

ABSTRAK

Pabrik Asam Fenil Asetat merupakan salah satu pabrik kimia yang belum terdapat di Indonesia dan mampu memberikan prospek yang sangat baik, dikarenakan kebutuhan Asam Fenil Asetat di Indonesia yang semakin meningkat. Lokasi pabrik Asam Fenil Asetat direncanakan didirikan di kawasan industri Gresik, Jawa Timur di atas lahan seluas 26.099 m² dengan kapasitas produksi 12.000 ton/tahun. Pabrik kimia ini akan dioperasikan selama 330 hari dengan total 158 karyawan. Proses pembuatan Asam Fenil Asetat dari Benzil Sianida, Asam Sulfat dan Air direaksikan dalam Reaktor Alir Tangki Berpengaduk (RATB) pada suhu 100 °C dan tekanan 1 atm. Reaksi memiliki konversi sebesar 80%. Pabrik Asam Fenil Asetat kapasitas 12.000 ton/tahun membutuhkan bahan baku Benzil Sianida sebanyak 1298,0169 kg/jam, Asam Sulfat sebanyak 3548,0680 kg/jam, dan air sebanyak 2138,9983 kg/jam. Utilitas yang dibutuhkan untuk setiap tahunnya antara lain 104.974 kg/jam air pendingin, 1.861 kg/jam steam, 16.808 kg/jam air domestik, 700 kg/jam *service water*, 140,3813 kg/jam bahan bakar, dan 478,1011 kw listrik. Dari hasil analisis ekonomi diperoleh hasil keuntungan sebelum pajak sebesar Rp 98.654.036.561 dan keuntungan setelah pajak sebesar Rp 47.353.937.549. *Percent Return On Investment* (ROI) sebelum pajak sebesar 27,16 % dan setelah pajak sebesar 13,04 %. *Pay Out Time* (POT) sebelum pajak selama 2,8 tahun sedangkan setelah pajak selama 4,8 tahun. *Break Even Point* (BEP) sebesar 43,18 %, dan *Shut Down Point* (SDP) sebesar 20,17 % *Discounted cash flow rate of return* (DCFRR) sebesar 8,43 %. Berdasarkan analisa ekonomi di atas ,maka pabrik Asam Fenil Asetat dari Benzil Sianida, Asam Sulfat dan air dengan kapasitas 12.000 ton/tahun layak untuk didirikan.

Kata-kata Kunci : *Asam Fenil asetat, Benzil Sianida, RATB*

ABSTRACT

The Phenylacetic Acid Plant is one of the chemical plants that are not yet available in Indonesia and are able to provide excellent prospects. Due to the increasing need for Phenylacetic Acid in Indonesia. The location of the Phenylacetic Acid plant is planned to be established in the Gresik industrial area, East Java on an area of 26,099 m² with a production capacity of 12,000 tons/year. This chemical plant will be operated for 330 days with a total of 158 employees. The process of making Phenylacetic Acid from Benzyl Cyanide, Sulfuric Acid and water was reacted in a stirred tank flow reactor (RATB) at a temperature of 100 ° C and a pressure of 1 atm. The reaction has a conversion of 80%. The Phenylacetic Acid capacity of 12,000 tons/year plant requires 1298.0169 kg/hour of Benzyl Cyanide raw material, 3548.0680 kg/jam of Sulfuric Acid and water as much as 2138.9983 kg/hour. Utilities needed for each year include 104,974 kg/hour of cooling water, 1,861 kg/hour of steam, 16,808 kg/hour of domestic water, 700 kg/hour of service water, 140.3813 kg/hour of fuel, and 478.1011 kW of electricity. From the results of the economic analysis, the results of the pre-tax profit were Rp. 98,654,036,561 and the profit after tax were Rp. 47,353,937,549. Percent Return On Investment (ROI) before tax is 27.16% and after tax is 13.04%. Pay Out Time (POT) before tax for 2.8 years while after tax for 4.8 years. Break Even Point (BEP) was 43.18% and Shut Down Point (SDP) was 20.17%. Discounted cash flow rate of return (DCFRR) was 8.43%. Based on the above economic analysis, the Phenylacetic Acid plant from Benzyl Cyanide, Sulfuric acid and Water with a capacity of 12,000 tons/year is suitable for establishment.

Keywords : Phenylacetid Acid, Benzyl Cyanide, RATB