Optimasi secondary air intake pada reaktor tipe fixed bed downdraft gasifikasi biomassa sekam padi = Secondary air intake optimization on fixed bed downdraft reactor type rice husk biomass gasification

Simatupang, Felly Rihlat Gibran, author

Abstrak

Sekam padi merupakan limbah pertanian terbesar dengan potensi 13.662 MWe per tahun. Melalui proses gasifikasi biomassa, sekam padi dapat dikonversi menjadi producer gas yang dapat digunakan untuk kebutuhan energi panas maupun listrik. Untuk menghasilkan producer gas berkualitas baik, sistem gasifikasi dengan kandungan tar rendah menjadi fokus utama penelitian. Penelitian menggunakan open top fixed bed downdraft gasifier sistem batch dilakukan dengan memvariasikan posisi injeksi udara sekunder Z dan Air Ratio AR . Hasilnya, pada AR 80 , saat Z = 38 cm, tercipta flaming pyrolysis dengan durasi terpanjang selama 400 sekon yang mengindikasikan kandungan tar terendah, serta saat Z = 50 cm, dihasilkan producer gas dengan energi pembakaran tertinggi sebesar 734,64 kJ.

.....

Rice husk is one of agricultural waste with the largest annual potency of 13,662 MWe. Using biomass gasification, rice husk can be converted into producer gas for thermal and electrical energy needs. In order to produce a good in quality producer gas, gasification with low tar content become the main focus in this research. Experiment using open top fixed bed downdraft gasifier batch system was conducted by variying the secondary air injection position Z and Air Ratio AR. As a result, when AR 80, at Z 38 cm, flaming pyrolysis with the longest duration of 400 seconds was created which indicated that this condition had the lowest tar content, meanwhile, at Z 50 cm, producer gas with the highest combustion energy of 734.64 kJ was obtained.