

Studi variasi campuran bahan bakar biomassa pada kondisi pembakaran sendiri di fluidized bed combustion Universitas Indonesia = Biomass fuel mixture variation studies of self sustained combustion in Universitas Indonesia's fluidized bed combustion

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Abstrak

ABSTRAK

Dalam proses pembakaran pada alat Fluidized Bed Combustion, bahan bakar merupakan salah satu komponen yang paling penting. Bahan bakar yang digunakan pada saat fenomena self sustained combustion sangat berpengaruh pada proses pembakaran serta fluidisasi saat fenomena self sustained combustion berlangsung. Dengan dilakukan pengujian dari variasi campuran bahan bakar tempurung kelapa dan sekam padi saat self sustained combustion, fenomena self sustained combustion dapat berlangsung lebih lama. Adapun variasi campuran bahan bakar yang digunakan adalah 100% Tempurung Kelapa, 50% Tempurung Kelapa 50% Sekam Padi, 25% Tempurung Kelapa 75% Sekam Padi dan 100% Sekam Padi. Campuran bahan bakar 50% tempurung kelapa dan 50% sekam padi memiliki durasi self sustained combustion yang paling lama. Campuran bahan bakar 50% tempurung kelapa dan 50% sekam padi mampu menjaga kondisi pembakaran sendiri (self sustained condition) selama 139 menit. Campuran ini menghasilkan temperatur yang paling stabil, serta fluidisasi yang paling baik. Adapun feeding rate yang digunakan ialah 250gr/2menit pada setiap pengujian.

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ABSTRACT

Fuel is one of the most important components in the combustion process of Fluidized Bed Combustion system. The fuel used at the time of working condition (self sustained combustion) is very influential on the combustion process and fluidization process. With the testing of fuel mixture variations at the time of working condition (self sustained combustion), can take longer time of working condition (self sustained combustion). The fuel mixture variations are 100 % Coconut Shell , 50 % Coconut Shell 50 % Rice Husk , 25 % Coconut Shell 75 % Rice Husk and 100 % Rice Husk. The mixture of fuel 50% Coconut Shell and 50 % Rice Husk produce the longest time of working condition (self sustained combustion). The mixture of fuel 50% Coconut Shell and 50 % Rice Husk can maintain the working condition (self sustained combustion) for 139 minutes. This mixture produces the most stable temperature , as well as most good fluidization . The feeding rate used is 250gr / 2minutes on each test.