ABSTRAK

PRARANCANGAN PABRIK KALSIUM KLORIDA DARI KALSIUM KARBONAT DAN ASAM KLORIDA DENGAN PROSES NETRALISASI KAPASITAS 20.000 TON/TAHUN

(Tugas Khusus Perancangan Reaktor Asidifikasi (RE-201))

Oleh

VALERIE IXION

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 *solvay*. 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 JIIPE, 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:

Fixed Capital Investment	(FCI)	= Rp.346.075.382.052
Working Capital Investment	(WCI)	= Rp83.465.239.924
Total Capital Investment	(TCI)	= Rp.556.434.932.829
Break Even Point	(BEP)	= 54,84%
Shut Down Point	(SDP)	= 21,81%
Pay Out Time before Taxes	$(POT)_b$	= 2,05 tahun
Pay Out Time after Taxes	$(POT)_a$	= 2,43 tahun
Return on Investment before Taxes	$(ROI)_b$	= 32,92%
Return on Investment after Taxes	$(ROI)_a$	= 26,34%
Discounted Cash Flow	(DCF)	= 33%

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

Keywords: Kalsium Klorida, Kalsium Karbonat, Asam Klorida, Netralisasi, Ekonomi.

ABSTRACT

DESIGNING OF CALCIUM CHLORIDE PLANT BASED ON CALCIUM CARBONATE AND HYDROCHLORIC ACID WITH NEUTRALIZATION PROCESS CAPACITIES 20.000 TON/YEAR

(Acidification Reactor Design (RE-201))

By

VALERIE IXION

Calcium chloride dihydrate is one of chemical products that has many functions in several industries, including: health, construction, even the food industry. The production of calcium chloride can be produced through neutralization or solvay process. In this calcium chloride design factory, to fulfill the factories utility needs includes cooling water and steam supply unit, air supply unit, and electrical power generator system. This calcium chloride factory has a capacity design for 20.000 ton/year with 330 days of working in year. The plant is planning located in JIIPE Industrial Area, Gresik, Jawa Timur with the total amount of workers is 119 people. The type of business entity for this plant is Limited Liability Company (PT) led by President Director that helps by General Manager which adheres with functional organizational structure.

From the economic analysis, obtained:

Fixed Capital Investment	(FCI)	= Rp.346.075.385.052
Working Capital Investment	(WCI)	= Rp83.465.239.924
Total Capital Investment	(TCI)	= Rp.556.434.932.829
Break Even Point	(BEP)	= 54,84%
Shut Down Point	(SDP)	= 21,81%
Pay Out Time before Taxes	$(POT)_b$	= 2,05 tahun
Pay Out Time after Taxes	$(POT)_a$	= 2,43 tahun
Return on Investment before Taxes	$(ROI)_b$	= 32,92%
Return on Investment after Taxes	$(ROI)_a$	= 26,34%
Discounted Cash Flow	(DCF)	= 33%

Consider by the summary above, then the establishment of calcium chloride factory worth to the studied further both from a process and economic perspectives.

Keywords: Calcium Chloride, Calcium Carbonate, Hydrochloric Acid, Neutrilization, Economic.