

INTISARI

Prarancangan pabrik asetanilid dari asam asetat dan anilin ini bertujuan untuk mengkaji lebih lanjut kelayakan pabrik untuk didirikan. Pabrik dirancang dengan kapasitas 40.000 ton/tahun dan beroperasi secara kontinyu selama 330 hari/tahun dan 24 jam/hari.

Secara umum tahapan proses produksi asetanilid terdiri dari reaksi anrara asam asetat dan anilin, kristalisasi dan pemurnian produk. Produk asetanilid dengan kemurnian 98% sebanyak 40.000 ton/tahun memerlukan anilin sebanyak 28.525,08 ton/tahun dan asam asetat sebanyak 23.919,82 ton/tahun. Bahan pembantu yang diperlukan adalah dietil eter sebanyak 16.769,48 ton/tahun. Sebagai penunjang, unit utilitas menyuplai kebutuhan air sebanyak 58.310,89 ton/tahun, *fuel oil* sebanyak 5498,75 ton/tahun dan listrik sebesar 470 kwh. Pabrik akan didirikan di Cilegon, Banten di atas area seluas 112.230 m² dengan jumlah pekerja sebanyak 255 orang.

Berdasarkan perhitungan evaluasi ekonomi, pabrik asetanilid ini tergolong *medium risk* dengan *Fixed Capital Cost* sebesar \$21,374,419.79 + Rp72.614.341.583,00 ; *Working Capital Cost* sebesar \$27,760,613.21 + Rp 5.415.887.947,28 ; Pada kapasitas produksi 100%, nilai *Return Of Investment before tax* sebesar 26,72 %; *Pay Out Time before tax* pada 2,72 tahun; *BEP* 52,49 %; *SDP* 30,43 % dan *DCFRR* 20,67 %. Berdasarkan nilai-nilai di atas, dapat disimpulkan bahwa pabrik ini menarik secara ekonomi dan layak untuk dikaji lebih lanjut.

ABSTRACT

The preliminary design of this acetanilide plant is done in order to asses the feasibility of the plant. This plant is designed with the capacity of 40.000 tons/year and to be operated continuously for 330 days/year and 24 hours/days.

In general, the manufacturing process of acetanilide consists of: reaction between aniline and acetic acid, crystallization of acetanilide and purification. In order to obtain acetanilide as product in the desired capacity with 98%(w/w) purity, 28.525,08 tons/year of aniline and 23.919,82 tons/year of acetic acid are required as main raw material. Moreover, the supporting material required is 16.769,48 tons/year of diethyl ether. To support the manufacturing process, utility unit supplies water as much as 58310,89 tons/year, 5498,75 tons/year of fuel oil and 470 kwh of electricity. The plant will be built in Cilegon, Banten on an area of 112.230 m² and employs 255 people.

Based on economic evaluation, this plant is classified as medium risk plant with fixed capital \$21.374.419,79+ Rp72.614.341.583,00; and working capital of \$27.760.613,21 + Rp5.415.887.947,28 ; At 100% production rate, obtained Return Of Investment before tax is 26,72 %; Pay Out Time before tax of 2,72 years ; BEP at 52,49 %; SDP at 30,43 % and 20,67 % of DCFRR. From those points, it can be concluded that preliminary design of this magnesium sulfate plant is worth to be studied further.