ABSTRACT

MANUFACTURING OF SODIUM SULFATE FROM SODIUM CHLORIDE AND SULFUR WITH CAPACITY 30,000 TONS/YEAR
(Design of Reactor-201 (RE-201))

By

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Sodium Sulfate plant with raw materials, sodium chloride and sulfur is planned to be built in Cilegon, 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 with 330 working days in a year. The raw materials used consist of 3,120.017 kg/hour of sodium chloride and 1,003.624 kg/hour of sulfur.

The utility units consist of water supply system, power generation system, oxygen gas and air supply system, refrigerant supply system, sulfur dioxide gas supply system and steam supply system.

The business entity form is Limited Liability Company (Ltd) using line and staff organizational structure with 175 labors.

From the economic analysis, it is obtained that:

- Fixed Capital Investment (FCI) = Rp 356,186,148,246
- Working Capital Investment (WCI) = Rp 62,856,379,102
- Total Capital Investment (TCI) = Rp 419,042,527,348
- Break Even Point (BEP) = 28.96%
- Shut Down Point (SDP) = 13.37%
- Pay Out Time before taxes (POT)_b = 1.44 year
- Pay Out Time after taxes (POT)_a = 1.74 year
- Return on Investment before taxes (ROI)_b = 42.97%
- Return on Investment after taxes (ROI)_a = 40.27%
- Discounted cash flow (DCF) = 47.95%

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