ABSTRAK

**PRARANCANGAN PABRIK *N-BUTYL ACRYLATE*
DARI *ACRYLIC ACID* DAN *N-BUTANOL* DENGAN
KAPASITAS 55.000 TON/TAHUN
(Perancangan Reaktor – 201 (RE– 201))**

Oleh

SEPTIANA EKANDARI

N-butyl acrylate adalah salah satu bahan kimia industri yang biasa digunakan untuk bahan tambahan produksi cat (*coating*), tekstil, perekat, konstruksi dan otomotif. Proses produksi *N-Butyl Acrylate* dilakukan dengan proses esterifikasi antara *acrylic acid* dan *n-butanol* dengan menggunakan katalis amberlist-15. Kebutuhan utilitas pabrik dalam bentuk sistem pengolahan dan penyediaan air, penyediaan uap, air pendingin, dan sistem pembangkit listrik. Pabrik direncakan dibangun di Kawasan Industri Gresik, Jawa Timur dan beroperasi dengan kapasitas produksi 55.000 ton/tahun dengan 335 hari kerja dalam 1 tahun. Tenaga kerja dibutuhkan sebanyak 130 orang, pabrik berbentuk badan usaha Perseroan Terbatas (PT) dan struktur organisasi *line and staff.*

Dari analisis ekonomi diperoleh:

Fixed Capital Investment	(FCI)	= Rp 216.126.340,337,-
Working Capital Investment	(WCI)	= Rp 38.139.942.412,-
Total Production Cost	(TPC)	= Rp 1.066.004.388.324,-
Break Even Point	(BEP)	= 49,34%
Shut Down Point	(SDP)	= 26,74%
Pay Out Time before taxes	$(POT)_b$	= 1,32 tahun
Pay Out Time after taxes	$(POT)_a$	= 1,59 tahun
Return on Investment before taxes	$(ROI)_b$	= 55,88%
Return on Investment after taxes	$(ROI)_a$	= 44,70%
Discounted cash flow	(DCF)	= 46,53%

Berdasarkan paparan di atas, maka pendirian pabrik *N-Butyl Acrylate* dinilai layak untuk dipertimbangkan kedepannya karena menguntungkan secara ekonomi dan memiliki masa depan yang relatif menjanjikan.

Kata kunci: esterifikasi, *line and staff, n-butyl acrylate*, $C_7H_{12}O_2$

ABSTRACT

**DESIGN OF N-BUTYL ACRYLATE FACTORY
FROM ACRYLIC ACID AND N-BUTANOL
CAPACITY 55.000 TON/YEAR
(Design of Reactor – 201 (RE–201))**

By

SEPTIANA EKANDARI

N-butyl acrylate is an important industrial chemical widely used as a raw material in the production of coatings, textiles, adhesives, construction materials, and automotive products. The production of n-butyl acrylate is carried out through an esterification reaction between acrylic acid and n-butanol using Amberlyst-15 as a catalyst.The plant utility requirements include water treatment and supply systems, steam generation, cooling water systems, and power generation systems. The plant is planned to be constructed in the Gresik Industrial Area, East Java, and will operate with a production capacity of 55,000 tons per year for 335 operating days annually.The workforce required consists of 130 employees. The company is established as a Limited Liability Company (PT) with a line-and-staff organizational structure.

From the economic analysis obtained:

Fixed Capital Investment	(FCI)	= Rp 216.126.340,337,-
Working Capital Investment	(WCI)	= Rp 38.139.942.412,-
Total Production Cost	(TPC)	= Rp 1.066.004.388.324,-
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Based on the above explanation, the establishment of a N-Butyl Acrylate 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, n-butyl acrylate, $C_7H_{12}O_2$