

ABSTRACT

MANUFACTURE OF CALCIUM LACTATE FROM MOLASSES AND CALCIUM CARBONATE CAPACITY 30.000 TONS/YEAR (Design Fermentor -201 (FER-201))

By

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Calcium Lactate is one of chemical industry products that used as pH controller, a additive in the food industry, drugs industry and as raw material of isotonic drink.

Calcium Lactate needs in Indonesia is increasing every year and so far it still needs materials imported from abroad, such as Japan, China, and America. In addition, the needs of Calcium Lactate in the world have also increased with the increasing development of the industry - industrial users Calcium Lactate. Calcium Lactate plant so urgently needed to support industrial development at home and abroad.

Calcium Lactate produced by reacting Molasses and Calcium Carbonate in the fermentor at 45 ° C and pressure of 1 atm. Results of reaction flow into the CSTR reactor to react with excess calcium carbonate which is increasing the conversion of lactic acid to calcium lactate. Results of cstr will be flowed to purification units to seperate calcium lactate from the impurities. In this plant we also use ethanol to seperate calcium lactate from sugar components and result 99,99% pure calcium lactate which had dried in rotary drier.

Plant's production capacity is planned 30,000 tons / year with 330 working days in a year. Manufacturing site is planned industrial park was established in the region of Lampung Province. Manpower needed as many as 179 people with a business entity form Limited Liability Company (PT) which is headed by a Director who is assisted by the Director of Production and Director of Finance with line and staff organizational structure.

Provision of utility plant needs a treatment system and water supply, steam supply systems, cooling water, instrument air supply systems, and power generation systems.

From the economic analysis is obtained:

<i>Fixed Capital Investment</i>	(FCI)	= Rp 661.162.998.877,77
<i>Working Capital Investment</i>	(WCI)	= Rp 116.675.823.331,37
<i>Total Capital Investment</i>	(TCI)	= Rp 777.838.822.209,14
<i>Break Even Point</i>	(BEP)	= 39,93%
<i>Shut Down Point</i>	(SDP)	= 11,25%
<i>Pay Out Time before taxes</i>	(POT) _b	= 1,99 years
<i>Pay Out Time after taxes</i>	(POT) _a	= 2,37 years
<i>Return on Investment before taxes</i>	(ROI) _b	= 34,13%
<i>Return on Investment after taxes</i>	(ROI) _a	= 27,31 %
<i>Discounted cash flow</i>	(DCF)	= 34,19 %

Consider the summary above, it is proper establishment of Calcium Lactate plant is studied further, because the plant is profitable and has good prospects.