ABSTRAK

PRARANCANGAN PABRIK NITROBENZENA DARI BENZENA DAN ASAM CAMPURAN DENGAN KAPASITAS 50.000 TON/TAHUN
(Perancangan Reaktor Alir Tangki Berpengaduk (R-101))

Oleh
DWI AGUSTINA SYAFANI

Pabrik Nitrobenzena berbahan baku Benzena dan Asam Campuran, direncanakan didirikan di Kawasan Industri Cilacap, Jawa Tengah. Pendirian pabrik berdasarkan atas pertimbangan bahan baku, sarana transportasi yang memadai, tenaga kerja yang mudah didapatkan, kondisi lingkungan dan banyaknya industri lain pengguna langsung Nitrobenzena di daerah tersebut.

Pabrik direncanakan memproduksi Nitrobenzena sebanyak 50.000 ton/tahun, dengan waktu operasi 24 jam/hari, 330 hari/tahun. Bahan baku yang digunakana dalah Benzena sebanyak 4.202,175 kg/jam, Asam Nitrat sebanyak 3.389,930 kg/jam dan Asam Sulfat sebanyak 7.909,837 kg/jam.

Penyediaan kebutuhan utilitas pabrik terdiri dari unit pengadaan udara proses, pengadaan listrik, pengadaan agen penukar panas dan udara instrument.

Bentuk perusahaan adalah Perseroan Terbatas (PT) menggunakan struktur organisasi *line* dan *staff* dengan jumlah karyawan sebanyak 170 orang.

Dari analisis ekonomi diperoleh:

Fixed Capital Investment	(FCI)	=	Rp. 430.664.352.037
Working Capital Investment	(WCI)	=	Rp. 64.709.201.043
Total Capital Investment	(TCI)	=	Rp. 495.373.553.080
Break Even Point	(BEP)	=	48,56 %
Pay Out Time after taxes	(POT)	=	2,72 Tahun
Return on Investment after taxes	(ROI)	=	22,7437%
Discounted cash flow	(DCF)	=	45,18%

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

ABSTRACT

MANUFACTURING OF NITROBENZENE FROM BENZENE AND MIXTURED ACID WITH CAPACITY 50.000 TONS/YEAR
(Design of Continuous Stirred Tank Reactor (R-101))

By
DWI AGUSTINA SYAFANI

Nitrobenzene plant with raw materials Benzene and Mixtured Acid is planned to be built in Cilacap, Central Java. Establishment of this plant is based on some consideration due raw materials, tothe transportation, the labors availability, the environmental condition, and also existence of some industrial that use Nitrobenzene as their raw material near this location.

This plant is meant to produce 50.000 tons/year with 330 working days in a year. The raw materials used consist of 4.202,175 kg/hour of Benzene, 3.389,930 kg/hour of Nitric Acid, and 7.909,837 kg/hour of Sulfuric Acid.

The utility units consist of process air system, heat exchanger agent system, power generation system and instrumentation & control system.

The bussines entity form is Limited Liability Company (Ltd) using line and staff organizational structure with 170 labors.

From the economic analysis, it is obtained that:

Fixed Capital Investment	(FCI)	=	Rp. 430.664.352.037
Working Capital Investment	(WCI)	=	Rp. 64.709.201.043
Total Capital Investment	(TCI)	=	Rp. 495.373.553.080
Break Even Point	(BEP)	=	48,56 %
Pay Out Time after taxes	(POT)	=	2,72 Tahun
Return on Investment after taxes	(ROI)	=	22,7437%
Discounted cash flow	(DCF)	=	45,18%

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