

ABSTRACT

PRARANCANGAN FACTORY POLYVINYL ALCOHOL POLYVININYL ACETATE AND METHANOL OF CAPACITY 40,000 TONS / YEAR (Design Tower Distillation (MD-01))

Oleh

Hermanto Sitompul

Polyvinyl Alcohol is a chemical intermediate that can be used as raw material for making paper. Polyvinyl alcohol needs to increase year to year. The biggest user of polyvinyl alcohol industry is an industry of paper and glue or other adhesives industry which is widely available in Indonesia. Needs polyvinyl alcohol is still imported because the factory polyvinyl alcohol are not in Indonesia

Polyvinyl alcohol factory with raw material polyvinyl acetate and methanol, will be established in Gresik, East Java with an area of 4.5 hectares. The factory is planned to produce polyvinyl alcohol as much as 40,000 tons / year, with operating time 24 hours / day, 330 days / year. The raw material used is polyvinyl acetate as 502.0227 kg / h and methanol 4060.8101 kg / hour, with multiple stages:

1. Mixing raw material polyvinyl acetate with methanol and sulfuric acid catalyst
2. Reacting polyvinyl acetate with methanol in the reactor CSTR
3. Purification of the product by using a centrifuge, distillation towers and rotary dryer.

Provision of plant utility requirements such as polyvinyl alcohol treatment system and water supply, steam supply system, compressed air supply systems and power generation systems. The shape of the company is a Limited Liability Company (PT), use the line organizational structure, with the number of employees about 132 people.

From the economic analysis is obtained:

<i>Fixed Capital Investment (FCI)</i>	= Rp 762.045.856.487
<i>Working Capital Investment (WCI)</i>	= Rp 134.478.680.557

<i>Manufacturing Cost</i>	= Rp 3.395.721.218.528
<i>General Expenses</i>	= Rp 359.992.923.657
<i>Total Production Cost (TPC)</i>	= Rp 3.755.714.142.185
<i>Break Even Point (BEP)</i>	= 47,8 %
<i>Pay Out Time before taxes (POT)</i>	= 4,7 year
<i>Return on Investment before taxes (ROI)_b</i>	= 17 %
<i>Return on Investment after taxes (ROI)_a</i>	= 15 %
<i>Shut Down Point</i>	= 22,1 %
<i>Discounted cash flow (DCF)</i>	= 41,7 %

Taking into consideration the above summary, it is proper establishment of factories polyvinyl alcohol is studied further, because it is a plant that are profitable and have good prospects.

ABSTRAK

PRARANCANGAN PABRIK POLIVINIL ALKOHOL DARI POLIVINIL ASETAT DAN METHANOL KAPASITAS 40.000 TON/TAHUN (Perancangan Menara Destilasi (MD-01))

Oleh

Hermanto Sitompul

Polivinil Alkohol merupakan bahan kimia antara yang dapat dijadikan bahan baku untuk pembuatan kertas. Kebutuhan polivinil alkohol meningkat dari tahun-ketahun. Pengguna terbesar industri polivinil alkohol adalah industri kertas dan lem atau industri perekat lainnya yang banyak terdapat di Indonesia. Kebutuhan polivinil alkohol masih dipenuhi dari impor karena pabrik polivinil alkohol belum ada di Indonesia.

Pabrik polivinil alkohol dengan bahan baku polivinil asetat dan methanol, akan didirikan di Gresik, Jawa Timur dengan luas 4,5 hektar. Pabrik ini direncanakan memproduksi polivinil alkohol sebanyak 40.000 ton/tahun, dengan waktu operasi 24 jam/hari, 330 hari/tahun. Bahan baku yang digunakan adalah polivinil asetat sebanyak 502,0227 kg/jam dan methanol 4.060,8101 kg/jam, dengan beberapa tahap :

1. Pencampuran bahan baku polivinil asetat dengan methanol dan katalis asam sulfat
2. Mereaksikan polivinil asetat dengan methanol di reaktor CSTR
3. Pemurnian produk dengan menggunakan centrifuge, menara distilasi dan rotary dryer.

Penyediaan kebutuhan utilitas pabrik polivinil alkohol berupa sistem pengolahan dan penyediaan air, sistem penyediaan *steam*, sistem penyediaan udara tekan dan sistem pembangkit tenaga listrik. Bentuk perusahaan adalah Perseroan Terbatas (PT), menggunakan struktur organisasi garis, dengan jumlah karyawan sebanyak 132 orang.

Dari analisis ekonomi diperoleh:

<i>Fixed Capital Investment</i> (FCI)	= Rp 762.045.856.487
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Mempertimbangkan rangkuman di atas, sudah selayaknya pendirian pabrik polivinil alkohol ini dikaji lebih lanjut, karena merupakan pabrik yang menguntungkan dan mempunyai prospek yang baik.