



## INTISARI

*Maleic anhydride* ( $C_4H_2O_3$ ) adalah senyawa organik yang merupakan *intermediate product* yang digunakan sebagai bahan baku dari produk lainnya, juga dikenal sebagai senyawa yang berharga dalam industri kimia. Produk teknis penting yang biasa dihasilkan dari *maleic anhydride* diantaranya adalah resin poliester dan alkid, *lacquerz*, *plasticizer*, *co-polymers*, dan *lubricant*. Pabrik direncanakan dibangun diatas lahan seluas 40.000 m<sup>2</sup> yang berlokasi di tanah industri Widang, Kabupaten Tuban, Jawa Timur. Proses produksi dilakukan dengan mereaksikan benzena 99,5% sebanyak 3.493,5402 kg/jam yang didapat dari PT.Trans Pacific Petrochemical Indotama yang juga berada di Tuban dengan udara sekitar *area* pabrik sebanyak 105.697,6562 kg/jam yang telah dipersiapkan di unit persiapan bahan baku, dimana reaksinya dibantu dengan katalis *vanadium oxide* sebanyak 38,8351 kg. Air untuk kebutuhan pabrik sebanyak 605.541,3946 kg/jam diambil dari air laut di Laut Jawa. Air utilitas diproses melalui tahapan *screening*, ekualisasi, sedimentasi, klorinasi, filtrasi, deklorinasi, penambahan antiskalan, dan desalinasi dengan *Sea Water Reverse Osmosis*. Pabrik *maleic anhydride* dari oksidasi benzena ini direncanakan memiliki kapasitas 26.800 ton/tahun. *Fixed Capital Investment* (FCI) dari pabrik ini adalah \$33.893.473,95 dan *Working Capital* (WC) adalah \$8.904.722,58. *Manufacturing Cost* (MC) sebesar \$33.302.953,02 dengan *General Expense* (GE) sebesar \$6.692.521,70. Penjualan produk per tahunnya terhitung sebesar \$46.026.156,26 dengan keuntungan sebelum pajak sebesar \$6.030.681,54 dan setelah pajak sebesar \$3.015.340,77. Parameter kelayakan ekonomi pabrik *maleic anhydride* dari oksidasi benzena ini menghasilkan *Return on Investment* (RoI) sebelum pajak sebesar 17,79%, *Payout Time* (PoT) sebelum pajak selama 3,5980 tahun, *Discounted Cash Flow Rate of Return* (DCFRR) sebesar 16,00%. *Breakeven Point* (BEP) dari pabrik ini adalah 51,12% sedangkan *Shutdown Point* (SDP) pada 24,06%. Berdasarkan analisis kelayakan ekonomi, pabrik *maleic anhydride* dari oksidasi benzena ini layak dan menguntungkan secara ekonomi.

Kata kunci: *Maleic anhydride*, ekonomi.

### ABSTRACT

*Maleic anhydride ( $C_4H_2O_3$ ) is an organic compound that is an intermediate product that is used as a raw material for other products, also known as a valuable compound in the chemical industry. Important technical products commonly produced from maleic anhydride include polyester and alkyd resins, lacquerz, plasticizers, co-polymers, and lubricants. The factory is planned to be built on an area of 40,000 m<sup>2</sup> which is located on the industrial land of Widang, Tuban Regency, East Java. The production process is carried out by reacting 99.5% benzene as much as 3,493.5402 kg/hour obtained from PT. Trans Pacific Petrochemical Indotama, which is also in Tuban, with the air around the factory area of 105,697,6562 kg/hour which has been prepared in the raw material preparation unit, where the reaction is assisted with 38.8351 kg of vanadium oxide as a catalyst. Water for the factory needs as much as 605,541,3946 kg/hour taken from seawater in the Java Sea. Utility water is processed through the stages of screening, equalization, sedimentation, chlorination, filtration, dechlorination, the addition of antiscalants, and desalination with Sea Water Reverse Osmosis. The maleic anhydride plant from benzene oxidation is planned to have a capacity of 26,800 tons/year. The Fixed Capital Investment (FCI) of this factory is \$33.893.473,95 and the Working Capital (WC) is \$8.904.722,58. Manufacturing Cost (MC) of \$33.302.953,02 with General Expense (GE) of \$6.692.521,70. Product sales per year are calculated at \$46,026,156.26 with a profit before tax of \$6.030.681,54 and after tax of \$3.015.340,77. The economic feasibility parameter of the maleic anhydride plant from benzene oxidation produces a Return on Investment (RoI) before tax of 17,79%, Payout Time (PoT) before tax for 3,5980 years, Discounted Cash Flow Rate of Return (DCFRR) of 16,00%. The Breakeven Point (BEP) of this factory is 51,12% while the Shutdown Point (SDP) is at 24,06%. Based on the economic feasibility analysis, this maleic anhydride plant from benzene oxidation is feasible and economically profitable.*

*Keywords: Maleic anhydride, economy*