

ABSTRAK

PRARANCANGAN PABRIK SIRUP GLUKOSA DARI BATANG UBI KAYU DENGAN KAPASITAS 35.000 TON/TAHUN Tugas Khusus Perancangan *Reactor* (RE-201)

Oleh

FRANSISCA RICA SIDAURUK

Pabrik Sirup Glukosa dari Biomassa Batang Ubi Kayu, akan didirikan di Desa Gunung Batin Udik, Kecamatan Terusan Nunyai, Lampung Tengah Provinsi Lampung. Pabrik ini berdiri dengan mempertimbangkan ketersediaan bahan baku, sarana transportasi yang memadai, tenaga kerja yang mudah didapatkan dan kondisi lingkungan.

Pabrik ini direncanakan memproduksi Sirup Glukosa sebanyak 35.000 ton/tahun, dengan waktu operasi 24 jam/hari, 330 hari/tahun. Bahan baku yang digunakan adalah Batang Ubi Kayu sebanyak 10.531,0666 kg/jam.

Penyediaan kebutuhan utilitas pabrik Sirup Glukosa terdiri dari unit penyediaan air, unit pembangkit steam, unit penyedia udara instrument, unit pembangkit dan pendistribusian listrik dan unit pengolahan limbah. Bentuk perusahaan adalah Perseroan Terbatas (PT) menggunakan struktur organisasi *line* dan *staff* dengan jumlah karyawan sebanyak 179 orang.

Dari analisis ekonomi diperoleh :

<i>Fixed Capital Investment</i>	(FCI)	= Rp 518.586.266.207
<i>Working Capital Investment</i>	(WCI)	= Rp 91.515.223.448
<i>Total Capital Investment</i>	(TCI)	= Rp 610.101.489.655
<i>Break Even Point</i>	(BEP)	= 50,56 %
<i>Shut Down Point</i>	(SDP)	= 28,01 %
<i>Pay Out Time before taxes</i>	(POT) _b	= 2,8 years
<i>Pay Out Time after taxes</i>	(POT) _a	= 3,27 years
<i>Return on Investment before taxes</i>	(ROI) _b	= 21,86 %
<i>Return on Investment after taxes</i>	(ROI) _a	= 17,49 %
<i>Discounted cash flow</i>	(DCF)	= 23,37 %

Berdasarkan paparan di atas, maka pendirian Pabrik Sirup Glukosa ini layak untuk dikaji lebih lanjut, karena merupakan pabrik yang menguntungkan dari sisi ekonomi dan mempunyai prospek yang relatif cukup baik.

ABSTRACT

FACTORY DESIGN OF GLUCOSE SYRUP FROM CASSAVA STEMS WITH CAPACITY 35.000 TONS/YEAR Design Of Reactor (RE-201)

By

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The Glucose Syrup Factory from Cassava Stems Biomass will be established in Gunung Batin Udik Village, Terusan Nunyai District, Lampung Tengah, Llampung Province. This factory was established by considering the availability of raw materials, adequate transportation facilities, easily available labors and environmental conditions.

This factory is planned to produce Glucose Syrup as much as 35.000 tons/year, with operating time 24 hours/day, 330 days/year. The raw material used is cassava stems as much as 10.531,0666 kg/hour.

The supply of the utility needs of the Glucose Syrup Factory consists of a water supply unit, a steam generator unit, an instrument air supply unit, a power generation and distribution unit and a waste treatment unit. The form of the company is a Limited Liability Company (PT) using a line and staff organizational structure with a total of 179 employees.

From the economic analysis, it is obtained that :

<i>Fixed Capital Investment</i>	(FCI)	= Rp 1.148.802.386.767
<i>Working Capital Investment</i>	(WCI)	= Rp 202.729.832.959
<i>Total Capital Investment</i>	(TCI)	= Rp 1.351.532.219.726
<i>Break Even Point</i>	(BEP)	= 45,68 %
<i>Shut Down Point</i>	(SDP)	= 22,46 %
<i>Pay Out Time before taxes</i>	(POT) _b	= 2,62 years
<i>Pay Out Time after taxes</i>	(POT) _a	= 3,08 years
<i>Return on Investment before taxes</i>	(ROI) _b	= 19,13 %
<i>Return on Investment after taxes</i>	(ROI) _a	= 23,92 %
<i>Discounted cash flow</i>	(DCF)	= 29,93 %

Based on the explanation above, the establishment of The Glucose Syrup Plant deserves to be studied further, because it is a profitable factory from an economic point of view and has relatively good prospects.