

ABSTRACT

Preliminary plant design of Ethyl Acetate with capacity 15.000 ton/year is planned to be built in Gresik, the province East Java, in the area of land 25.920 m². This chemical plant will be operated for 330 days/year or 24 hour a day with total 166 employees.

Raw materials are needed Acetic Acid 1363,6364 kg/hour and Ethanol of about 1045,4545 kg/hour. The production process will be operated at temperature 100°C, at pressure of about 2 atm using Continuous Stirred Tank Reactor (CSTR) with total conversion of 90%. The utility needed consist of 29.359,1039 kg/hour of cooling water, 1.182,1623 kg/hour of steam, 4.955 kg/hour of housing water and 139,5 Kwh of electricity.

From an economic shows that this chemical plant need to be covered by fixed capital of about Rp. 100.379.968.8768, and working capital of about Rp 29.175.082938. This profit before tax is Rp. 29.223.493.965 while profit after tax is Rp. 14.611.746.982. Percentage of Return on Investment (ROI) before tax is 29,1% while after tax is 14,6%. Pay Out Time (POT) before tax is 2,6 years while after tax is 4,1 years. The value of Break Even Point (BEP) for about 41,9%, while Shut Down Point (SDP) 21,2%. The value of Discontinued Cash Flow (DCF) for about 32,4%. Based on the economic analysis, it is concluded that plant design of Ethyl Acetate with capacity 15.000 ton/years visible to be built.

