

ABSTRACT

Preliminary plant design of Amonium nitrate with capacity 200,000 ton/year is a planned to be built in Cikampek, in the area of land 20.000 m². This chemical plant will be operated for 330 day/year or 24 hours a day with 139 employees.

Raw material needed is Amonia 5.376,93 kg/hour and Nitrit Acid 32978,46 kg/hour. The production process will be operated at temperature 175°C, at pressure about of 4,2 atm using Bubble Reaktor with 99,5% of conversion. The utility consist of 97.982,25 kg/hour of cooling water, 8710,80 kg/hour of steam, the power of electricity of about 313,5 kwh provided by PLN. This chemical plant also use generator set as reserve.

An economic analysis shows that this chemical plant need to be covered by fixed capital of about Rp. 140 billion, working capital of about Rp. 32 billion. Percentage of return on investemen (ROI) before tax is 43 % while after tax is 30,3 %. Pay out time (POT) before tax is 1,8 years while after tax is 2,5 years. The value of break evek point (BEP) is for about 47,08 % and shut down point (SDP) is of about 31,04 %. Based on the economic analysis, It is concluded that plant design of Amonium nitrate with capacity 200,000 ton/years is visible to be built.