Analisis potensi limbah padat olahan sebagai campuran bahan bakar pembangkit listrik tenaga uap = Potential analysis study of solid waste processed as fuel steam power plant

Tri Sesilia, author

Abstrak

[ABSTRAK
Dalam beberapa tahun terakhir ini terjadi krisis energi. Terjadi peningkatan penggunaan batubara secara besar-besaran beberapa tahun terakhir ini. Dibutuhkan bahan bakar alternatif pada unit pembangkit tenaga listrik. Dalam studi ini dilakukan untuk mengoptimalisasikan bahan sisa atau biasa disebut dengan biomassa menjadi bahan yang berguna untuk kehidupan sehari-hari. Data penggunaan biomassa di unit pembangkit tenaga listrik sudah banyak dilaporkan oleh banyak peneliti dan praktisi. Tetapi datanya sangat terbatas. Dalam thesis ini pengolahan biomassa akan menggunakan proses Hydrotermal Waste Treatment. Sampel data diambil dari daerah DKI Jakarta untuk dijadikan percontohan pembuatan pembangkit listrik tenaga uap berbahan bakar biomassa olahan. Karakteristik penggabungan pembakaran hidrotermal pada Limbah Padat Perkotaan dan batubara Indonesia sangat mempengaruhi pembakaran. Pencampuran antara batubara dan limbah akan dicampur dengan tingkatan 10%, 20%, 30% dan 50% (dalam berat.%). Dari hasil pencampuran didapati bahwa pada pencampuran limbah sebesar 20% dalam pengujian pengapian, karbon dan burnout adalah pencampuran yang sangat optimal. Bahkan ada yang lebih baik daripada campuran batubara Indonesia, yang menunjukkan kelayakan untuk membantu mengurangi konsumsi batubara Indonesia dengan hidrotermal menggunakan Limbah Padat Perkotaaan.
Dengan menggunakan teknologi pengkonversian energi, maka energi ini dapat digunakan untuk menghasilkan energi listrik dan limbah padat perkotaan sebagai sumber bahan bakar utama dari PLTU.
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ABSTRACT
In recent years the energy crisis occurs. There is an increased use of coal on a large scale last few years. It takes an alternative fuel in the power plant unit. In this study conducted to optimize the residue or commonly called biomass into useful materials for everyday life. Data on the use of biomass in power generation units has been widely reported by many researchers and practitioners. But the data are very limited. In this thesis will use a biomass processing Hydrotermal Waste Treatment process. Samples of data taken from the Jakarta area to be used as a pilot manufacturing of steam power plant of processed biomass fuel. Incorporation combustion characteristics of hydrothermal on Municipal Solid

Waste and Indonesian coal greatly affect combustion. Mixing between coal and waste will be mixed with a level of 10%, 20%, 30% and 50% (by weight.%). From the results of mixing was found that the mixing of waste by 20% in testing ignition, carbon and burnout is a very optimal mixing. In fact, there is have better than the mix of Indonesian coal, which demonstrate the feasibility to help Indonesia reduce coal consumption by hydrothermal using urban Solid Waste. By using energy conversion technologies, then this energy can be used to generate electrical energy and municipal solid waste as a primary fuel source of the power plant., In recent years the energy crisis occurs. There is an increased use of coal on a large scale last few years. It takes an alternative fuel in the power plant unit. In this study conducted to optimize the residue or commonly called biomass into useful materials for everyday life. Data on the use of biomass in power generation units has been widely reported by many researchers and practitioners. But the data are very limited. In this thesis will use a biomass processing Hydrotermal Waste Treatment process. Samples of data taken from the Jakarta area to be used as a pilot manufacturing of steam power plant of processed biomass fuel. Incorporation combustion characteristics of hydrothermal on Municipal Solid Waste and Indonesian coal greatly affect combustion. Mixing between coal and waste will be mixed with a level of 10%, 20%, 30% and 50% (by weight.%). From the results of mixing was found that the mixing of waste by 20% in testing ignition, carbon and burnout is a very optimal mixing. In fact, there is have better than the mix of Indonesian coal, which demonstrate the feasibility to help Indonesia reduce coal consumption by hydrothermal using urban Solid Waste. By using energy conversion technologies, then this energy can be used to generate electrical energy and municipal solid waste as a primary fuel source of the power plant.]