

ABSTRACT

Preliminary design of TBA with capacity 60.000 ton/year is plant to be built in Cilacap, Central Java in the area of land 3 ha. This chemical plant will be operated for 330 dah/year or 24 hours a day with 200 employees.

Raw material neededs is isobuthylene 99.952.147,84 kg/year, the production process will be operated at temperature 70⁰C, at pressure about of 11 atm using Fixed Bed Multitube Reactor with yield 70 %. The utility consist of 169.234 kg/hour of cooling water; 2.408,3333 kg/hour of housing water; 1.467,3635 kg/hour of steam; 19,8045 lt/hour of Industrial Diesel Oil (IDO) while the power of electricity of about 270 Kwh provided by PLN. This chemical plant also use generator set as reserve.

Economic analysis shows that this chemical plant need to be covered by fixed capital of about US\$ 11.172.937,93; working capital of about US\$ 16.631.640,16. The profit before tax is US\$ 7.754.499.32 while the profit after tax is 4.652.699.59 Percentage of return on investment (ROI) before tax is 69,40% while after tax is 41,64%. Pay out time (POT) before tax is 1,25 years while after tax is 1,93 years. The value of break even point (BEP) is 41,08% and shut down point (SDP) is 27,84% with Discounted Cash Flow Rate (DCFR) is 25,22%. Based on the economic analysis, it is concluded that plant design of TBA with capacity 60.000 ton/years visible to be built.