

ABSTRACT

The preliminary plant design of allyl chloride from propylene and chlorine with capacity of 18.000 ton/year is planned to be built in Cilegon, Banten in the area of land 27.945 m². The chemical plant will be operated for 330 days/year, 24 hour a day with total 188 employes.

The plant requires propylene 7.463,742 kg/hour, chlorine of about 3.007,366 kg/hour. The production process will be operated at temperature of 250 °C, at pressure of 1,5 atm with total conversion of 98%. The utility needed consist of 9.234 kg/hour of water, 3.362,852 kg/hour of steam, 1.141,68 Kwh of electricity and 883,21 liter/hour of fuel.

The economic analysis shows that this chemical plant need fixed capital of about US\$ 26.255.484,08 and working capital of about US\$ 20.290.515.116,674. The profit before tax is US\$ 18.681.320.686,533 while profit after tax is US\$ 1.2119.989.968,938. Percentage of Return on Investment (ROI) before tax is 71,15% while after tax is 34,15%. Pay Out Time (POT) before tax is 1,32 years while after tax is 2,26 years. The value of Break Even Point (BEP) is about 43,48%, while Shut Down Point (SDP) is 18,85%. The value of Discontinued Cash Flow (DCF) is about 21,25 %. From an economic evaluation result, it can be concluded that allyl chloride plant is fensable to be vestabllished.

ABSTRAKSI

Pra rancangan pabrik allil kloride dengan kapasitas 18.000 ton/tahun direncanakan akan didirikan di Cilegon, Banten dengan luas area tanah 27.945 m². Pabrik ini direncanakan akan beroperasi dalam 330 hari/tahun atau 24 jam sehari dengan total karyawan 188 orang.

Untuk mereaksikan di butuhkan propilen sebanyak 7.463,742kg/jam, bahan pembantu klorin sebanyak 3.007,366 kg/jam. Proses produksi akan beroperasi pada suhu 250 °C, tekanan 1,5 atm dengan total konversi 98%. Utilitas membutuhkan pasokan 9.234 kg/jam air, 3.362,852 kg/jam steam, 1.141,68 Kwh listrik, dan 883,21 liter/jam bahan bakar.

Dari hasil analisa ekonomi pra rancangan pabrik allil kloride, diperoleh modal tetap sebesar Rp 262.554.840,8. Modal kerja sebesar Rp 202.905.151.166,74. Keuntungan sebelum pajak Rp 186.813.206.865,33 dan keuntungan sesudah pajak Rp 121.199.899.689,38. Sementara itu percent return of investment (ROI) sebelum pajak 71,15%, dan sesudah pajak 34,15%. Pay out time (POT) sebelum pajak adalah 1,32 tahun dan sesudah pajak 2,26 tahun. Break even point (BEP) sebesar 43,38% . Shut down point (SDP) sebesar 18,85% dan discontinued cash flow rate (DCFR) sebesar 21,25%. Berdasarkan perhitungan ekonomi maka dapat disimpulkan bahwa pabrik allil kloride ini layak untuk didirikan.