

ABSTRACT

MANUFACTURING OF ALUMINIUM OXIDE FROM BAUKSIT AND NATRIUM HIDROXIDE WITH CAPACITY 450.000 TONS/YEARR (Design of Reactor (RE-201))

By

RIZKY PUTRI WAHYUNINGSIH

Aluminum oxide is an important chemical compound widely used as a raw material for aluminum production, with approximately 10% utilized in the chemical industry, such as for catalysts and adsorbents. Aluminum oxide is generally produced from the reaction between aluminum trihydrate and sodium hydroxide. The increasing demand for aluminum oxide both domestically and internationally, so the opportunity to establish an aluminum chloride factory has good prospects. Provision of factory utilities in the form of water processing and supply systems as well as air and instrumentation supplies. The production capacity of the aluminum oxide factory is planned at 450.000 tons/year with 330 working days in 1 year. The factory location is planned to be established in Sanggau, West Kalimantan. The workforce required is 136 people in the form of a Limited Liability Company (PT) with a line and staff organizational structure.

From the economic analysis are obtained:

<i>Fixed Capital Investment</i>	(FCI) = Rp 3.366.608.398.207
<i>Working Capital Investment</i>	(WCI) = Rp 841.652.099.552
<i>Total Capital Investment</i>	(TCI) = Rp 4.208.260.497.759
<i>Break Even Point</i>	(BEP) = 35,84%
<i>Shut Down Point</i>	(SDP) = 20%
<i>Pay Out Time before taxes</i>	(POT) _b = 1,90 tahun
<i>Pay Out Time after taxes</i>	(POT) _a = 2,34 tahun
<i>Return on Investment before taxes</i>	(ROI) _b = 34,11%
<i>Return on Investment after taxes</i>	(ROI) _a = 27%
<i>Discounted cash flow</i>	(DCF) = 27%

Based on the results of the analysis above, the establishment of this aluminum oxide factory is worthy of further study, because it is a factory that is profitable from an economic perspective and has relatively good prospects.

ABSTRAK

PRARANCANGAN PABRIK ALUMINIUM OKSIDA DARI BAUKSIT DAN NATRIUM HIDROKSIDA DENGAN KAPASITA 450.000 TON/TAHUN (Perancangan Reaktor (RE-201))

Oleh

RIZKY PUTRI WAHYUNINGSIH

Aluminium oksida merupakan senyawa kimia penting yang banyak digunakan sebagai bahan baku pembuatan aluminium dan sekitar 10% digunakan dalam industri kimia, seperti sebagai katalis dan adsorben. Aluminium oksida umumnya dihasilkan dari reaksi antara aluminium trihidrat dengan natrium hidroksida. Penyediaan kebutuhan aluminium oksida dalam negeri dan luar negeri yang semakin meningkat, sehingga peluang untuk didirikannya pabrik aluminium oksida memiliki prospek yang bagus. Penyediaan utilitas pabrik berupa sistem pengolahan dan penyediaan air serta penyedia udara dan instrumentasi. Kapasitas produksi pabrik aluminium oksida direncanakan sebesar 450.000 ton/tahun dengan 330 hari kerja dalam 1 tahun. Lokasi pabrik direncanakan didirikan di Sanggau, Kalimantan Barat. Tenaga kerja yang dibutuhkan sebanyak 184 orang dengan bentuk badan usaha Perseroan Terbatas (PT) dengan struktur organisasi *line* dan *staff*.

Dari analisis ekonomi diperoleh:

<i>Fixed Capital Investment</i>	(FCI) = Rp 3.366.608.398.207
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Berdasarkan hasil analisis diatas, maka pendirian pabrik aluminium oksida ini layak untuk dikaji lebih lanjut, karena merupakan pabrik yang menguntungkan dari sisi ekonomi dan mempunyai prospek yang relatif baik.