

ABSTRAK
PRARANCANGAN PABRIK ASETON DARI ISOPROPANOL DENGAN
PROSES DEHIDROGENASI KAPASITAS 15.000 TON/TAHUN
(Perancangan Kolom Distilasi (T-301))

Oleh :

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Pabrik Aseton (C_3H_6O) berbahann baku isopropanol (C_3H_8O) dengan proses dehidrogenasi menggunakan katalis Cu/Pt, direncanakan akan didirikan di Cilegon, Banten. Pendirian pabrik berdasarkan atas pertimbangan dekat dengan akses pemasaran, sarana transportasi yang memadai, kebutuhan utilitas yang mencukupi, tenaga kerja yang mudah didapatkan dan kondisi lingkungan.

Pabrik ini direncanakan memproduksi aseton Aseton sebanyak 15.000 ton/tahun, dengan waktu operasi 24 jam/hari, 330 hari/tahun. Bahan baku yang digunakan berupa isopropanol.

Penyedia kebutuhan utilitas pabrik Aseton terdiri dari unit pengolahan air, udara tekan dan steam. Bentuk perusahaan adalah Perseroan Terbatas (PT) menggunakan struktur organisasi *Line and Staff* dengan jumlah karyawan 164 orang.

Dari analisis ekonomi diperoleh :

<i>Fixed Capital Investment</i>	(FCI)	= Rp. 301.568.650.165,518
<i>Working Capital Investment</i>	(WCI)	= Rp. 53.217.997.088,032
<i>Total Capital Investment</i>	(TCI)	= Rp. 354.786.647.253,550
<i>Break Event Point</i>	(BEP)	= 31,30 %
<i>Shut Down Point</i>	(SDP)	= 15,47 %
<i>Pay Out Time</i>	(POT) _a	= 2,1 tahun
<i>Return on Investment before taxes</i>	(ROI) _b	= 39,883 %
<i>Return on Investment after taxes</i>	(ROI) _a	= 31,906 %
<i>Discounted Cash Flow</i>	(DCF)	= 32,53 %

Berdasarkan ringkasan diatas, pendirian pabrik Aseton layak untuk dikaji lebih lanjut karena menguntungkan dan memiliki prospek yang baik di masa mendatang.

Kata kunci : *Aseton, Isopropanol, Proses dehidrogenasi, Katalis Cu/Pt*

ABSTRACT
PRE-DESIGN OF ACETONE PLANT FROM ISOPROPANOL THROUGH
DEHYDROGENATION PROCESS WITH A PRODUCTION CAPACITY OF
15.000 TONS/YEAR
(Design of Distillation Column (T-301))

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Acetone (C_3H_6O) is made from isopropanol (C_3H_8O) through a dehydrogenation process using a Cu/Pt catalyst, planned to be built in Cilegon, Banten. Establishment of factories based on close to market access, adequate means of transportation, sufficient utility supplies, easily accessible labor and environmental conditions.

This plant is planned to produce Acetone of 15.000 tons/year, with operating time 24 hours/day, 330 days/year. The raw material used is isopropanol.

Acetone plant's utility requirements consist of water treatment units, compressed air, and steam. The company is structured as a Limited Liability Company (PT) using a line and staff organizational structure with 164 employees.

From the economic analysis it is obtained :

<i>Fixed Capital Investment</i>	(FCI)	= Rp. 301.568.650.165,518
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<i>Discounted Cash Flow</i>	(DCF)	= 32,53 %

Based on the summary above, the establishment of an Acetone plant is feasible for further development because it is profitable and has good prospects in the future.

Kata kunci : *Acetone, Isopropanol, Dehydrogenation process, Cu/Pt Catalyst*