



BAB V

KESIMPULAN

Kesimpulan dari penelitian “Penentuan Kurva *Breakthrough* untuk *Scale-Up* Kolom Adsorpsi Cr^{6+} menggunakan Karbon Aktif” adalah :

1. Karbon Aktif Granular dengan merek dagang Jacobi Aquasorb® 2000 dapat mengadsorpsi Cr^{6+} dengan cukup baik.
2. Persamaan kesetimbangan isoterm Langmuir memiliki persamaan $y = 1088,6 x - 18,665$ dengan $R^2 = 0,9933$ dan persamaan kesetimbangan isoterm Freundlich memiliki persamaan $y = 1,3111x - 7,4933$ dengan $R^2 = 0,9848$ sehingga adsorpsi pada penelitian ini mengikuti asumsi Langmuir.
3. Persamaan kesetimbangan adsorpsi dengan persamaan Treyball memiliki persamaan garis $y = 6,9608 \text{ E-}04 x$ dengan $R^2 = 9,2596 \text{ E-}01$. Persamaan ini memiliki $R^2 < 0,99$ karena persamaan ini merupakan turunan dari persamaan isoterm Freundlich.
4. Kurva *Breakthrough* yang didapat dari hasil penelitian ini tidak ideal karena bentuk kurva *breakthrough* tidak curam. Hal ini disebabkan karena beberapa faktor antara lain bentuk Cr^{6+} yang tidak seragam disepanjang kolom, laju alir yang cenderung berosilasi, dan distribusi cairan pada kolom yang tidak rata.
5. Berdasarkan hasil perhitungan *Scale-Up* kolom karbon aktif dengan menggunakan metode *Length of Unused Bed*, diperoleh spesifikasi kolom run 1 dengan diameter 0,44 m dan tinggi 1,63 m ; spesifikasi kolom run 2 dengan diameter 0,45 m dan tinggi 1,69 m ; dan spesifikasi kolom run 3 dengan diameter 0,46 m dan tinggi 1,72 m.



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