

BAB 5

KESIMPULAN DAN SARAN

5.1. Kesimpulan

1. Model gasifier dengan pendekatan kesetimbangan menggunakan *Aspen Plus* telah berhasil divalidasi dengan data eksperimen gasifikasi *hardwood chips*.
2. Kecenderungan perubahan nilai LHV berkebalikan dengan rasio H_2/CO .
3. Seluruh variabel berpengaruh terhadap kualitas syngas, namun rasio ER memiliki pengaruh paling besar terhadap LHV syngas. Kenaikan ER dan rasio S/B meningkatkan rasio H_2/CO namun menurunkan LHV, sedangkan kenaikan temperatur meningkatkan LHV namun menurunkan rasio H_2/CO .
4. Kondisi operasi terbaik didapatkan pada temperatur 900 °C, ER 0,3, dan tanpa kukus dengan nilai LHV 6,3 MJ/Nm³ dan H_2/CO 1,07.
5. Ter tidak dapat dimodelkan dengan pendekatan energi Gibbs minimum.

5.2. Saran

1. Pemodelan dapat dilakukan dengan menggunakan data eksperimen yang lebih lengkap untuk mendapatkan model yang lebih tepat.
2. Pemodelan dapat dilakukan dengan menggunakan metode kinetika dan hidrodinamika untuk meningkatkan keakuratan model.
3. Agar ter dapat dipelajari dalam simulasi, pemodelan ter dapat dilakukan dengan menggunakan kinetika reaksi pembentukan ter, sedangkan kinetika perengkahan ter dapat dilakukan seperti pada sub-bab 2.5.3.
4. Interaksi antara variasi variabel dapat ditinjau lebih mendalam.

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