

ABSTRACT

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Title	Pre-Designed Aniline Plant From Nitrobenzen And Hydrogen Gas With A Capacity Of 45,000 Tonnes/Year

Aniline is an organic compound with the compound formula $C_6H_5NH_2$ which is included in the aromatic compounds. Aniline consists of a phenyl group that binds a feminine group. Aniline has a pungent odor and is flammable. Construction of the Aniline factory will begin in 2023-2027 and will operate in 2028. Based on the process selection results, the Nitrobenzene Hydrogenation process was chosen using a Pd catalyst on Al_2O_3 and using a Fix Bed Multi Tube reactor. The process runs at a temperature of 250 oC and a pressure of 2.36 atm. Then the purification process is carried out using a Flash Separator equipped with a subcoller condenser, carried out in 3 stages, where the first stage is separating Nitrobenzene from a mixture of Aniline, Water and H_2 gas. The second stage is purifying Aniline from a mixture of water and H_2 gas. The third stage is to separate the H_2 gas from the water so that it can be reused.

The aim of establishing an aniline factory is to reduce the amount of imports, increase the amount of exports, increase the country's foreign exchange and increase employment opportunities to meet domestic needs and reduce dependence on imported products to meet domestic needs. It is planned to establish an aniline factory with a capacity of 45,000 tons/year in the Cilegon area, Banten. . The raw materials used are 7680.19 kg/year of Nitrobenzene and 374.64 kg/year of Hydrogen gas. The production process runs smoothly so that supporting facilities are needed in the form of 119,552,557 kg/year of water, 4,208.86 kg/year of steam, and 68.17 kWh of electricity. The Aniline factory financing plan is carried out by the private sector. The business entity chosen is a Limited Liability Company with a line and staff organizational structure. This company is led by a director with 180 employees.

Based on the results of the economic analysis carried out, it was obtained:

A. Amount of capital investment

- Total capital = IDR 400,101,349,633

- Own capital (70%) = IDR 273,101,349,633

- Bank Loan (25.%) = IDR 127,000,000,000.00

B. Present Value of Net Cash Flow (NPV): IDR 974,193,037,855.04 (positive)

C. Internal Rate of Return: 41% > bank interest rate 10%

D. Minimum Payback Period: 3 Years 6 Months

With estimates that the Indonesian economy will be stable in the next few years, the analysis above shows that the Aniline factory is feasible to establish.