

## ABSTRACT

### MANUFACTURING OF ACETONE CYANOHYDRIN FROM ACETONE AND HYDROGEN CYANIDE WITH CAPACITY 25.000 TONS/YEAR (Design of Reactor (RE-201))

By

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Acetone Cyanohydrin plant is made from acetone and hydrogen cyanide, planned to be established in Cilegon, Banten. Establishment of factories based on consideration of availability of raw materials, adequate means of transportation, easily accessible labor and environmental conditions.

The plant is planned to produce Acetone Cyanohydrin of 25,000 tons/year, with operating time 24 hours/day, 330 days/year. The raw materials used are acetone 2177,2367 kg/hour and hydrogen cyanide 1013,5412 kg/hour.

The provision of utility needs of the plant consists of water supply unit, steam procurement, air instrument procurement, electricity procurement, refrigerant procurement and waste treatment.

The form of the company is a Limited Liability Company (PT) using a line and staff organization structure with a total of 131 employees.

From the economic analysis, it is obtained that:

<i>Fixed Capital Investment</i>	(FCI)	=	Rp. 250.524.966.445
<i>Working Capital Investment</i>	(WCI)	=	Rp. 44.210.288.196
<i>Total Capital Investment</i>	(TCI)	=	Rp. 294.735.254.642
<i>Break Even Point</i>	(BEP)	=	46,22%
<i>Shut Down Point</i>	(SDP)	=	22,95%
<i>Pay Out Time before taxes</i>	(POT) <sup>b</sup>	=	1,7 tahun
<i>Pay Out Time after taxes</i>	(POT) <sup>a</sup>	=	2,1 tahun
<i>Return on Investment before taxes</i>	(ROI) <sup>b</sup>	=	40,40%
<i>Return on Investment after taxes</i>	(ROI) <sup>a</sup>	=	32,32%
<i>Discounted cash flow</i>	(DCF)	=	49,50%

Considering the summary above, it is proper to study the establishment of Acetone cyanohydrin plant further, because the plant is profitable and has good prospects.

## ABSTRAK

### PRARANCANGAN PABRIK *ACETONE CYANOHYDRIN* DARI ASETON DAN HIDROGEN SIANIDA DENGAN KAPASITAS PRODUKSI 25.000 TON/TAHUN (Perancangan Reaktor (RE-201))

Oleh

SHERLYANA

Pabrik *Acetone Cyanohydrin* berbahan baku aseton dan hidrogen sianida, direncanakan didirikan di Cilegon, Banten. Pendirian pabrik berdasarkan atas pertimbangan ketersediaan bahan baku, sarana transportasi yang memadai, tenaga kerja yang mudah didapatkan dan kondisi lingkungan.

Pabrik direncanakan memproduksi *Acetone Cyanohydrin* sebanyak 25.000 ton/tahun, dengan waktu operasi 24 jam/hari, 330 hari/tahun. Bahan baku yang digunakan adalah aseton sebanyak 2177,2367 kg/jam dan hidrogen sianida 1013,5412 kg/jam.

Penyediaan kebutuhan utilitas pabrik terdiri dari unit pengadaan air, pengadaan *steam*, pengadaan udara instrument, pengadaan listrik, pengadaan *refrigerant* dan pengolahan limbah.

Bentuk perusahaan adalah Perseroan Terbatas (PT) menggunakan struktur organisasi *line* dan *staff* dengan jumlah karyawan sebanyak 131 orang.

Dari analisis ekonomi diperoleh:

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