# Kinetics of Liquid Phase Batch Adsorption Experiments

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## Supplementary Material

Figures with linearised plots and comparisons of PFO, PSO and Elovich kinetics with uptake curves for all remaining cases. These are ordered on the basis of the nonlinearity parameter $Γ$, from the highest to the lowest with the pure diffusion case before the equivalent case with Sh = 2 when this has been calculated.

 

 

Figure S-1. Linearized plot and linear regression of data using the PFO, PSO and Elovich models. Highlighted points are those used in establishing the trendline. Lower right plot shows the linear plot of the uptake data with the curves calculated from the parameters obtained from the *unconstrained* linear regression. p-Xylene $c\_{0}=500$ mol m–3, $M\_{S}=10$ gr, $Γ=0.94$.

 

 

Figure S-2. Linearized plot and linear regression of data using the PFO, PSO and Elovich models. Highlighted points are those used in establishing the trendline. Lower right plot shows the linear plot of the uptake data with the curves calculated from the parameters obtained from the *unconstrained* linear regression. p-Xylene $c\_{0}=500$ mol m–3, $M\_{S}=10$ gr, $Γ=0.94$ and Sh = 2.

 

 

Figure S-3. Linearized plot and linear regression of data using the PFO, PSO and Elovich models. Filled points are those used in establishing the trendline. Lower right plot shows the linear plot of the uptake data with the curves calculated from the parameters obtained from the *unconstrained* linear regression. For the PFO model an additional curve is shown with the correct final concentration. p-Xylene $c\_{0}=500$ mol m–3, $M\_{S}=40$ gr, $Γ=0.90$ and Sh = 2.





Figure S-4. Linearized plot and linear regression of data using the PFO, PSO and Elovich models. Highlighted points are those used in establishing the trendline. Lower right plot shows the linear plot of the uptake data with the curves calculated from the parameters obtained from the *unconstrained* linear regression. p-Xylene $c\_{0}=250$ mol m–3, $M\_{S}=10$ gr, $Γ=0.87$.

 

 

Figure S-5. Linearized plot and linear regression of data using the PFO, PSO and Elovich models. Highlighted points are those used in establishing the trendline. Lower right plot shows the linear plot of the uptake data with the curves calculated from the parameters obtained from the *unconstrained* linear regression. m-Xylene $c\_{0}=500$ mol m–3, $M\_{S}=10$ gr, $Γ=0.74$.

 

 

Figure S-6. Linearized plot and linear regression of data using the PFO, PSO and Elovich models. Highlighted points are those used in establishing the trendline. Lower right plot shows the linear plot of the uptake data with the curves calculated from the parameters obtained from the *unconstrained* linear regression. p-Xylene $c\_{0}=250$ mol m–3, $M\_{S}=40$ gr, $Γ=0.68$.





Figure S-7. Linearized plot and linear regression of data using the PFO, PSO and Elovich models. Highlighted points are those used in establishing the trendline. Lower right plot shows the linear plot of the uptake data with the curves calculated from the parameters obtained from the *unconstrained* linear regression. For the PFO model an additional curve is shown with the correct final concentration. m-Xylene $c\_{0}=250$ mol m–3, $M\_{S}=10$ gr, $Γ=0.57$.





Figure S-8. Linearized plot and linear regression of data using the PFO, PSO and Elovich models. Filled points are those used in establishing the trendline. Lower right plot shows the linear plot of the uptake data with the curves calculated from the parameters obtained from the *unconstrained* linear regression. m-Xylene $c\_{0}=250$ mol m–3 and $M\_{S}=40$ gr, $Γ=0.44$ and Sh = 2.