

ABSTRAK

PRARANCANGAN PABRIK *DIOCTYL TEREPHTHALATE* DARI *TEREPHTHALIC ACID* DAN *2-ETHYL-HEXANOL* DENGAN KATALIS ASAM SULFAT KAPASITAS 20.000 TON/TAHUN (Tugas Khusus Perancangan *Reaktor CSTR (RE-201)*)

Oleh

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Diocetyl Terephthalate merupakan salah satu produk industri kimia yaitu *plasticizer* bebas *phthalate* yang digunakan sebagai bahan baku pembuatan *poly vinyl choloride* (PVC) dan resin etilselulosa untuk memproduksi plastic film, kulit imitasi, kawat elektrik, pembungkus kabel. *Diocetyl Terephthalate* dapat di produksi dengan beberapa proses yaitu 1) Proses esterifikasi, dan 2) Proses transterifikasi. Penyediaan kebutuhan utilitas pabrik berupa sistem pengolahan dan penyediaan air, sistem penyediaan *steam*, *cooling water*, sistem penyediaan udara tekan, dan sistem pembangkit tenaga listrik.

Kapasitas produksi pabrik direncanakan 20.000 ton/tahun dengan 330 hari kerja dalam 1 tahun. Lokasi pabrik direncanakan didirikan di daerah Cilegon, Banten. Tenaga kerja yang dibutuhkan sebanyak 130 orang dengan bentuk badan usaha Perseroan Terbatas (PT) yang dipimpin oleh seorang Direktur Utama yang dibantu oleh Direktur Produksi dan Direktur Keuangan dengan struktur organisasi *line and staff*.

Dari analisis ekonomi, diperoleh:

<i>Fixed Capital Investment</i>	(FCI)	= Rp 286.093.169.584,-
<i>Working Capital Investment</i>	(WCI)	= Rp 50.487.027.927,-
<i>Total Capital Investment</i>	(TCI)	= Rp 709.284.107.648,-
<i>Break Even Point</i>	(BEP)	= 40,95 %
<i>Shut Down Point</i>	(SDP)	= 19,59 %
<i>Pay Out Time before Taxes</i>	(POT) _b	= 2,19 years
<i>Pay Out Time after Taxes</i>	(POT) _a	= 2,60 years
<i>Return on Investment before Taxes</i>	(ROI) _b	= 30,27 %
<i>Return on Investment after Taxes</i>	(ROI) _a	= 24,22 %

Discounted Cash Flow (DCF) = 30,89 %

Mempertimbangkan rangkuman di atas, sudah selayaknya pendirian pabrik *Diocetyl Terephthalate* ini dikaji lebih lanjut, karena merupakan pabrik yang menguntungkan dan mempunyai prospek yang baik.

ABSTRACT

DESIGN OF DIOCTYL TEREPHTHALATE FACTORY FROM TEREPHTHALIC ACID AND 2-ETHYL-1-HEXANOL WITH SULFURIC ACID CATALYST CAPACITY 20,000 TON/YEAR (Continuous Stirred Tank Reactor (RE-201))

By

YOGA RIYANTO

Dioctyl Terephthalate is a product of the chemical industry, namely a phthalate-free plasticizer that is used as a raw material for making polyvinyl chloride (PVC) and ethylcellulose resin to produce plastic film, imitation leather, electric wire, and cable wrapping. Dioctyl Terephthalate can be produced by several processes, namely 1) the esterification process, and 2) the transesterification process. Provision of factory utility needs in the form of a water treatment and supply system, a steam supply system, cooling water, a compressed air supply system, and a power generation system.

The factory's production capacity is planned to be 20,000 tons/year with 330 working days in 1 year. The factory location is planned to be established in the Cilegon area, Banten. The workforce is 130 people in the form of a Limited Liability Company (PT) business entity led by a Main Director who is assisted by a Director of Production and the Director of Finance with a line and staff organizational structure.

From the economic analysis, obtained:

<i>Fixed Capital Investment</i>	(FCI)	= Rp 286.093.169.584,-
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<i>Return on Investment after Taxes</i>	(ROI) _a	= 24,22 %
<i>Discounted Cash Flow</i>	(DCF)	= 30,89 %

Considering the summary above, it is appropriate that the establishment of the Dioctyl Terephthalate factory be studied further, because it is a profitable plant and has good prospects.