



ANALISIS KELAYAKAN TEKNIS DAN FINANSIAL USAHA ISOLATOR LISTRIK CAIR BERBASIS *CRUDE PALM OIL* (CPO)

INTISARI

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Isolator listrik cair biasanya terbuat dari bahan mineral. Akan tetapi, saat ini mulai dikembangkan isolator listrik cair berbasis bahan nabati yaitu *crude palm oil* (CPO). Produksi isolator listrik cair berbasis *crude palm oil* (CPO) saat ini masih dalam tahap perkembangan dalam skala laboratorium. Secara teknis, produksi dalam skala laboratorium sudah layak ditinjau dari tahapan proses yang dilakukan karena dengan tahapan proses yang sama mampu menghasilkan produk isolator listrik cair yang sesuai dengan standar. Oleh sebab itu, untuk mengembangkan produksi isolator tersebut menjadi lebih besar (untuk dikomersialkan), maka perlu dilakukan analisis kelayakan teknis dan finansial produksi dalam skala industri berdasarkan asumsi *scale up* yang telah dilakukan. Data didapatkan dengan observasi dan wawancara terhadap pihak yang terjun secara langsung dalam pembuatan isolator listrik cair berbasis CPO. Data yang diperoleh meliputi data tentang proses produksi, peralatan dan teknologi produksi, serta perhitungan kebutuhan dana. Setelah data diperoleh, peneliti kemudian mengolah data dengan melakukan asumsi *scale up* lalu dilanjutkan dengan menganalisis kelayakan usaha setelah dilakukan asumsi *scale up* tersebut, meliputi aspek teknis dan aspek finansial. Dari aspek teknis, dianalisis lokasi usaha, bahan baku, mesin dan peralatan serta proses produksi dalam skala industri. Sementara dari aspek finansial, data diolah dan dianalisis menggunakan analisis NPV, B/C Ratio, PP, IRR, BEP, dan analisis sensitivitas. Berdasarkan analisis kelayakan usaha yang dilakukan pada usaha isolator listrik cair berbasis *crude palm oil* (CPO) yang ditinjau dari aspek teknis dan finansial menunjukkan bahwa usaha layak untuk dijalankan. Analisis teknis dikatakan layak apabila dengan tahapan proses produksi yang sama mampu menghasilkan isolator listrik cair sesuai standar secara konsisten. Sementara analisis finansial dikatakan layak berdasarkan hasil perhitungan kelayakan investasi yang meliputi nilai NPV, B/C Ratio, PP, IRR, dan BEP. Masing-masing perhitungan telah memenuhi kriteria dalam kelayakan finansial, dimana $NPV > 0$, nilai B/C Ratio > 1 yaitu 1,32, PP yaitu 2,7 tahun lebih cepat daripada asumsi umur investasi selama 10 tahun, dan nilai IRR lebih besar dari suku bunga pinjaman yaitu 40%. Usaha akan memperoleh keuntungan setelah menjual sebanyak 12.555 unit isolator listrik cair kemasan drum 200 liter dengan harga Rp6.580.622/unit. Berdasarkan hasil analisis sensitivitas menggunakan *switching value* menunjukkan bahwa usaha tersebut tetap layak dijalankan selama asumsi harga CPO di bawah 61% dan penurunan kapasitas produksi tidak lebih rendah dari 26%.

Kata kunci: Ekonomi, CPO, Isolator Listrik Cair



FEASIBILITY STUDY OF CRUDE PALM OIL-BASED ELECTRICAL LIQUID INSULATOR

ABSTRACT

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Electrical liquid insulator are usually made from mineral materials. However, currently liquid electrical insulators are being developed based on vegetable materials, namely crude palm oil (CPO). The production of liquid electrical insulators based on crude palm oil (CPO) is currently still in the development stage on a laboratory scale. Technically, production on a laboratory scale is feasible in terms of the process stages carried out because the same process stages are capable of producing liquid electrical insulator products that comply with standards. Therefore, to develop the production of these insulators to a larger size (for commercialization), it is necessary to carry out a technical and financial feasibility analysis of production on an industrial scale based on the scale up assumptions that have been carried out. Data was obtained by observation and interviews with parties who were directly involved in making CPO-based liquid electrical insulators. The data obtained includes data about the production process, production equipment and technology, as well as calculations of funding requirements. After the data was obtained, the researcher then processed the data by making scale up assumptions and then continued by analyzing the feasibility of the business after making the scale up assumptions, including technical and financial aspects. From the technical aspect, business locations, raw materials, machines and equipment and production processes on an industrial scale are analyzed. Meanwhile, from the financial aspect, data is processed and analyzed using NPV analysis, B/C Ratio, PP, IRR, BEP, and sensitivity analysis. Based on the business feasibility analysis carried out on the crude palm oil (CPO) based liquid electrical insulator business which is viewed from technical and financial aspects, it shows that the business is feasible to run. Technical analysis is said to be feasible if the same production process stages are able to consistently produce liquid electrical insulators according to standards. Meanwhile, financial analysis is said to be feasible based on the results of investment feasibility calculations which include NPV, B/C Ratio, PP, IRR and BEP values. Each calculation has met the criteria for financial feasibility, where $NPV > 0$, B/C Ratio value > 1 , namely 1.32, PP is 2.7 years faster than the assumed investment life of 10 years, and the IRR value is greater than The loan interest rate is 40%. The business will make a profit after selling 12,555 units of liquid electrical insulators packaged in 200 liter drums at a price of IDR 6,580,622/unit. Based on the results of sensitivity analysis using switching value, it shows that the business is still feasible as long as the assumed CPO price is below 61% and the reduction in production capacity is not lower than 26%.

Keywords: Economy, CPO, Liquid Insulator Oil