

## ABSTRAK

### PRARANCANGAN PABRIK KALSIMUM KLORIDA DARI KALSIMUM KARBONAT DAN ASAM KLORIDA DENGAN KAPASITAS 20.000 TON/TAHUN

(Tugas Khusus Perancangan *Crystallizer* (CR-301))

Oleh

SALMA SHAKIRA

Kalsium klorida dihidrat menjadi salah satu hasil produk industri kimia yang memiliki banyak fungsi pada berbagai bidang industri, diantaranya: bidang kesehatan, konstruksi, hingga industri makanan. Proses produksi kalsium klorida dapat dilakukan menggunakan proses: netralisasi dan *solway*. Pada prarancangan pabrik kalsium klorida, penyediaan kebutuhan utilitas pabrik meliputi: sistem penyediaan *steam*, udara kering, *cooling water*, dan sistem pembangkit tenaga listrik.

Prarancangan pabrik kalsium klorida dirancang berkapasitas 20.000 ton/tahun dengan total 330 hari kerja selama 1 tahun. Pabrik direncanakan berlokasi di Kawasan Industri JIPE, Gresik Jawa Timur dengan jumlah tenaga kerja yang dibutuhkan sebanyak 119 orang. Jenis badan usaha yang dipilih berbentuk Perseroan Terbatas (PT) dengan pimpinan tertinggi ada pada jabatan Direktur Utama yang dibantu oleh *General Manager* yang menganut struktur organisasi fungsional.

Melalui hasil analisis ekonomi diperoleh:

<i>Fixed Capital Investment</i>	(FCI) = Rp.465.848.379.751
<i>Working Capital Investment</i>	(WCI) = Rp82.208.537.603
<i>Total Capital Investment</i>	(TCI) = Rp.548.056.917.354
<i>Break Even Point</i>	(BEP) = 54,24%
<i>Shut Down Point</i>	(SDP) = 21,75%
<i>Pay Out Time before Taxes</i>	(POT) <sub>b</sub> = 2,02 tahun
<i>Pay Out Time after Taxes</i>	(POT) <sub>a</sub> = 2,40 tahun
<i>Return on Investment before Taxes</i>	(ROI) <sub>b</sub> = 33,47%
<i>Return on Investment after Taxes</i>	(ROI) <sub>a</sub> = 26,78%
<i>Discounted Cash Flow</i>	(DCF) = 34%

Mempertimbangkan rangkuman tersebut, maka pendirian pabrik kalsium klorida ini layak untuk dikaji lebih lanjut, baik dari segi proses maupun ekonomi.

**ABSTRACT**  
**PREDESIGN OF CALSIUM CHLORIDE PLANT FROM CALCIUM CARBONATE**  
**AND HYDROCHLORIC ACID WITH CAPACITY 20.000 TON/YEAR**  
**(Crystallizer Design (CR-301))**

By  
**SALMA SHAKIRA**

Calcium chloride dihydrate is one of the products of the chemical industry which has many functions in various industrial fields, including: health, construction and the food industry. The calcium chloride production process can be carried out using the processes: neutralization and solvay. In the pre-design of the calcium chloride factory, the provision of factory utility needs includes: steam supply system, dry air, cooling water, and electric power generation system.

The calcium chloride factory design is designed to have a capacity of 20,000 tons/year with a total of 330 working days for 1 year. The factory is planned to be located in the JIPE Industrial Area, Gresik, East Java with a required workforce of 119 people. The type of business entity chosen is in the form of a Limited Liability Company (PT) with the highest leadership in the position of Main Director who is assisted by a General Manager who adheres to a functional organizational structure.

The economic analysis indicates that:

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Considering this summary, the establishment of a calcium chloride factory is worthy of further study, both from a process and economic perspective.