

## ABSTRAK

### PRARANCANGAN PABRIK MONOETILEN GLIKOL ( $C_2H_6O_2$ ) DARI ETILEN OKSIDA ( $C_2H_4O$ ) MELALUI PROSES HIDRASI KATALITIK DENGAN KAPASITAS 85.000 TON/TAHUN (Perancangan Menara Distilasi (MD-301))

Oleh

**Didi Wardoyo**

Pabrik monoetilen glikol berbahan baku etilen oksida dan air, akan didirikan di Kec. Citangkil, Kota Cilegon, Banten. Pabrik ini berdiri dengan mempertimbangkan ketersediaan bahan baku, sarana transportasi yang memadai, tenaga kerja yang mudah didapatkan dan kondisi lingkungan. Pabrik direncanakan memproduksi monoetilen glikol sebanyak 85.000 ton/tahun, dengan waktu operasi 24 jam/hari, 330 hari/tahun. Bahan baku yang digunakan adalah etilen oksida sebanyak 7,876.148 kg/jam dan air sebanyak 4,833.091 kg/jam.

Jumlah karyawan sebanyak 146 orang dengan bentuk perusahaan adalah Perseroan Terbatas (PT) menggunakan struktur organisasi line dan staff. Dari analisis ekonomi diperoleh:

<i>Fixed Capital Investment (FCI)</i>	= Rp 470.558.108.990,-
<i>Working Capital Investment (WCI)</i>	= Rp 83.039.666.292,-
<i>Total Capital Investment (TCI)</i>	= Rp 553.597.775.283,-
<i>Break Even Point (BEP)</i>	= 51,81%
<i>Shut Down Point (SDP)</i>	= 47,06%
<i>Pay Out Time after Taxes (POT)<sub>a</sub></i>	= 3,52 tahun
<i>Return on Investment after Taxes (ROI)<sub>a</sub></i>	= 27,71%
<i>Internal Rate Return (IRR)</i>	= 36,4% %

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

## ABSTRACT

**PRADESIGN OF MONOETHYLENE GLYCOL PLANT (C<sub>2</sub>H<sub>6</sub>O<sub>2</sub>)  
FROM ETHYLENE OXIDE (C<sub>2</sub>H<sub>4</sub>O) WITH CATALYTIC  
HYDRATION PROCESS CAPACITY 85.000 TONS/YEAR  
(Design Distillation Column (MD-301))**

By

**Didi Wardoyo**

A plant to produce monoethylene glycol from ethylene oxide and water is planned to be located at Kec. Citangkil, Kota Cilegon, Banten. The plant is established by considering availability of raw materials, transportation facilities, readily available labor and environmental conditions. Capacity of the plant is 85.000 tons/year operating 24 hour/day and 330 working days/ year. The plant required 7,876.148 kg/h ethylene oxide and 4,833.091 kg/h water.

Quantity of labor is around 146 people. The plant is managed as a Limited Liability Company (PT), which is headed by a Director who is assisted by a Director of Production and Director of Finance. The company is organized in the form of line and staff structure. From analysis of the plant economy is obtained:

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By considering above the summary, it is suitable study further the monoethylene glycol plant since plant is profitable and has good prospects.