ABSTRACT

PRADESIGN OF MAGNESIUM CHLORIDE PLANT FROM MAGNESIUM HYDROXIDE AND HYDROCHLORIDE ACID CAPACITY 35.000 TONS/YEAR (Design Reactor (R-201))

By

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A plant to produce magnesium chloride from magnesium hydroxide and hydrochloride acid is planned to be located at Purwakarta, West Java. The plant is established by considering availability of raw materials, transportation facilities, readily available labor and environmental conditions.

Capacity of the plant is 35.000 tons/year operating 24 hour/day and 330 working days/year. The plant required 2,853,087 kg/hr magnesium hydroxide and 3,571,864 kg/hr hydrochloride acid.

Quantity of labor is around 138 people. The plant is managed as a Limited Liability Company (PT), which is headed by a Director who is assisted by a Director of Production and Director of Finance. The company is organized in the form of line and staff structure. From analysis of the plant economy is obtained:

\[ \text{Fixed Capital Investment } (FCI) = Rp \ 284,378,913,289,850 \]
\[ \text{Working Capital Investment } (WCI) = Rp \ 50,184,514,109,974 \]
\[ \text{Total Capital Investment } (TCI) = Rp \ 334,563,427,399,824 \]
\[ \text{Break Even Point } (BEP) = 44.86\% \]
\[ \text{Shut Down Point } (SDP) = 19.56\% \]
\[ \text{Pay Out Time after Taxes } (POT) = 3.15 \text{ year} \]
\[ \text{Return on Investment after Taxes } (ROI) = 18.52 \% \]
\[ \text{Internal Rate Return } (IRR) = 24.39\% \]
\[ \text{Annual Net Profit } (Pa) = Rp \ 61,966,806,175/\text{year} \]

By considering above the summary, it is suitable study further the isopropanolamine plant since plant is profitable and has good prospects.