ABSTRACT

MANUFACTURE OF DIETHANOLAMINE
FROM AMMONIA AND ETHYLENE OXIDE
CAPACITY 34.000 TONS/YEAR
(Design of Distillation Column 301 (DC-301))

Oleh

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Diethanolamine plant with raw materials ammonia and ethylene oxide will be build in Bontang, East Borneo. Establishment of this plant in East Borneo due to raw material resources, transportation, labors and also environmental condition.

This plant will produce 34.000 tons/year, with time of operation 24 hours/day, and 330 days on a year. The raw material which use are ammonia 7.635,14 kg/hour and ethylene oxide 4.705,15 kg/hour.

This plant has utility units which the function are for water treatment, water supply, dowtherm, power generation, and air supply.

The bussiness entity of this plant is limited liability company (PT) and using line and staff structure with 179 labors.

From financial analyze:

- Fixed Capital Investment (FCI) = Rp 284,526,135,500
- Working Capital Investment (WCI) = Rp 31,614,015,056
- Total Capital Investment (TCI) = Rp 316,140,150,555
- Break Even Point (BEP) = 52,029 %
- Shut Down Point (SDP) = 28,91 %
- Pay Out Time before taxes (POT)\textsubscript{b} = 3,004 tahun
- Pay Out Time after taxes (POT)\textsubscript{a} = 3,49 tahun
- Return on Investment before taxes (ROI)\textsubscript{b} = 19,791 %
- Return on Investment after taxes (ROI)\textsubscript{a} = 15,834 %
- Interest Rate of Return (IRR) = 21,58 %

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