

ABSTRACT

PREDESIGN OF NITROBENZENE PLANT FROM BENZENE AND NITRIC ACID WITH SULFURIC ACID CATALYST CAPACITY 75.000 TONS/YEAR

(Reaktor Design (RE-201))

By

METTYANA ORDEVO DEMAYANTI

A plant to produce nitrobenzene from benzene and nitric acid, is planned to be located at Gresik Industrial Area, East Java Province. The plant is established by considering availability of raw materials, transportation facilities, readily available labor and environmental conditions.

Capacity of the plant is 75.000 tons/year operating 24 hour/day and 330 working days/ year. The plant required 7.023,6841 kg/h of benzene; 5.956,6244 kg/h of nitric acid.

Quantity of labor is around 123 people. The plant is managed as a Limited Liability Company (PT), which is headed by a Director. The company is organized in the form of line and staff structure.

From analysis of the plant economy is obtained:

<i>Fixed Capital Investment (FCI)</i>	= Rp. 298.674.566.537,-
<i>Working Capital Investment (WCI)</i>	= Rp. 51.119.041.154,-
<i>Total Capital Investment (TCI)</i>	= Rp. 340.793.607.690,-
<i>Break Even Point (BEP)</i>	= 46,87 %
<i>Shut Down Point (SDP)</i>	= 25,06 %
<i>Pay Out Time after Taxes (POT)_a</i>	= 2,40 tahun
<i>Return on Investment after Taxes (ROI)_a</i>	= 26,85 %
<i>Discounted Cash Flow (DCF)</i>	= 28,01 %

By considering above the summary, it is suitable study further the nitrobenzena plant since plant is profitable and has good prospects.

ABSTRAK

PRARANCANGAN PABRIK NITROBENZENA DAN BENZENA DAN ASAM NITRAT DENGAN KATALIS ASAM SULFAT KAPASITAS 75.000 TON/TAHUN

(Perancangan Reaktor (RE-201))

Oleh

METTYANA ORDEVO DEMAYANTI

Pabrik nitrobenzena berbahan baku benzena dan asam nitrat direncanakan didirikan di Kawasan Industri Gresik, Provinsi Jawa Timur. Pabrik ini berdiri dengan mempertimbangkan ketersediaan bahan baku, sarana transportasi yang memadai, tenaga kerja yang mudah didapatkan dan kondisi lingkungan.

Pabrik direncanakan memproduksi Nitrobenzena sebanyak 75.000 ton/tahun, dengan waktu operasi 24 jam/hari, 330 hari/tahun. Bahan baku yang digunakan adalah Benzena sebanyak 7.023,6841 kg/jam dan Asam Nitrat sebanyak 5.956,6244 kg/jam.

Jumlah karyawan sebanyak 123 orang dengan bentuk perusahaan adalah Perseroan Terbatas (PT) yang dipimpin oleh seorang direktur. Sistem manajemen perusahaan menggunakan struktur organisasi *line* dan *staff*.

Dari analisis ekonomi diperoleh:

<i>Fixed Capital Investment</i> (FCI)	= Rp. 298.674.566.537,-
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<i>Discounted Cash Flow</i> (DCF)	= 28,01 %

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