

## ABSTRACT

### PREDESIGN OF DICALCIUM PHOSPHATE DIHYDRATE PLANT FROM PHOSPHORIC ACID AND CALCIUM HYDROXIDE WITH CAPACITY 60.000 TONS/YEAR

(Rotary Dryer Design (RD-301))

By

NIDA NABILA RIADI

A plant to produce dicalcium phosphate dihydrate from phosphoric acid and calcium hydroxide, is planned to be located at Gresik, East Java. The plant is established by considering availability of raw materials, transportation facilities, readily available labor and environmental conditions.

Capacity of the plant is 60.000 tons/year operating 24 hour/day and 330 working days/ year. The plant required 4.452,728 kg/h of phosphoric acid; 3.362,264 kg/h of calcium hydroxide.

Quantity of labor is around 131 people. The plant is managed as a Limited Liability Company (PT), which is headed by a Director. The company is organized in the form of line and staff structure.

From analysis of the plant economy is obtained:

<i>Fixed Capital Investment (FCI)</i>	= Rp. 1.182.561.517.603,350
<i>Working Capital Investment (WCI)</i>	= Rp. 208.687.326.635,885
<i>Total Capital Investment (TCI)</i>	= Rp. 1.391.248.844.239,-
<i>Break Even Point (BEP)</i>	= 51,87 %
<i>Shut Down Point (SDP)</i>	= 26,74 %
<i>Pay Out Time after Taxes (POT)<sub>a</sub></i>	= 3,21 tahun
<i>Return on Investment after Taxes (ROI)<sub>a</sub></i>	= 18,004%
<i>Discounted Cash Flow (DCF)</i>	= 30,83%

By considering above the summary, it is suitable study further the n-butanol plant since plant is profitable and has good prospects.

## ABSTRAK

### PRARANCANGAN PABRIK DIKALSIMUM FOSFAT DIHIDRAT DARI ASAM FOSFAT DAN KALSIMUM HODROKSIDA DENGAN KAPASITAS 60.000 TON/TAHUN

(Perancangan Rotary Dryer (RD-301))

Oleh

**NIDA NABILA RIADI**

Pabrik dikalsium fosfat dihidrat dari asam fosfat dan kalsium hidroksida, akan didirikan di Gresik, Jawa Timur. Pabrik ini berdiri dengan mempertimbangkan ketersediaan bahan baku, sarana transportasi yang memadai, tenaga kerja yang mudah didapatkan dan kondisi lingkungan.

Pabrik direncanakan memproduksi dikalsium fosfat dihidrat sebanyak 69.000 ton/tahun, dengan waktu operasi 24 jam/hari, 330 hari/tahun. Bahan baku yang digunakan adalah asam fosfat sebanyak 4.452,728 kg/jam dan kalsium hidroksida sebanyak 3.362,264 kg/jam.

Jumlah karyawan sebanyak 131 orang dengan bentuk perusahaan adalah Perseroan Terbatas (PT) yang dipimpin oleh seorang direktur. Sistem manajemen perusahaan menggunakan struktur organisasi *line* dan *staff*.

Dari analisis ekonomi diperoleh:

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<i>Discounted Cash Flow</i> (DCF)	= 30,83%

Mempertimbangkan paparan di atas, sudah selayaknya pendirian pabrik n-butanol ini dikaji lebih lanjut, karena merupakan pabrik yang menguntungkan dan mempunyai masa depan yang baik.