/YEAR
(Design of Distillation Column – 301 (MD-301))

By

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Butyl Ethanoate is one of the industrial chemicals with uses as solvents, paints, and coatings. Butyl Ethanoate production process is carried out by esterification process between acetic acid and butanol. Plant utility needs in the form of water treatment and supply systems, steam supply, cooling water, and power generation systems. The plant is planned to be built in Gresik, East Java and operate with a production capacity of 44,000 tons/year with 330 working days in 1 year. The required workforce is 147 people, the factory is established in the form of a Limited Liability Company (PT) and a line and staff organizational structure.

From the economic analysis obtained:

Fixed Capital Investment	(FCI)	= Rp 854.318.736.854
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Based on the above explanation, the establishment of a Butyl Ethanoate plant is considered feasible to consider in the future because it is economically profitable and has a relatively promising future.

Key words: esterification, line and staff, $C_6H_{12}O_2$