

ABSTRACT

PREDESIGN OF ACRYLAMIDE PLANT FROM ACRYLONITRIL PRODUCTION CAPACITY 20,000 TONS/YEAR (Design of Reactor (RE-201))

by

LAILA KURNIA PURWATI

Acrylamide is an intermediate material that is mostly used for the manufacture of polyacrylamide. Polyacrylamide is used in flocculants to separate solids from solutions in wastewater treatment and water purification, additives in acidification processes, additives in textile and also pulp and paper industries.

An acrylamide plant with materials acrylonitrile and water is planned to be established in the Cilegon Industrial Zone, Banten Province. The establishment of this plant is based on consideration of the availability of raw materials, marketing of products, adequate transportation facilities and infrastructure, the availability of labors, and environmental conditions. The plant is planned to produce acrylamide as much as 20,000 tons/year. The supply of plant utility needs consists of water supply system, steam supply system, air instrument supply system, and power station.

The bussines entity form is Limited Liability Company (Ltd) using line and staff organizational structures with 204 labors.

From economic analysis, it is obtained that:

<i>Fixed Capital Investment</i>	(FCI)	= Rp. 543.322.488.638
<i>Working Capital Investment</i>	(WCI)	= Rp. 95.880.439.171
<i>Total Capital Investment</i>	(TCI)	= Rp. 639.202.927.810
<i>Break Even Point</i>	(BEP)	= 39,83%
<i>Pay Out Time after taxes</i>	(POT) ^a	= 2,60 tahun
<i>Return on Investment after taxes</i>	(ROI) ^a	= 24,21%

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

ABSTRAK

PRARANCANGAN PABRIK AKRILAMIDA DARI AKRILONITRIL KAPASITAS PRODUKSI 20.000 TON/TAHUN (Perancangan Reaktor (RE-201))

Oleh

LAILA KURNIA PURWATI

Akrilamida merupakan bahan *intermediate* yang sebagian besar digunakan untuk pembuatan *polyacrylamide*. *Polyacrylamide* digunakan dalam flokulan untuk memisahkan padatan dari larutan pada pengolahan air limbah dan pemurnian air, bahan tambahan pada proses pengasaman, bahan aditif pada industri tekstil dan *pulp and paper*.

Pabrik akrilamida berbahan baku akrilonitril dan air direncanakan didirikan di Kawasan Industri Cilegon, Provinsi Banten. Pendirian pabrik berdasarkan atas pertimbangan ketersediaan bahan baku, pemasaran produk, sarana dan prasarana transportasi yang memadai, tenaga kerja yang mudah didapatkan, dan kondisi lingkungan. Pabrik direncanakan memproduksi akrilamida sebanyak 20.000 ton/tahun. Penyediaan kebutuhan utilitas pabrik terdiri dari unit pengadaan air, pembangkit *steam*, pengadaan udara *instrument*, dan unit penyedia listrik.

Bentuk perusahaan adalah Perseroan Terbatas (PT) menggunakan struktur organisasi *line* dan *staff* dengan jumlah karyawan sebanyak 204 orang.

Dari analisis ekonomi diperoleh:

<i>Fixed Capital Investment</i>	(FCI)	= Rp. 543.322.488.638
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Mempertimbangkan rangkuman di atas, sudah selayaknya pendirian pabrik akrilamida ini dikaji lebih lanjut, karena merupakan pabrik yang menguntungkan dan mempunyai prospek yang baik.