

ABSTRAK

PRARANCANGAN PABRIK FENOL DARI *CUMENE HYDROPEROXIDE* DENGAN KATALIS ASAM SULFAT KAPASITAS 30.000 TON/TAHUN (Perancangan Reaktor 201 (RE-201))

Oleh

RAYNAL RAHMAN

Fenol merupakan salah satu produk industri kimia yang digunakan sebagai bahan baku pembuatan Bisphenol-A, Resin Fenolic, Anillin, Karpolaktam, dan Alkil Fenol. Fenol dapat diproduksi dengan beberapa proses yaitu 1) proses dekomposisi *Cumene Hydroperoxide*, 2) Proses dari Toluena-Asam Benzoat, 3) Proses Sulfonasi Benzena, 4) Proses dari Klorobenzena, dan 5) Proses *Raschig*. Penyediaan kebutuhan utilitas pabrik berupa sistem pengolahan dan penyediaan air, sistem penyediaan *steam*, *cooling water*, dan sistem pembangkit tenaga listrik.

Kapasitas produksi pabrik fenol direncanakan 30.000 ton/tahun dengan 330 hari kerja dalam 1 tahun. Lokasi pabrik direncanakan didirikan di daerah Cilegon, Banten. Tenaga kerja yang dibutuhkan sebanyak 131 orang dengan bentuk badan usaha Perseroan Terbatas (PT) dengan struktur organisasi *line and staff*.

Dari analisis ekonomi diperoleh:

<i>Fixed Capital Investment</i>	(FCI)	= Rp 366.685.472.577
<i>Working Capital Investment</i>	(WCI)	= Rp 64.709.201.043
<i>Total Capital Investment</i>	(TCI)	= Rp 431.394.673.620
<i>Break Even Point</i>	(BEP)	= 41,93%
<i>Shut Down Point</i>	(SDP)	= 25,41%
<i>Pay Out Time before taxes</i>	(POT) _b	= 2,10 years
<i>Pay Out Time after taxes</i>	(POT) _a	= 2,49 years
<i>Return on Investment before taxes</i>	(ROI) _b	= 49,00%
<i>Return on Investment after taxes</i>	(ROI) _a	= 39,20%
<i>Discounted cash flow</i>	(DCF)	= 21,84%

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

ABSTRACT

PREDESIGN OF PHENOL FROM CUMENE HYDROPEROXIDE WITH A SULFURIC ACID AS CATALYST CAPACITY 30.000 TONS/YEARS (Reactor 201 Design (RE-201))

By

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Phenol is one of the product industry chemicals are used as the raw materials for Bisphenol-A, Fenolic Resin, Anillin, Carpolactam, dan Alkyl Phenol. Phenol can be produced by some of the process are : 1) Process of decomposition Cumene Hydroperoxide, 2) Procces from Toluene-Benzoate Acid, 3) Procces Sulfonasi Benzene, 4) Proses from Chlorobenzene, and 5) Procces *Raschig*. Provision of utility plant needs a treatment system and water supply, cooling water,dan Generator electrical power system.

Capacity of the plant is planned to production phenol is 30.000 tons/year with 330 working days in a year. The location of plant is planned in Cilegon, Banten. Labor needed in this plant as many as 171 people with a business entity form Limited Liability Company (PT) with line and staff organizational structure.

From teh economic analysis is obtained :

<i>Fixed Capital Investment</i>	(FCI)	= Rp 366.685.472.577
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By considering above the summary, it is proper establishment of phenol plant for studied further, because the plant is profitable and has good prospects future.