ABSTRACT

FACTORY PRE-DRAFT ISOBUTYL PALMITATE FROM PALMITIC ACID WITH ISOBUTANOL
CAPACITY 30 000 TONS / YEAR
(Designing Distillation Coloumn (DC-401))

BY
VINCENTIA HARLISTRIANI PERWITA

Isobutyl palmitate ($\text{C}_{20}\text{H}_{40}\text{O}_2$) is an organic compound on the state space form of a colorless liquid, soluble in alcohol and ether, but insoluble in water. Isobutyl palmitate is used as plasticizers in the plastics industry, as solvent for industrial inks, and as a smoothing and moisturizing the skin in the cosmetics industry.

The factory is planned to produce 30,000 tons / year of isobutyl Palmitate with operating time 24 hours / day, 330 days / year. The raw materials used are palmitic acid 5814.867581 kg / h and isobutanol 9316.641072 kg / hour. Palmitic acid raw material obtained from PT Cisadane Raya Chemicals in Tangerang and isobutanol obtained from PT. Petro Oxo Nusantara in Gresik.

Planned manufacturing site was established in the industrial area Gresik, East Java. Labor required as many as 176 people with a business entity form “Perseroan Terbatas” (PT), headed by a Director who is assisted by the Director of Production and Director of Finance with the line organization structure.
Provision of utility plant needs a treatment system and water supply, steam supply systems, waste treatment systems, and power generation systems.

Derived from economic analysis:

- **Fixed Capital Investment** (FCI) = Rp. 239,393,339,087,486
- **Working Capital Investment** (WCI) = Rp. 42,245,883,368,380
- **Total Capital Investment** (TCI) = Rp. 281,639,222,455,866
- **Break Even Point** (BEP) = 30,213%
- **Shut Down Point** (SDP) = 11,378%
- **Pay Out Time after taxes** (POT) = 1,138 year
- **Discounted cash flow** (DCF) = 64,7909%

Consider the above description, it can be concluded that factory pre-draft Isobutyl Palmitate with a capacity of 30,000 tons / year eligible to proceed to planning stage.