

ABSTRAK

PRARANCANGAN PABRIK ASAM AKRILAT DARI GLISEROL DENGAN KAPASITAS 95.000 TON/TAHUN (Perancangan *Distillation Coloumn* (DC-301))

Oleh

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Pabrik asam akrilat berbahan baku gliserol, direncanakan didirikan di Dumai, Riau. Pendirian pabrik berdasarkan atas pertimbangan ketersediaan bahan baku, sarana transportasi yang memadai, tenaga kerja yang mudah didapatkan dan kondisi lingkungan.

Pabrik direncanakan memproduksi asam akrilat sebanyak 95.000 ton/tahun, dengan waktu operasi 24 jam/hari, 300 hari/tahun. Bahan baku yang digunakan adalah gliserol sebanyak 35.028,546 kg/jam.

Penyediaan kebutuhan utilitas pabrik terdiri dari unit pengadaan air, pengadaan *steam*, pengadaan air proses, pengadaan air pendingin, pengadaan udara proses dan udara instrument, pengadaan listrik, pengadaan *gas oil* dan pengolahan limbah.

Bentuk perusahaan adalah Perseroan Terbatas (PT) menggunakan struktur organisasi *line* dan *staff* dengan jumlah karyawan sebanyak 135 orang.

Dari analisis ekonomi diperoleh:

| | | | |
|--|--------------------|---|-----------------------|
| <i>Fixed Capital Investment</i> | (FCI) | = | Rp. 368.023.660.373,- |
| <i>Working Capital Investment</i> | (WCI) | = | Rp. 64.945.351.830,- |
| <i>Total Capital Investment</i> | (TCI) | = | Rp. 432.969.012.203,- |
| <i>Break Even Point</i> | (BEP) | = | 30,003% |
| <i>Shut Down Point</i> | (SDP) | = | 25,021% |
| <i>Pay Out Time before taxes</i> | (POT) ^b | = | 2,25 tahun |
| <i>Pay Out Time after taxes</i> | (POT) ^a | = | 2,36 tahun |
| <i>Return on Investment before taxes</i> | (ROI) ^b | = | 65,22% |
| <i>Return on Investment after taxes</i> | (ROI) ^a | = | 58,70% |
| <i>Interest Rate of Return</i> | (IRR) | = | 89,21% |

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

Kata Kunci: Asam Akrilat, Dehidrasi, Gliserol, Oksidasi

ABSTRACT

MANUFACTURING OF ACRYLIC ACID FROM GLYCEROL WITH CAPACITY 95.000 TONS/YEAR (Design of Crystallizer (CR-201))

By

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Acrylic acid plant with raw materials glycerol is planned to be built in Dumai, Riau. Establishment of this plant is based on some consideration due to the raw material resources, the transportation, the labors availability and also the environmental condition.

This plant is meant to produce 95,000 tons/year with 300 working days in a year. The raw materials used consist of 35.028,546 kg/hour of glycerol.

The utility units consist of water supply system, steam supply system, instrument air supply system, power generation system, refrigerant supply system and waste treatment system.

The business entity form is Limited Liability Company (Ltd) using line and staff organizational structure with 135 workers.

From the economic analysis, it is obtained that:

| | | | |
|--|--------------------|---|-----------------------|
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| <i>Pay Out Time before taxes</i> | (POT) _b | = | 2,25 tahun |
| <i>Pay Out Time after taxes</i> | (POT) _a | = | 3,36 tahun |
| <i>Return on Investment before taxes</i> | (ROI) _b | = | 65,22% |
| <i>Return on Investment after taxes</i> | (ROI) _a | = | 58,70% |
| <i>Discounted cash flow</i> | (DCF) | = | 89,21% |

Considering the summary above, it is proper to study the establishment of Acrylic Acid plant further, because the plant is profitable and has good prospects.

Key Word: Acrylic Acid, Dehydration, Glycerol, Oxydation