

## ABSTRAK

### PRARANCANGAN PABRIK *PRESIPITATED SILICA* DARI BAGAS TEBU, NaOH Dan HCL DENGAN KAPASITAS 40.000 TON/TAHUN (Prarancangan Reaktor (R-101))

Oleh  
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Prarancangan presipitated silica dari bagas tebu, NaOH dan HCl direncanakan akan didirikan di daerah Mataram Udik Kecamatan Bandar Mataram, Lampung Tengah, Provinsi Lampung dengan mempertimbangkan ketersediaan bahan baku, tujuan pemasaran dan sarana transportasi yang memadai. Pabrik direncanakan memproduksi presipitated silica sebanyak 40.000 ton/tahun beroperasi secara kontinyu dengan waktu operasi 24 jam/hari, dan 330 hari/tahun. Bahan baku yang digunakan bagas tebu sebanyak 50.829,532 kg/jam, NaOH 48% sebanyak 1.991,7974 kg/jam dan HCl 37% sebanyak 12.312,2620 kg/jam.

Penyediaan kebutuhan utilitas pabrik berupa penyediaan air, udara instrumen, unit pengolahan steam, pengolahan limbah cair dan padat, dan listrik. Dari analisis pabrik presipitated silica diperoleh:

<i>Fix Capital Investment</i>	(FCI) = Rp767.063.629.746,38
<i>Working Capital Investment</i>	(WCI) = Rp135.364.169.955,24
<i>Total Capital Investment</i>	(TCI) = Rp902.427.799.701,62
<i>Break Even Point</i>	(BEP) = 33%
<i>Shut Down Point</i>	(SDP) = 26%
<i>Pay Out Time before taxes</i>	(POT) <sub>b</sub> = 2,206 Tahun
<i>Pay Out Time after taxes</i>	(POT) <sub>a</sub> = 1,846 Tahun
<i>Return on Investment before taxes</i>	(ROI) <sub>b</sub> = 38%
<i>Return on Investment after taxes</i>	(ROI) <sub>a</sub> = 30%
<i>Discounted Cash Flow</i>	(DCF) = 22%

Merujuk pada paparan diatas, sudah selayaknya pendirian pabrik presipitated silica dari bagas tebu dapat dikaji lebih lanjut dari segi proses maupun ekonominya.

Kata kunci :

Presipitated silica, bagas tebu, NaOH, HCl.

**PREDESIGN OF PRECIPITATED SILICA FROM SUGARCANE  
BAGASSE, NaOH And HCl WITH CAPACITY  
40,000 TON/YEAR  
(Designed of Reactor (R-101))**

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Precipitated silica from sugarcane bagasse, NaOH and HCl is planned to be established in the Mataram Udik area, Bandar Mataram District, Central Lampung, Lampung Province by considering the availability of raw materials, marketing purposes and adequate transportation facilities. The factory is planned to produce 40,000 tons/year of precipitated silica, operating continuously with an operating time of 24 hours/day, and 330 days/year. The raw materials used are 50,829.532 kg/hour bagasse, NaOH 48% 1,991,7974 kg/hour and 37% HCl 12,312,2620 kg/hour.

Provision of factory utility needs in the form of water supply, instrument air, steam processing unit, liquid and solid waste treatment, and electricity. From the factory analysis of precipitated silica obtained:

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Referring to the explanation above, it is appropriate that the establishment of a precipitated silica factory from sugarcane bagasse can be studied further from a process and economic perspective.

keywords:

Precipitated silica, sugarcane bagasse, NaOH, HCl