

Daftar Isi

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Abstrak

Pabrik Hidrogen Peroksida memberikan prospek yang sangat baik. Hidrogen peroksida merupakan salah satu bahan kimia yang banyak digunakan oleh berbagai industri baik sebagai bahan baku maupun bahan pendukung. Reaksi pembuatan hidrogen peroksida dari isopropanol merupakan reaksi dengan fase gas – cair yang bersifat eksotermis. Reaksi dijalankan pada reaktor gelembung pada suhu 130 °C dan tekanan 10 atm. Produk yang dihasilkan adalah hidrogen peroksida 50% dengan hasil samping aseton 98,75%. Pabrik ini direncanakan akan didirikan di kawasan industri Cilegon, Banten dengan luas 26.000 m² berkapasitas 30.000 ton/tahun. Utilitas yang dibutuhkan berupa air sebanyak 122.322,2644 kg/jam, Dowtherm A sebanyak 102.035,28 kg/jam, steam sebanyak 1.979,6437 kg/jam dan kebutuhan listrik sebesar 94,0704 kW. Berdasarkan hasil analisa ekonomi, pembangunan konstruksi dan instalasi pabrik dilakukan selama setahun sehingga pabrik dapat mulai beroperasi pada tahun 2020. Keuntungan sebelum pajak Rp 181.719.500.744,04 /tahun, dan keuntungan setelah pajak 50% sebesar Rp 90.859.750.372,02 /tahun. Presentase ROI sebelum pajak sebesar 36,91 %, dan ROI setelah pajak 50% sebesar 18,45 %. Syarat ROI sebelum pajak untuk pabrik kimia dengan resiko rendah minimum adalah 11% (Aries & Newton, 1955). POT sebelum pajak selama 2,13 tahun, dan POT sesudah pajak 3,51 tahun. Syarat POT sebelum pajak untuk pabrik kimia dengan resiko rendah maksimum 5 tahun (Aries & Newton, 1955). *Break Event Point* (BEP) pada 49,77 % dan *Shut Down Point* (SDP) pada 32,11 %. Syarat BEP untuk pabrik kimia pada umumnya sebesar 40%-60%. Berdasarkan analisa resiko, pabrik ini termasuk pabrik dengan tingkat resiko rendah dan berdasarkan evaluasi ekonomi pabrik ini layak untuk dikaji lebih lanjut.

Kata-kata kunci : Hidrogen Peroksida, Industri. Isopropanol

Abstract

Hydrogen peroxide factories have given very good prospects. Hydrogen peroxide is one of the chemical substances widely used in industry as raw materials and supporting materials. Hydrogen peroxide produced from isopropanol is the reaction that occurs in a gas – liquid phase that is exothermic. The reaction occurs in the bubble reactor at temperature 130 °C with pressure 10 atm. The main product that is produced is hydrogen peroxide 50% with side product acetone 98,75%. This factory will be established in industrial area of Cilegon, Banten, having land area 26.000 m² with production capacity 30.000 ton/year. The utilities needed are water as much as 122.322,2644 kg/hour, Dowtherm A as much as 102.035,28 kg/hour, steam as much as 1.979,6437 kg/hour, and electric as much as 94,0704 kW. The result of economic analysis is the construction and installation of the factory will be done for one year so this factory can operate in 2020. Earning Before Tax is Rp 181.719.500.744,04 /year, and Earning After Tax (with tax of 50%) is Rp 90.859.750.372,02 /year. Return On Investment (ROI) before tax is 36,91 %, and Return On Investment (ROI) after tax (with tax of 50%) is 18,45 %. The specification of ROI before tax for chemical plant with minimum low risk is 11 % (Aries & Newton, 1955). Pay Out Time (POT) before tax for 2,13 years and POT after tax for 3,51 year. The specification of POT before tax for chemical plant with maximum low risk is 5 year (Aries & Newton, 1955). Break Even Point (BEP) on 49,77 % and Shut Down Point (SDP) on 32,11 %. The specification of BEP for chemical plant generally as much as 40%-60%. Based on the risk analysis that has been done, this plant is included in low risk plant and based on the economic analysis, this plant is feasible to be assessed further.

Keywords : Hydrogen Peroxide, Factory, Isopropanol

