

## ABSTRAK

### PRARANCANGAN PABRIK PHENOLIC RESIN (NOVOLAC) DARI PHENOL DAN FORMALDEHIDA DENGAN KAPASITAS 50.000 TON/TAHUN Perancangan Menara Distilasi (DC-01)

Oleh

**DORMIAN R.S.J. PAKPAHAN**

Pabrik *Novolac* resin berbahan baku Fenol dan Formaldehida, akan didirikan di Cilegon, Banten. Pabrik ini berdiri dengan mempertimbangkan ketersediaan bahan baku, sarana transportasi yang memadai, tenaga kerja yang mudah didapatkan dan kondisi lingkungan.

Pabrik direncanakan memproduksi *Novolac* 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* 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 132 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 1.177.314.053.024
<i>Break Even Point</i>	(BEP)	= 47,54 %
<i>Shut Down Point</i>	(SDP)	= 29,75 %
<i>Pay Out Time before taxes</i>	(POT) <sub>b</sub>	= 1,80 tahun
<i>Pay Out Time after taxes</i>	(POT) <sub>a</sub>	= 2,16 tahun
<i>Return on Investment before taxes</i>	(ROI) <sub>b</sub>	= 38,52 %
<i>Return on Investment after taxes</i>	(ROI) <sub>a</sub>	= 30,82 %
<i>Interest Rate of Return</i>	(IRR)	= 38,32 %

Mempertimbangkan paparan di atas, sudah selayaknya pendirian pabrik *Novolac* ini dikaji lebih lanjut, karena merupakan pabrik yang menguntungkan dan mempunyai masa depan yang baik.

## ABSTRACT

### MANUFACTURE OF PHENOLIC-RESINS (NOVOLAC) FROM PHENOL AND FORMALDEHYDE CAPACITY 50.000 TONS/YEAR (Design of Distillation Column-01 (DC-01))

By

**DORMIAN R.S.J. PAKPAHAN**

Novolac Resins plant with raw materials phenol and formaldehyde will be build in Cilegon, Banten. Establishment of this plant in Banten due to raw material resource, transportation, labors and also environmental condition.

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, dowertherm, power generation, and air supply.

The bussines entity of this plant is limited liability company (PT) and using line and staff structure with 132 labors.

From financial annalyze:

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Consider the summary above, it is proper establishment of Novoac Resins plant is studied further, because the plant is profitable and has good prospects.