

ABSTRAK

PRARANCANGAN PABRIK 2-ETILHEKSIL AKRILAT DARI ASAM AKRILAT DAN 2-ETIL HEKSANOL KAPASITAS 46.000 TON/TAHUN

(Perancangan Kolom Distilasi – 303 (MD-303))

Oleh

HALIMA SAHARA OKTAVIA

2-Etilheksil Akrilat ($C_{11}H_{20}O_2$) adalah salah satu ester dari asam akrilat yang berfungsi sebagai bahan baku perekat, pelarut dalam industri cat, pelapis, industri tekstil, dan tinta printer. Proses produksi 2-Etilheksil Akrilat dilakukan dengan proses esterifikasi antara asam akrilat dan 2-etilheksanol dengan katalis asam sulfat. Kebutuhan utilitas pabrik dalam bentuk sistem pengolahan dan penyediaan air, penyediaan refrigerasi, penyediaan *hot oil*, penyediaan udara, dan sistem pembangkit listrik. Pabrik direncanakan dibangun di Kawasan Industri Cilegon, Banten dan beroperasi dengan kapasitas produksi 46.000 ton/tahun dengan 330 hari kerja dalam 1 tahun. Tenaga kerja dibutuhkan sebanyak 143 orang, pabrik berbentuk badan usaha Perseroan Terbatas (PT) dan struktur organisasi *line and staff*.

Dari analisis ekonomi diperoleh :

<i>Fixed Capital Investment</i>	(FCI)	= Rp 3.843.428.092.889
<i>Working Capital Investment</i>	(WCI)	= Rp 427.047.565.877
<i>Total Capital Investment</i>	(TCI)	= Rp 4.270.475.658.766
<i>Break Event Point</i>	(BEP)	= 40%
<i>Shut Down Point</i>	(SDP)	= 20%
<i>Pay Out Time before taxes</i>	(POT) _b	= 1,915 tahun
<i>Pay Out Time after taxes</i>	(POT) _a	= 2,285 tahun
<i>Return on Investment before taxes</i>	(ROI) _b	= 38%
<i>Return on Investment after taxes</i>	(ROI) _a	= 30%
<i>Discounted Cash Flow</i>	(DCF)	= 38,30%

Berdasarkan paparan diatas, maka pendirian pabrik 2-Etilheksil Akrilat dinilai layak untuk dipertimbangkan kedepannya karena menguntungkan secara ekonomi dan memiliki masa depan yang relatif menjanjikan.

Kata kunci : 2-Etilheksil Akrilat, esterifikasi, *line and staff*, utilitas.

ABSTRACT

**PRELIMINARY DESIGN OF 2-ETHYLHEXYL ACRYLATE PLANT FROM
ACRYLIC ACID AND 2-ETHYL HEXANOL CAPACITY 46.000
TONS/YEARS
(Design of Distillation Column – 303 (MD – 303))**

By

HALIMA SAHARA OKTAVIA

2-Ethylhexyl Acrylate ($C_{11}H_{20}O_2$) is an ester derived from acrylic acid that is used as a raw material for adhesives, solvents in the paint and coating industries, textile industries, and printer inks. The production of 2-Ethylhexyl Acrylate is carried out through an esterification process between acrylic acid and 2-ethylhexanol using sulfuric acid as a catalyst. The plant utility requirements include water treatment and supply systems, refrigeration systems, hot oil systems, air supply systems, and an electric power generation system. The plant is planned to be constructed in the Cilegon Industrial Area, Banten Province, and operated with a production capacity of 46,000 tons per year for 330 operating days per year. A total workforce of 143 employees is required, and the plant is established as a Limited Liability Company (Perseroan Terbatas, PT) with a line and staff organizational structure.

From the economic analysis obtained :

<i>Fixed Capital Investment</i>	(FCI)	= Rp 3.843.428.092.889
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Based on the above discussion, the establishment of a 2-Ethylhexyl Acrylate plant is considered feasible for future consideration, as it is economically profitable and has relatively promising prospects.

Keywords: 2-Ethylhexyl Acrylate, esterification, line and staff, utilities.