

ABSTRAK

PRA-RANCANGAN PABRIK PROPENA (PROPILEN) DARI LPG DENGAN METODE DEHIDROGENASI PROPANA BERKAPASITAS 100.000 TON/TAHUN (Perancangan Reaktor (RE – 301))

Oleh

FAJAR RIZA FAHLEVI

Propilen merupakan salah satu produk industri kimia yang digunakan sebagai bahan baku pembuatan, polipropilen, propilen oksida, akrilonitril, butiraldehid, dan asam akrilat. Propilen dapat di produksi dengan beberapa proses yaitu 1) proses metatesis butilen dan etilen, 2) proses dehidrogenasi propana. Dalam prarancangan pabrik propilen ini dipilih proses dehidrogenasi propana. Kapasitas produksi pabrik direncanakan 100.000 ton/tahun dengan 330 hari kerja dalam 1 tahun. Lokasi pabrik direncanakan didirikan di Kawasan Industri JIPE Gresik, Kab. Gresik, Jawa Timur. Tenaga kerja yang dibutuhkan sebanyak 117 orang dengan bentuk badan usaha Perseroan Terbatas (PT) yang dipimpin oleh seorang Direktur Utama yang dibantu oleh Direktur Produksi dan Direktur Pemasaran dan Keuangan dengan struktur organisasi *line and staff*.

Dari analisis ekonomi diperoleh:

<i>Fixed Capital Investment</i>	(FCI)	= Rp. 2.903.118.967.988
<i>Working Capital Investment</i>	(WCI)	= Rp. 512.315.111.998
<i>Total Capital Investment</i>	(TCI)	= Rp. 3.415.434.079.986
<i>Break Even Point</i>	(BEP)	= 30%
<i>Shut Down Point</i>	(SDP)	= 10%
<i>Pay Out Time before taxes</i>	(POT) ^b	= 2,265 years
<i>Pay Out Time after taxes</i>	(POT) ^a	= 2,680 years
<i>Return on Investment before taxes</i>	(ROI) ^b	= 29%
<i>Return on Investment after taxes</i>	(ROI) ^a	= 23%
<i>Discounted Cash Flow</i>	(DCF)	= 30%

Mempertimbangkan rangkuman di atas, pabrik propilen ini layak untuk didirikan karena merupakan pabrik yang menguntungkan dan mempunyai prospek yang baik.

ABSTRACT

PRE-DESIGN OF PROPENE (PROPYLENE) FACTORY FROM LPG WITH PROPANE DEHYDROGENATION METHOD CAPACITY OF 100,000 TONS/YEAR (Reactor Design (RE – 301))

By

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Propylene is one of the chemical industry products that is used as a raw material for manufacturing, polypropylene, propylene oxide, acrylonitrile, butyaldehyde, and acrylic acid. Propylene can be produced by several processes, namely 1) butylene and ethylene metathesis process, 2) propane dehydrogenation process. In the pre-design of this propylene plant, the propane dehydrogenation process was chosen. The planned production capacity of the factory is 100,000 tons/year with 330 working days in 1 year. The location of the factory is planned to be established in the JIPE Gresik Industrial Estate, Kab. Gresik, East Java. The workforce needed is 117 people in the form of a Limited Liability Company (PT) business entity led by a President Director who is assisted by the Production Director and Marketing and Finance Director with a line and staff organizational structure.

From the economic analysis obtained:

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Considering the above summary, this propylene plant is feasible to establish because it is a profitable factory and has good prospects.