

## ABSTRAK

Metil laktat merupakan produk yang digunakan sebagai bahan baku sintesis dalam bidang farmasi, bahan baku parfum (wewangian) dalam bidang kosmetik dan bidang industri sebagai pembersih bahan elektronik, pembersih kaca, pelarut percetakan, pelarut plastik, pelarut cat dan bahan untuk insektisida. Untuk memenuhi kebutuhan dalam negeri dan adanya peluang ekspor yang masih terbuka, maka dirancang pabrik metil laktat dengan bahan baku gliserol dan methanol dengan kapasitas produksi 35.000 ton per tahun dan direncanakan beroperasi 330 hari per tahun. Pabrik ini akan didirikan di kawasan industri Bontang, Kalimantan Timur dengan luas 58.049 m<sup>2</sup>. Pabrik ini memiliki karyawan sebanyak 300 orang. Pembuatan metil laktat dilakukan dengan dua proses. Reaktor pertama dengan kondisi tekanan 1 atm dan suhu 230 °c, reaktor kedua dengan kondisi tekanan 1 atm dan suhu 180 °c. Kebutuhan utilitas: air secara kontinyu sebanyak 220.642,8927 kg/jam, steam sebanyak 1.164,0429 kg/jam, air pendingin sebanyak 213.139,2815 kg/jam, air domestik sebanyak 1.474,7627 kg/jam, listrik 354,1540 Kwh dan bahan bakar yang digunakan untuk menggerakkan generator sebesar 196,6509 lt/jam. Analisis ekonomi pabrik ini menunjukkan keuntungan sebelum pajak sebesar Rp 166.245.332.857 per tahun, setelah keuntungan pajak 25% dan zakat 25% mencapai Rp 124.683.999.643 per tahun. *Return on investment* (ROI) sebelum pajak 12,18% dan setelah pajak 9,13%. *Pay Out Time* (POT) sebelum pajak 4,96 tahun dan setelah pajak 5,84 tahun. *Break Event Point* (BEP) sebesar 56.23% dan *Shut Down Point* (SDP) sebesar 20,28% *Discounted cash flow* (DCF) mencapai 18,07% Berdasarkan evaluasi ekonomi, dapat disimpulkan bahwa prarancangan pabrik metil laktat dengan kapasitas 35.000 ton/tahun layak untuk didirikan.

Kata-kata kunci: metil laktat, glisrol, methanol.

## ABSTRACT

*Methyl lactate is a product that is used as a raw material for synthesis in the pharmaceutical field, perfume raw materials (fragrances) in the cosmetics and industrial fields as electronic cleaning agents, glass cleaners, printing solvents, plastic solvents, paint solvents and materials for insecticides. To meet domestic needs and the possibility of export opportunities that are still open, a methyl lactate plant was designed with glycerol and methanol as raw materials with a production capacity of 35,000 tons per year and planned to operate 330 days per year. This plant will be established in the Bontang industrial area, East Kalimantan with an area of 58,049 m<sup>2</sup>. This factory has 300 employees. Methyl lactate is prepared in two processes. The first reactor with a pressure of 1 atm and a temperature of 230 oc, the second reactor with a pressure of 1 atm and a temperature of 180 oc. Utility needs: continuous water as much as 220,642.89 kg / hour, steam as much as 1,164,0429 kg / hour, cooling water as much as 213,139,2815 kg / hour, domestic water as much as 1,474,7627 kg / hour, electricity 354,1540 Kwh and materials fuel used to drive the generator is 196.6509 lt / hour. This factory economic analysis shows a profit before tax of Rp 166,245,332,857 per year, after a 25% tax profit and 25% zakat reaching Rp 124,683,999,643 per year. Return on investment (ROI) before tax is 12.1789% and after tax is 9.1342%. Pay Out Time (POT) before taxes 4.96 years and after taxes 5.84 years. Break Event Point (BEP) of 56.22% and Shut Down Point (SDP) of 20.28% Discounted cash flow (DCF) reached 18.07% Based on economic evaluation, it can be concluded that the design of a methyl lactate plant with a capacity of 35,000 tons / year is feasible to be established.*

*Key words: methyl lactate, glycerol, methanol.*