

BAB V

KESIMPULAN DAN SARAN

5.1 Kesimpulan

1. Pada proses RDWC ini, digunakan 2 buah kolom Radfrac yang merepresentasikan *reactive zone* dan *rectifying zone*.
2. Perubahan *manipulated variable* paling mempengaruhi temperatur pada tahap 27, ini didapatkan dengan melakukan *sensitivity analysis*.
3. Hubungan kemurnian dengan temperatur inferensial dimodelkan pada **Gambar 4.7-4.10**.
4. Parameter *First-order Plus Deadtime* (FOPDT) didapatkan dengan menggunakan *open loop dynamics response* yang dibantu dengan *control station*.
5. Parameter pengendali dibuat dengan melakukan *tuning IMC* yang dibantu oleh rekomendasi dari *control station*.
6. Pada proses RDWC ini, beban reboiler paling mempengaruhi hasil kemurnian produk utama.
7. Penggunaan pengendali PID lebih baik dibandingkan PI karena performanya pada perlakuan *disturbance rejection* menghasilkan *error* yang lebih kecil dibandingkan PI.
8. Pengendali merespon dengan cepat pada simulasi *setpoint tracking*.
9. Performa pengendali PID pada simulasi *setpoint tracking* menghasilkan *overshoot* yang lebih tinggi dibandingkan PI dengan perbedaan *error* yang sangat kecil.

5.2 Saran

1. Melakukan 2-point kontrol pada sistem agar pengendalian dalam kolom RDWC dapat lebih baik.
2. Memberikan ethanol berlebih pada umpan agar seluruh iso-butene dapat terkonversi dan ethanol murni dapat keluar menjadi produk tengah.

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