

## ABSTRAK

### PRARANCANGAN PABRIK T-BUTYL ALCOHOL DARI ISOBUTENE DAN WATER DENGAN KAPASITAS 35.000 TON/TAHUN

(Perancangan Reaktor (RE-201))

Oleh

EKA NUR'AINI

Pabrik *t-Butyl Alcohol* berbahan baku *Isobutene* dan *Water* direncanakan untuk didirikan di Kecamatan Kragilan, Serang, Banten. Pendirian pabrik ini didasarkan atas kebutuhan dalam negeri yang setiap tahun terus mengalami peningkatan dan belum tersedianya pabrik yang memproduksi *t-Butyl Alcohol*.

Pabrik direncanakan memproduksi *t-Butyl Alcohol* sebanyak 35.000 ton/tahun, dengan waktu operasi 24 jam/hari, 330 hari/tahun. Bahan baku yang digunakan adalah *Isobutene* sebanyak 3.414,383 kg/jam dan *Water* sebanyak 1.205,930 kg/jam.

Penyediaan kebutuhan utilitas pabrik *t-Butyl Alcohol* terdiri dari unit pengolahan dan penyediaan air, unit penyedia steam, unit penyedia udara tekan dan unit pembangkit tenaga listrik. Bentuk perusahaan adalah Perseroan Terbatas (PT) menggunakan struktur organisasi *line and staff* dengan jumlah karyawan sebanyak 182 orang.

Dari analisis ekonomi diperoleh:

<i>Fixed Capital Investment</i>	(FCI) =	Rp 456.357.646.030,29
<i>Working Capital Investment</i>	(WCI) =	Rp 114.089.411.507,57
<i>Total Capital Investment</i>	(TCI) =	Rp 570.447.057.537,86
<i>Break Even Point</i>	(BEP) =	45,25 %
<i>Shut Down Point</i>	(SDP) =	28,11 %
<i>Pay Out Time before taxes</i>	(POT) <sub>b</sub> =	1,788 tahun
<i>Pay Out Time after taxes</i>	(POT) <sub>a</sub> =	2,139 tahun
<i>Return on Investment before taxes</i>	(ROI) <sub>b</sub> =	36,75 %
<i>Return on Investment after taxes</i>	(ROI) <sub>a</sub> =	29,40 %
<i>Interest Rate of Return</i>	(IRR) =	44,66 %

Mempertimbangkan paparan diatas, sudah selayaknya pendirian pabrik *t-Butyl Alcohol* ini dikaji lebih lanjut, karena merupakan pabrik yang menguntungkan dan memiliki masa depan yang baik.

## ABSTRACT

### PREDESIGN OF T-BUTYL ALCOHOL FROM ISOBUTENE AND WATER WITH CAPACITY 35.000 TONS/YEARS

(Reactor Design (RE-201))

By

EKA NUR'AINI

A *t-Butyl Alcohol* plant made from *Isobutene* and *Water* will be established in Kragilan District, Serang, Banten. The established of the factory was based on domestic demand that increased every year and absence of a factory producing *t-Butyl Alcohol*.

This plant is planned to produce 35.000 tons/year of *t-Butyl Alcohol*, with an operating time of 24 hours/day, 330 days/year. The plant required 3.414,383 kg/hour of *Isobutene* and 1.205,930 kg/hour of *Water*.

The *t-Butyl Alcohol* plant also require various utilities, including water treatment and supply system, steam supply system, compressed air supply system and power generation system. Labor needed in this plant as many as 182 people with a bussiness entity form Limited Liability Company (PT) with line and staff organizational structure.

The economic analysis shows the following result:

<i>Fixed Capital Investment</i>	(FCI) =	Rp 456.357.646.030,29
<i>Working Capital Investment</i>	(WCI) =	Rp 114.089.411.507,57
<i>Total Capital Investment</i>	(TCI) =	Rp 570.447.057.537,86
<i>Break Even Point</i>	(BEP) =	45,25 %
<i>Shut Down Point</i>	(SDP) =	28,11 %
<i>Pay Out Time before taxes</i>	(POT) <sub>b</sub> =	1,788 tahun
<i>Pay Out Time after taxes</i>	(POT) <sub>a</sub> =	2,139 tahun
<i>Return on Investment before taxes</i>	(ROI) <sub>b</sub> =	36,75 %
<i>Return on Investment after taxes</i>	(ROI) <sub>a</sub> =	29,40 %
<i>Interest Rate of Return</i>	(IRR) =	44,66 %

By considering the summary, it is proper establishment of *t-Butyl Alcohol* plant for studied further, because the plant is profitable and has good prospects future.