ABSTRAK

PRA RANCANGAN PABRIK AMONIUM KLORIDA DARI AMONIUM SULFAT DAN NATRIUM KLORIDA DENGAN KAPASITAS 400.000 TON/TAHUN (Perancangan Reaktor (RE-201))

Oleh :
Salsabila Salwa Yusriandi

Pabrik amonium klorida berbahan baku natrium klorida dan amonium sulfat direncanakan akan didirikan di Gresik, Jawa Timur, dengan pertimbangan ketersediaan bahan baku, kelengkapan unit penunjang proses, sarana transportasi yang memadai, ketersediaan tenaga kerja, serta kondisi lingkungan yang strategis untuk kegiatan industri. Pabrik ini dirancang untuk memproduksi amonium klorida sebesar 400.000 ton/tahun dengan sistem operasi kontinyu selama 24 jam/hari dan 330 hari/tahun. Bahan baku yang digunakan terdiri dari natrium klorida sebanyak 432.558.698,82 kg/tahun dan amonium sulfat sebanyak 493.876.029,16 kg/tahun. Proses produksi amonium klorida dilakukan secara kontinyu, sehingga aliran bahan baku maupun produk dinyatakan dalam basis laju alir massa per satuan waktu. Untuk mendukung kelangsungan operasi, utilitas yang disediakan meliputi unit pengadaan air, unit penyediaan steam, unit penyediaan udara tekan, unit penyediaan listrik, serta unit pengolahan limbah. Bentuk perusahan adalah Perseroan Terbatas (PT) menggunakan struktur organisasi perusahaan *line* dan *staff* dengan jumlah karyawan sebanyak 148 orang.

Dari analisis ekonomi diperoleh :

Fixed Capital Investment	(FCI)	= Rp. 1.097.912.917.902,56
Working Capital Investment	(WCI)	= Rp. 121.990.324.211,40
Total Capital Investment	(TCI)	= Rp. 1.219.903.242.113,95
Break Even Point	(BEP)	= 40%
Shut Down Point	(SDP)	= 30%
Pay Out Time	(POT)a	= 1,76 tahun
Return on Investment before taxes	(ROI)b	= 53%
Return on Investment after taxes	(ROI)a	= 42%
Discounted Cash Flow	(DCF)	= 51%

Mempertimbangkan paparan di atas, sudah selayaknya pendirian pabrik amonium klorida dikaji lebih lanjut, karena memiliki keuntungan yang tinggi dimasa mendatang.

Kata kunci : Amonium Klorida, Natrium Klorida, Amonium Sulfat.

ABSTRACT

MANUFACTURING OF AMMONIUM CHLORIDE FROM AMMONIUM SULFATE AND SODIUM CHLORIDE WITH CAPACITY 400.000 TONS/YEAR (Design of Reactor (RE-201))

By
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The ammonium chloride plant using sodium chloride and ammonium sulfate as raw materials is planned to be established in Gresik, East Java, based on considerations of raw material availability, completeness of supporting process units, adequate transportation facilities, availability of labor, and strategic environmental conditions for industrial activities. This plant is designed to produce 400,000 tons/year of ammonium chloride with a continuous operating system of 24 hours/day for 330 days/year. The raw materials used consist of 432,558,698.82 kg/year of sodium chloride and 493,876,029.16 kg/year of ammonium sulfate. The ammonium chloride production process is carried out continuously; therefore, the flow rates of raw materials and products are expressed on a mass flow basis per unit time. To support plant operation, the utility units provided include water supply, steam generation, compressed air supply, electricity supply, and wastewater treatment units. The company is established in the form of a Limited Liability Company (Perseroan Terbatas/PT) and adopts a line-and-staff organizational structure, employing a total of 148 workers.

From the economic analysis, the following results were obtained:

Fixed Capital Investment	*(FCI)*	*= Rp. 1.097.912.917.902,56*
Working Capital Investment	*(WCI)*	*= Rp. 121.990.324.211,40*
Total Capital Investment	*(TCI)*	*= Rp. 1.219.903.242.113,95*
Break Even Point	*(BEP)*	*= 40%*
Shut Down Point	*(SDP)*	*= 30%*
Pay Out Time	*(POT)a*	*= 1,76 tahun*
Return on Investment before taxes	*(ROI)b*	*= 53%*
Return on Investment after taxes	*(ROI)a*	*= 42%*
Discounted Cash Flow	*(DCF)*	*= 51%*

Considering the explanation above, it is appropriate for the establishment of an ammonium chloride plant to be studied further, because it has high profits in the future.

Keywords: Ammonium Chloride, Sodium Chloride, Ammonium Sulfate.