

ABSTRAK

PRARANCANGAN PABRIK *BUTYLENE OXIDE* DARI 2-BUTENE DAN OKSIGEN DENGAN KATALIS *VANADIUM NAPHTHENATE OXIDE* KAPASITAS 32.000 TON/TAHUN (Tugas Khusus Perancangan Reaktor Gelembung 201 (RE-201))

Oleh

Tika Novarani

Butylene Oxide merupakan salah satu produk industri kimia yang digunakan sebagai bahan baku pembuatan polioli poliester dan polieter, pelarut *methyl chloroform* pada *metal cleaning*, sebagai bahan baku *butylene glycol* dan *comonomer* dalam pembuatan *nonionic surfactant*. *Butylene Oxide* dapat di produksi dengan beberapa proses yaitu 1) Proses Hidrogenasi *Vinyloxirane*, 2) Proses Oksidasi *2-butene*, dan 3) Proses Klorohidrinasi *butene* dan dehidroklorinasi *butylene chlorohidrin*. 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 32.000 ton/tahun dengan 330 hari kerja dalam 1 tahun. Lokasi pabrik direncanakan didirikan di daerah Cilegon, Banten. Tenaga kerja yang dibutuhkan sebanyak 141 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 395.563.009.491
<i>Working Capital Investment</i>	(WCI)	= Rp 69.805.236.969
<i>Total Capital Investment</i>	(TCI)	= Rp 465.368.246.460
<i>Break Even Point</i>	(BEP)	= 41,83%
<i>Shut Down Point</i>	(SDP)	= 27,80%
<i>Pay Out Time after taxes</i>	(POT) _a	= 1,49 tahun
<i>Return on Investment after taxes</i>	(ROI) _a	= 46,30%

Mempertimbangkan rangkuman di atas, sudah seleyaknya pendirian pabrik *Butylene Oxide* ini dikaji lebih lanjut, karena merupakan pabrik yang menguntungkan dan mempunyai prospek yang baik.

ABSTRACT

PRE DESIGN BUTYLENE OXIDE PLANT FROM 2-BUTENE AND OXYGEN WITH VANADIUM NAPHTHENATE OXIDE CATALYST CAPACITY 32.000 TONS/YEAR (Bubble Reactor Design 201 (RE-201))

By

Tika Novarani

Butylene Oxide is one of the chemical industry products used as raw material for the manufacture of polyester and polyether polyols, methyl chloroform solvents in metal cleaning, as raw material for butylene glycol and comonomers in the manufacture of nonionic surfactants. Butylene Oxide can be produced with several processes, namely 1) Process of 2-Butene Oxidation, 2) Hydrogenation Process of Vinyloxirane, and 3) Process of Dehydrochlorination of Butylene chlorohydrin and Chlorohidration of Butene. Provision of utility plant needs in the form of water treatment and supply systems, steam supply systems, cooling water, compressed air supply systems, and power generation systems.

The factory production capacity is planned for 32,000 tons/year with 330 working days in 1 year. The factory location is planned to be established in the Cilegon area, Banten. The workforce needed is 141 people with a form of business entity Limited Liability Company (PT) led by a Managing Director who is assisted by Director of Production and Technical, Commercial, Human Resources and General Affairs with line and staff organizational structures.

By the economic analysis, pre design of this plant investment is obtained:

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Considering the summary above, it is appropriate to establish a Butylene Oxide plant to be studied further, because it is a profitable factory and has good prospects.