ABSTRAK

PRARANCANGAN PABRIK GLUKOSA DARI SABUT KELAPA DENGAN METODE HIDROLISIS ASAM FOSFAT 40.000 TON/TAHUN

(Tugas Khusus Perancangan *Reactor*-02)

Oleh
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Glukosa merupakan salah satu produk industri kimia yang digunakan sebagai bahan baku dalam industri makanan, farmasi, dan produksi kimia lainnya. Glukosa dapat diproduksi dari sabut kelapa melalui proses hidrolisis enzimatik dan fermentasi. Penyediaan kebutuhan utilitas pabrik berupa sistem pengolahan dan penyediaan air, cooling water, sistem penyediaan udara kering, sistem pembangkit tenaga listrik, sistem refrigerasi dan sistem pembakaran gas.

Kapasitas produksi pabrik direncanakan 40.000 ton/tahun dengan 330 hari kerja dalam 1 tahun. Lokasi pabrik direncanakan didirikan di daerah industri Kabupaten Indragiri Hilir, Provinsi Riau. Tenaga kerja yang dibutuhkan sebanyak 113 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 :

Fixed Capital Investment (FCI)	= Rp.691.852.144.024,57
Working Capital Investment (WCI)	= Rp.172.963.036.006,14
Total Cost Invesment (TCI)	= Rp.864.815.180.030,71
Break Event Point (BEP)	= 59,78%
Shut Down Point (SDP)	= 23,15%
Pay Out Time after Taxes $(POT)_a$	= 2,920 tahun
Return on Investment before taxes $(ROI)_b$	= 24,25%
Return on Investment after taxes $(ROI)_a$	= 19,40%
Discounted Cash Flow (DCF)	= 51,31%

Mempertimbangkan rangkuman di atas, sudah selayaknya pendirian pabrik glukosa dari sabut kelapa ini dikaji lebih lanjut, karena merupakan pabrik yang menguntungkan dan mempunyai prospek yang baik.

Kata Kunci : Pabrik Glukosa, Sabut Kelapa, *Reactor*-02

ABSTRACT

PRE-DESIGN OF A GLUCOSE PLANT FROM COCONUT FIBER WITH PHOSPHORIC ACID HYDROLYSIS METHOD 40,000 TONS/YEAR (Reactor-02 Design)

By
Aziza Fitriani

Glucose is one of the important chemical industry products used as raw material in the food, pharmaceutical, and other chemical production industries. Glucose can be produced from coconut fiber through phosphoric acid hydrolysis and fermentation processes. The required plant utilities include water treatment and supply systems, cooling water systems, dry air supply systems, power generation systems, refrigeration systems, and gas combustion systems.

The plant is designed with a production capacity of 40,000 tons per year, operating 330 days annually. The proposed plant location is the industrial area of Indragiri Hilir Regency, Riau Province. The workforce requirement is 113 employees. The business entity will be established as a Limited Liability Company (PT), led by a President Director, assisted by a Production Director and a Finance Director, with an organizational structure based on the line-and-staff model.

From the economic analysis, the following results were obtained :

Fixed Capital Investment (FCI)	= Rp. 691.852.144.024,57
Working Capital Investment (WCI)	= Rp. 172.963.036.006,14
Total Cost Invesment (TCI)	= Rp. 864.815.180.030,71
Break Event Point (BEP)	= 59,78%
Shut Down Point (SDP)	= 23,15%
Pay Out Time after Taxes $(POT)_a$	= 2,920 years
Return on Investment before taxes $(ROI)_b$	= 24,25%
Return on Investment after taxes $(ROI)_a$	= 19,40%
Discounted Cash Flow (DCF)	= 51,31%

Considering the summary above, the establishment of this Glucose plant deserves further evaluation, as it is a profitable project with strong future prospects.

Keywords : Glucose Plant, Coconut Fiber, Reactor-02