

ABSTRACT

PREDESIGN OF A METHYL ACRYLATE PLANT FROM ACRYLIC ACID AND METHANOL WITH CAPACITY 60.000 TONS/YEAR

(Distillation Column Design (DC-301))

By

JIMMI HARIANTO PURBA

A plant to produce methyl acrylate from acrylic acid and methanol is planned to be located at Warnasari village, Citangkil Regency, Cilegon City, Banten. The location of this factory was chosen taking into account the availability of raw materials, adequate transportation facilities, easily 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 6.331,62 kg/h of acrylic acid and 3.658,27 kg/h of methanol.

Quantity of labor is around 164 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. 2.068.461.998.517,-
<i>Working Capital Investment (WCI)</i>	= Rp. 365.022.705.621,-
<i>Total Capital Investment (TCI)</i>	= Rp. 2.433.484.704.138,-
<i>Break Even Point (BEP)</i>	= 33 %
<i>Shut Down Point (SDP)</i>	= 11 %
<i>Pay Out Time after Taxes (POT)_a</i>	= 2.44 years
<i>Return on Investment after Taxes (ROI)_a</i>	= 26 %
<i>Discounted Cash Flow (DCF)</i>	= 33.12%

By considering the data from the analysis above, this methyl acrylate plant can be established because it is a profitable factory and has a good future.

ABSTRAK

PRARANCANGAN PABRIK METIL AKRILAT DARI ASAM AKRILAT DAN METANOL DENGAN KAPASITAS 60.000 TON/TAHUN

(Perancangan *Distillation Column* (DC-301))

Oleh

JIMMI HARIANTO PURBA

Pabrik metil akrilat dari bahan baku asam akrilat dan metanol akan didirikan di Kelurahan Warnasari, Kec. Citangkil, Kota Cilegon, Banten. Lokasi pabrik ini dipilih dengan mempertimbangkan ketersediaan bahan baku, sarana transportasi yang memadai, tenaga kerja yang mudah didapatkan dan kondisi lingkungan.

Pabrik direncanakan memproduksi metil akrilat sebanyak 60.000 ton/tahun, dengan waktu operasi 24 jam/hari, 330 hari/tahun. Bahan baku yang digunakan adalah asam akrilat sebanyak 6.331,62 kg/jam dan metanol sebanyak 3.658,27 kg/jam.

Jumlah karyawan sebanyak 164 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:

<i>Fixed Capital Investment</i> (FCI)	= Rp. 2.068.461.998.517,-
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<i>Return on Investment after Taxes</i> (ROI) _a	= 26 %
<i>Discounted Cash Flow</i> (DCF)	= 33,12%

Dengan mempertimbangkan data hasil analisis di atas, maka pabrik metil akrilat ini dapat didirikan karena merupakan pabrik yang menguntungkan dan mempunyai masa depan yang baik.