

ABSTRAK

PRARANCANGAN PABRIK *PRECIPITATED CALCIUM CARBONATE* DENGAN PROSES KARBONASI KAPASITAS 90.000 TON/TAHUN (Prarancangan Reaktor (R-201))

Oleh

ZAHRA CHOIRUNISA

Pabrik *Precipitated Calcium Carbonate* berbahan baku Batu Kapur di dirikan di Tuban, Jawa Timur. Pabrik ini berdiri dengan mempertimbangkan ketersediaan bahan baku, sarana transportasi yang memadai, tenaga kerja yang mudah didapatkan dan kondisi lingkungan. Pabrik direncanakan memproduksi *Precipitated Calcium Carbonate* sebanyak 90.000 ton/tahun, dengan waktu operasi 24 jam/hari, 330 hari/tahun. Bahan baku yang digunakan adalah Batu Kapur sebanyak 14.641,720 kg/jam.

Penyediaan kebutuhan utilitas pabrik *Precipitated Calcium Carbonate* berupa penyediaan air, pengadaan listrik, kebutuhan bahan bakar, dan pengadaan udara proses, dan udara instrumentasi. Bentuk perusahaan adalah Perseroan Terbatas (PT) menggunakan struktur organisasi *line* dan *staff* dengan jumlah karyawan sebanyak 129 orang.

Dari analisis ekonomi diperoleh:

<i>Fixed Capital Investment</i>	(FCI)	= Rp 415.538.359.979
<i>Working Capital Investment</i>	(WCI)	= Rp 73.330.298.820
<i>Total Capital Investment</i>	(TCI)	= Rp 488.868.658.798
<i>Break Even Point</i>	(BEP)	= 37,18%
<i>Shut Down Point</i>	(SDP)	= 16,38%
<i>Pay Out Time before taxes</i>	(POT) _b	= 2,06 tahun
<i>Pay Out Time after taxes</i>	(POT) _a	= 2,44 tahun
<i>Return on Investment before taxes</i>	(ROI) _b	= 32,86%
<i>Return on Investment after taxes</i>	(ROI) _a	= 26,29%
<i>Discounted cash flow</i>	(DCF)	= 34,82%

Mempertimbangkan paparan di atas, sudah selayaknya pendirian pabrik *Precipitated Calcium Carbonate* ini dikaji lebih lanjut karena pabrik yang menguntungkan dan mempunyai masa depan yang baik.

ABSTRACT

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Precipitated Calcium Carbonate (PCC) plant utilizing limestone as the raw material is planned to be established in Tuban, East Java. The selection of the plant location is based on several considerations, including the availability of raw materials, adequate transportation facilities, accessibility of labor, and favorable environmental conditions. The plant is designed to produce 90,000 tons of Precipitated Calcium Carbonate, operating continuously for 24 hours per day and 330 days per year. The primary raw material required is limestone, with a consumption rate of 14,641.720 kg/hour.

The utility requirements for the Precipitated Calcium Carbonate plant include water supply, electricity generation, fuel supply, process air, and instrument air systems. The company is planned to operate in the form of a Limited Liability Company (PT) employing a line-and-staff organizational structure with a total workforce of 129 employees.

Based on the economic analysis, the following results were obtained:

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Discounted cash flow	(DCF)	= 34,82%

Considering the economic evaluation and technical aspects presented above, the establishment of this Precipitated Calcium Carbonate plant is considered feasible for further development, as it demonstrates favorable profitability and promising future prospects.