ABSTRACT

PRADESIGN OF ISOPROPANOLAMINE PLANT FROM PROPYLENE OXIDE AND AMMONIA CAPACITY 15,000 TONS/YEAR (Design Distillation Columns (DC-301))

By

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A plant to produce isopropanolamine from propylene oxide and ammonia is planned to be located at Tanjung Siapi-Api, Palembang, South Sumatera. The plant is established by considering availability of raw materials, transportation facilities, readily available labor and environmental conditions.

Capacity of the plant is 15,000 tons/year operating 24 hour/day and 330 working days/year. The plant required 1746,11 kg/hr propylene oxide and 2944,534 kg/hr ammonia.

Quantity of labor is around 143 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:

- **Fixed Capital Investment (FCI)** = Rp 240,590,020,360,-
- **Working Capital Investment (WCI)** = Rp 42,457,062,416,-
- **Total Capital Investment (TCI)** = Rp 283,047,082,776,-
- **Break Even Point (BEP)** = 55%
- **Shut Down Point (SDP)** = 25,11%
- **Pay Out Time after Taxes (POT)_{a}** = 2,63 year
- **Return on Investment after Taxes (ROI)_{a}** = 23,75 %
- **Internal Rate Return (IRR)** = 29,17%
- **Annual Net Profit (Pa)** = Rp 67,247,410,190/year

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