

ABSTRACT

MANUFACTURING OF MAGNESIUM CARBONATE FROM MAGNESIUM CHLORIDE AND SODIUM CARBONATE WITH CAPACITY 30.000 TONS/YEAR (Design of Reactor (RE-220))

By

TUS ARSYIL MAJIID BI PRASETIO

Magnesium carbonate plant with materials, *magnesium chloride* and *sodium carbonate* is planned to be built in Serang, Banten. Establishment of this plant is based on some consideration due to the raw material resources, the transportation, the labors availability and also the environmental condition.

This plant is meant to produce 30.000 tons/year *magnesium carbonate* with operation time 24 hour/day, 330 hour/year. Raw materials used consist of 4.680,0959 kg/hour of *magnesium chloride*, 5.105,6833 kg/hour of *sodium carbonate*.

The utility units consist of water supply system, instrument air supply system, power generation system, refrigerant supply system and waste treatment system.

The business entity form is Limited Liability Company (Ltd) using line and staff organizational structure with 162 labors.

From the economic analysis, it is obtained that:

<i>Fixed Capital Investment</i>	(FCI)	=	Rp. 315.905.57.016,95,-
<i>Working Capital Investment</i>	(WCI)	=	Rp. 55.748/041,70,-
<i>Total Capital Investment</i>	(TCI)	=	Rp. 371.653.611.784,6,-
<i>Break Even Point</i>	(BEP)	=	38,12%
<i>Shut Down Point</i>	(SDP)	=	23,82%
<i>Pay Out Time before taxes</i>	(POT) _b	=	2,63 year
<i>Pay Out Time after taxes</i>	(POT) _a	=	2,9 year
<i>Return on Investment before taxes</i>	(ROI) _b	=	43,40 %
<i>Return on Investment after taxes</i>	(ROI) _a	=	34,72 %
<i>Discounted cash flow</i>	(DCF)	=	28,45 %

Considering the summary above, it is proper to study the establishment of *Magnesium carbonate* plant further, because the plant is profitable and has good prospects.

ABSTRAK

PRARANCANGAN PABRIK *MAGNESIUM CARBONATE* DARI *MAGNESIUM CHLORIDE* DAN *SODIUM CARBONATE* DENGAN KAPASITAS 30.000 TON/TAHUN (Perancangan *Reaktor (RE-201)*)

Oleh

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Pabrik Sodium *magnesium carbonate* berbahan baku *magnesium chloride* dan *sodium carbonate* direncanakan didirikan di Serang, Banten. Pendirian pabrik berdasarkan atas pertimbangan belum terdapatnya pabrik *magnesium carbonate* di Indonesia, ketersediaan bahan baku, sarana transportasi yang memadai, tenaga kerja yang mudah didapatkan dan kondisi lingkungan.

Pabrik direncanakan memproduksi *magnesium carbonate* sebanyak 30.000 ton/tahun, dengan waktu operasi 24 jam/hari, 330 hari/tahun. Bahan baku yang digunakan adalah *magnesium chloride* sebanyak 4.680,0959 kg/jam dan *sodium carbonate* sebanyak 5.105,6833 kg/jam.

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

Bentuk perusahaan adalah Perseroan Terbatas (PT) menggunakan struktur organisasi *line* dan *staff* dengan jumlah karyawan sebanyak 162 orang.

Dari analisis ekonomi diperoleh:

<i>Fixed Capital Investment</i>	(FCI)	=	Rp. 315.905.57.016,95,-
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<i>Discounted cash flow</i>	(DCF)	=	28,45%

Mempertimbangkan paparan di atas, sudah selayaknya pendirian pabrik *magnesium carbonate* ini dikaji lebih lanjut, karena merupakan pabrik yang menguntungkan dan mempunyai masa depan yang baik.