ABSTRAK

PRARANCANGAN PABRIK XILEN DARI TOLUEN DENGAN PROSES DISPROPORSIONASI TOLUEN KAPASITAS 300.000 TON/TAHUN (Perancangan Kolom Distilasi (DC-302)

Oleh

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Xilen merupakan bahan kimia yang sangat bermanfaat sebagai salah satu bahan baku industri. Xilen bermanfaat sebagai solvent pada cat dan tinta . Xilen dapat di produksi dari beberapa proses yaitu :1)Proses Katalik Reforming 2)*Pyrolisis Gasoline* Process 3)*Coke Oven Light Oil* 4)*Disproportionation Toluene Process*. Pada pemilihan proses yang dipakai ialah Disproposionasi Toluen ditinjau dari segi ekonomi dan termodinamikanya.

Pabrik ini direncanakan akan dibangun di kawasan industri Kecamatan Cilacap Tengah, Kabupaten Cilacap, Jawa Tengah Pemilihan lokasi tersebut didasarkan pertimbangan penyediaan bahan baku, transportasi, tenaga kerja, dan ketersediaan sarana-sarana pendukung lain. Pabrik beroperasi selama 24 jam/hari, dan 330 hari/tahun.

Bentuk perusahaan yang dipilih adalah Perseroan Terbatas (PT), dengan struktur organisasi line and staff. Sistem kerja karyawan berdasarkan pembagian jam kerja yang terdiri dari karyawan shift dan non-shift, dengan jumlah karyaan 178 0rang.

Dari hasil analisis ekonomi diperoleh ROI (Return of Investment) sebelum pajak sebesar 30%, POT (Pay Out Time) sesudah pajak selama 2,59 tahun, BEP (Break Even Point) 30%, SDP (Shut Down Point) sebesar 25% dan IRR (Interest Rate of Return) sebesar 31,17%. Berdasarkan hasil evaluasi tersebut, maka dapat disimpulkan bahwa pabrik xylene dari Toluena dengan kapasitas 300.000 ton/tahun dinilai layak didirikan karena memenuhi standar persyaratan pendirian suatu pabrik.

Kata Kunci : Xilen, Toluen, Disproporsionasi Toluen

ABSTRACT

MANUFACTURING OF XYLENE FROM TOLUENE WITH PROCESS DISPROPORTIONATION TOLUENE CAPACITY 300.000 TONS/YEAR
***(Design of Distillation Column* (DC-302)**

By

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Xylenes are one of the important chemicals used as solvents. They are widely used as thinners and solvents is paints, varnishes, adhesives and inks. Xylene can be produced with several processes namely 1) Catalytic Reforming Process 2) Proses Pyrolisis Gasoline Process 3) Coke Oven Light Oil Process and 4) Disproportionation Toluene Process. On the Manufacturing of xylene was selected Disproportionation Toluene Process that is more profitable in terms of economics and thermodynamics than other processes.

This factory is planned to be built in the industrial area of Central Cilacap District, Cilacap Regency, Central Java. The location selection is based on considerations of providing raw materials, transportation, labor, and the availability of other supporting facilities. The factory operates 24 hours/day, and 330 days/year.

The form of company chosen is a Limited Liability Company (PT), with a line and staff organizational structure. The employee work system is based on the division of working hours consisting of shift and non-shift employees , with a total of 178 employees .

From the results of economic analysis obtained ROI (Return on Investment) before tax of 30%, POT (Pay Out Time) after tax for 2.59 years, BEP (Break Even Point) 30%, SDP (Shut Down Point) of 25% and IRR (Interest Rate of Return) is 31.17%. Based on the evaluation results, it can be concluded that the Xylene Plant from Toluene with a capacity of 300.000 tons/year is considered feasible because it meets the standard requirements for the establishment of a factory.

Keywords : Xylene, Toluene, Toluene Disproportionation,