

ABSTRAK

PRARANCANGAN PABRIK *NOVOLAC RESIN* DARI *PHENOL* DAN *FORMALDEHYDE* KAPASITAS 50.000 TON/TAHUN (Perancangan *Continuous Stirred Tank Reactor (RE-01)*)

Oleh

ZAHRATUL AZIZAH

Pabrik *Novolac* resin berbahan baku *Phenol* dan *Formaldehyde*, akan didirikan di Ciwandan, Cilegon, Provinsi Banten. Pabrik ini berdiri dengan mempertimbangkan ketersediaan bahan baku, sarana transportasi yang memadai, tenaga kerja yang mudah didapatkan dan kondisi lingkungan. *Novolac resin* umumnya dihasilkan dari reaksi antara *formaldehyde* dan *phenol* dengan katalis asam. Pabrik direncanakan memproduksi *Novolac resin* sebanyak 50.000 ton/tahun, dengan waktu operasi 24 jam/hari, 330 hari/tahun. Bahan baku yang digunakan adalah Fenol sebanyak 6512,5262 kg/jam dan Formaldehida sebanyak 4727,1054 kg/jam. Penyediaan kebutuhan utilitas pabrik *Novolac resin* berupa pengadaan air, *dowtherm*, pengadaan listrik, kebutuhan bahan bakar, dan pengadaan udara. Bentuk perusahaan adalah Perseroan Terbatas (PT) menggunakan struktur organisasi *line* dan *staff* dengan jumlah karyawan sebanyak 131 orang.

Dari analisis ekonomi diperoleh:

<i>Fixed Capital Investment</i>	(FCI)	= Rp 1.000.716.945.071
<i>Working Capital Investment</i>	(WCI)	= Rp 176.597.107.954
<i>Total Capital Investment</i>	(TCI)	= Rp .177.314.053.024
<i>Break Even Point</i>	(BEP)	= 47,54 %
<i>Shut Down Point</i>	(SDP)	= 29,75 %
<i>Pay Out Time before taxes</i>	(POT) _b	= 1,8 tahun
<i>Pay Out Time after taxes</i>	(POT) _a	= 2,16 tahun
<i>Return on Investment before taxes</i>	(ROI) _b	= 38,52 %
<i>Return on Investment after taxes</i>	(ROI) _a	= 30,82 %
<i>Interest Rate of Return</i>	(IRR)	= 38,32 %

Berdasarkan hasil analisis diatas, maka pendirian pabrik *Novolac resin* ini laik dikaji lebih lanjut, karena merupakan pabrik yang menguntungkan dari sisi ekonomi dan mempunyai masa depan yang baik.

ABSTRACT

MANUFACTURE OF NOVOLAC RESINS FROM PHENOL AND FORMALDEHYDE CAPACITY 50.000 TONS/YEAR (Design of Continuous Stirrer Tank Reactor (RE-01))

By

ZAHRATUL AZIZAH

Novolac Resins plant with raw materials phenol and formaldehyde will be build in Ciwandan, Cilegon, Banten. Establishment of this plant in Ciwandan due to raw material resourcess, transportation, labors and also environmental condition. *Novolac resins* commonly produced by reaction of formaldehyde and phenol in the presence of acid catalyst. This plant will produce 50.000 tons/year, with time of operation 24 hours/day, and 330 days on a year. The raw material which use are phenol 6512,5262 kg/hour and formaldehyde 4727,1054 kg/hour. This plant has utility units which the function are for water treatment, water supply, dowtherm, power generation, and air supply. The bussines entity of this plant is limited liability company (PT) and using line and staff structure with 131 people.

From financial annalyze:

<i>Fixed Capital Investment</i>	(FCI)	= Rp 1.000.716.945.071
<i>Working Capital Investment</i>	(WCI)	= Rp 176.597.107.954
<i>Total Capital Investment</i>	(TCI)	= Rp .177.314.053.024
<i>Break Even Point</i>	(BEP)	= 47,54 %
<i>Shut Down Point</i>	(SDP)	= 29,75 %
<i>Pay Out Time before taxes</i>	(POT) _b	= 1,8 years
<i>Pay Out Time after taxes</i>	(POT) _a	= 2,16 years
<i>Return on Investment before taxes</i>	(ROI) _b	= 38,52 %
<i>Return on Investment after taxes</i>	(ROI) _a	= 30,82 %
<i>Interest Rate of Return</i>	(IRR)	= 38,32 %

Based on the above consideration, the establishment of Novolac Resins a plant should be stuidied further, because it is a profitable plant from an economic standpoint and has relatively good prospects