

## ABSTRAK

### PRARANCANGAN PABRIK GLISEROL DARI ALIL ALKOHOL DAN HIDROGEN PEROKSIDA KAPASITAS 15.000 TON/TAHUN (Tugas Khusus Perancangan *Continuous Stirred Tank Reactor (RE-201)*)

Oleh

NAZALNI AHZAM

Gliserol merupakan salah satu produk industri kimia yang saat ini sedang marak digunakan sebagai bahan baku pada industri pangan, farmasi, hingga kosmetik. Proses pembuatan gliserol yang umum digunakan adalah dengan mereaksikan bahan baku alil alkohol dan hidrogen peroksida dengan melewati beberapa proses diantaranya 1) Tahap pembentukan produk, 2) Tahap pemurnian produk, dan 3) Tahap penyimpanan produk. Penyediaan kebutuhan utilitas pabrik berupa sistem pengolahan dan penyediaan air, sistem penyediaan *steam*, *cooling water*, dan sistem pembangkit tenaga listrik.

Kapasitas produksi pabrik direncanakan 15.000 ton/tahun dengan 330 hari kerja dalam 1 tahun. Lokasi pabrik direncanakan didirikan di daerah Karawang Jawa barat. Tenaga kerja yang dibutuhkan sebanyak 131 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 216.921.824.120
<i>Working Capital Investment</i>	(WCI)	= Rp 38.280.321.903
<i>Total Capital Investment</i>	(TCI)	= Rp 255.202.146.024
<i>Break Even Point</i>	(BEP)	= 40%
<i>Shut Down Point</i>	(SDP)	= 25%
<i>Pay Out Time before taxes</i>	(POT) <sub>b</sub>	= 2,32 years
<i>Pay Out Time after taxes</i>	(POT) <sub>a</sub>	= 3,74 years
<i>Return on Investment before taxes</i>	(ROI) <sub>b</sub>	= 28%
<i>Return on Investment after taxes</i>	(ROI) <sub>a</sub>	= 22%
<i>Discounted cash flow</i>	(DCF)	= 29%

Mempertimbangkan rangkuman di atas, penulis menyimpulkan bahwa pabrik Gliserol ini dapat dikaji lebih lanjut karena mempunyai prospek yang baik.

Kata kunci: gliserol, alil alkohol, hidrogen peroksida

## ABSTRACT

### PRE-DESIGN OF A GLYCEROL FACTORY FROM ALLYL ALCOHOL AND HYDROGEN PEROXIDE WITH A CAPACITY OF 15,000 TONS/YEAR (Continuous Stirred Tank Reactor Design (RE-201))

By

NAZALNI AHZAM

Glycerol is a product of the chemical industry and is currently widely used as a raw material in the food, pharmaceutical, and cosmetic industries. Raw materials allyl alcohol and hydrogen peroxide by going through several processes, including 1) the product formation stage, 2) the product purification stage, and 3) the product storage stage. Provision of factory utility needs in the form of a water treatment and supply system, a steam supply system, cooling water, and a power generation system.

The factory's production capacity is planned to be 15,000 tons per year, with 330 working days in a year. The factory location is planned to be established in the Karawang area of West Java. The required workforce is 131 people in the form of a Limited Liability Company (PT) business entity led by a Main director, who is assisted by the 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 216.921.824.120
<i>Working Capital Investment</i>	(WCI)	= Rp 38.280.321.903
<i>Total Capital Investment</i>	(TCI)	= Rp 255.202.146.024
<i>Break Even Point</i>	(BEP)	= 40%
<i>Shut Down Point</i>	(SDP)	= 25%
<i>Pay Out Time before taxes</i>	(POT) <sub>b</sub>	= 2,32 years
<i>Pay Out Time after taxes</i>	(POT) <sub>a</sub>	= 3,74 years
<i>Return on Investment before taxes</i>	(ROI) <sub>b</sub>	= 28%
<i>Return on Investment after taxes</i>	(ROI) <sub>a</sub>	= 22%
<i>Discounted cash flow</i>	(DCF)	= 29%

Considering the summary above, the authors conclude that this Glycerol factory can be studied further because it has good prospects.

Keyword: glycerol, allyl alcohol, hydrogen peroxide