

ABSTRAK

PRARANCANGAN PABRIK FENOL DARI *CUMENE HYDROPEROXIDE* DENGAN KATALIS *SULFURIC ACID* KAPASITAS 20.000 TON/TAHUN Tugas Khusus Perancangan Reaktor - 201 (RE-201)

Oleh

MUHAMMAD NIKI WIJAYA

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

Kapasitas produksi pabrik direncanakan 20.000 ton/tahun dengan 330 hari kerja dalam 1 tahun. Lokasi pabrik direncanakan didirikan di daerah Cilegon, Banten. Tenaga kerja yang dibutuhkan sebanyak 148 orang dengan bentuk badan usaha Perseroan Terbatas (PT) yang dipimpin oleh seorang Direktur Utama yang dibantu oleh Direktur Produksi dan Direktur Keuangan dengan struktur organisasi *line and staff*.

Dari analisis ekonomi diperoleh:

<i>Fixed Capital Investment</i>	(FCI)	= Rp 423.369.047.571
<i>Working Capital Investment</i>	(WCI)	= Rp 74.712.184.865
<i>Total Capital Investment</i>	(TCI)	= Rp 498.081.232.436
<i>Break Even Point</i>	(BEP)	= 48,71%
<i>Shut Down Point</i>	(SDP)	= 20,50%
<i>Pay Out Time before taxes</i>	(POT) _b	= 2,42 years
<i>Pay Out Time after taxes</i>	(POT) _a	= 2,85 years
<i>Return on Investment before taxes</i>	(ROI) _b	= 26,51%
<i>Return on Investment after taxes</i>	(ROI) _a	= 21,21%
<i>Discounted cash flow</i>	(DCF)	= 21,72%

Mempertimbangkan rangkuman di atas, sudah selayaknya pendirian pabrik Fenol ini dikaji lebih lanjut, karena merupakan pabrik yang menguntungkan dan mempunyai prospek yang baik.

ABSTRACT

DESIGN OF PHENOL FACTORY FROM CUMENE HYDROPEROXIDE WITH SULFURIC ACID CATALYST CAPACITY 20,000 TON/YEAR Reactor Design Special Task - 201 (RE-201)

By

MUHAMMAD NIKI WIJAYA

Phenol is one of the chemical industry products that is used as raw material for the manufacture of Bisphenol-A, Phenolic Resin, Anillin, Carpolactam, and Alkyl Phenol. Phenol can be produced by several processes, namely 1) Cumene Hydroperoxide decomposition process, 2) Toluene-Benzoic Acid process, and 3) Raschig process. Provision of factory utility needs in the form of water treatment and supply systems, steam supply systems, cooling water, compressed air supply systems, and power generation systems.

The planned production capacity of the factory is 20,000 tons/year with 330 working days in 1 year. The factory location is planned to be established in the Cilegon area, Banten. The workforce needed is 148 people in the form of a Limited Liability Company (PT) led by a President Director who is assisted by a Production Director and a Finance Director with a line and staff organizational structure.

From the economic analysis obtained:

<i>Fixed Capital Investment</i>	(FCI)	= Rp 423.369.047.571
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Considering the above summary, it is appropriate that the establishment of this phenol plant should be studied further, because it is a profitable factory and has good prospects.