ABSTRAK

PRARANCANGAN PABRIK SODIUM SULFAT (Na_2SO_4) DARI SODIUM KLORIDA (NaCl) DAN ASAM SULFAT (H_2SO_4) DENGAN PROSES MANNHEIM KAPASITAS 75.000 TON/TAHUN

(Perancangan *Furnace* (F-101))

Oleh

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Pabrik sodium sulfat (Na_2SO_4) berbahan baku sodium klorida (NaCl) dan asam sulfat (H_2SO_4) direncanakan didirikan di Tuban, Jawa Timur. Pendiriaan pabrik didasarkan atas pertimbangan ketersediannya bahan baku, sarana transportasi yang memadai, dan tenaga kerja yang mudah didapatkan serta kondisi lingkungan sekitar lokasi pabrik akan didirikan.

Pabrik dirancang akan memproduksi sodium sulfat sebanyak 75.000 ton/tahun, dengan waktu operasi yaitu 24 jam/hari, 330 hari/tahun. Bahan baku yang digunakan adalah sodium klorida sebanyak 7995,864 kg/jam dan asam sulfat sebanyak 7995,864 kg/jam.

Penyediaan kebutuhan utilitas pabrik terdiri dari unit pengadaan air, pengadaan listrik, dan pengadaan udara *instrument.*

Bentuk perusahaan adalah Perseroan Terbatas (PT) menggunakan struktur organisasi *line* dan *staff* dengan jumlah karyawan sebanyak 140 orang.

Dari analisis ekonomi diperoleh:

Fixed Capital Investment	(FCI)	=	Rp814.510.063.999,-
Working Capital Investment	(WCI)	=	Rp143.737.070.117,-
Total Capital Investment	(TCI)	=	Rp958.247.134.116,-
Break Even Point	(BEP)	=	41,58%
Shut Down Point	(SDP)	=	21,86%

Pay Out Time before taxes	$(POT)_b$	=	2,08 tahun
Pay Out Time after taxes	$(POT)_a$	=	2,85 tahun
Return on Investment after taxes	$(ROI)_a$	=	32,80%
Discounted cash flow	(DCF)	=	40,09%

Mempertimbangkan paparan diatas, sudah selayaknya pendirian pabrik sodium sulfat ini dikaji lebih lanjut, karena merupakan pabrik yang menguntungkan dari sisi ekonomi dan mempunyai prospek yang relatif cukup baik.

ABSTRACT

PLANT PREDESIGN OF SODIUM SULFATE (Na_2SO_4) FROM SODIUM CHLORIDE (NaCl) AND SULFURIC ACID (H_2SO_4) WITH MANNHEIM PROCESS 75.000 TONS/YEARS CAPACITY

(Furnace Design (F-101))

By

NI PUTU ARIESSA NANDINI

Sodium sulfate (Na_2SO_4) plant from sodium chloride (NaCl) and sulfuric acid (H_2SO_4) is planned to be built in Tuban, East Java. The establishment of this factory is based on considerations of the availability of raw materials, adequate transportation facilities, and available labor as well as environmental conditions around the location where the factory will be built.

The factory is designed to produce 75,000 tons of sodium sulfate per year, with an operating time of 24 hours/day, 330 days/year. The raw materials used are 7995.864 kg/hour of sodium chloride and 7995.864 kg/hour of sulfuric acid.

Provision of this factory utility needs consists of water procurement, electricity procurement and instrument air procurement units.

The form of this company is a Limited Liability Company (LLC) using a line and staff organizational structure with a total of 140 employees.

From the economic analysis it is obtained:

Fixed Capital Investment	(FCI)	=	Rp814.510.063.999,-
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Discounted cash flow (DCF) = 40,09%

Considering the explanation above, it is appropriate to study the establishment of this sodium sulphate factory further, because it is profitable from economic perspective and has relatively good prospects.