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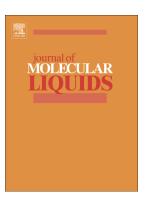
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Insights into mathematical characteristics of adsorption models and physical

meaning of corresponding parameters

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Abstract

Kinetic and isotherm studies have received extensive attention by many researchers.

Elucidating mathematical characteristics of the most widely used kinetic and isotherm

models including the pseudo-first-order (PFO) and pseudo-second-order (PSO)

kinetic equations and the Langmuir and Freundlich isotherms was of prime

significance for understanding adsorption processes. We found that these kinetic and

isotherm models were derived from the appropriate transformation of elementary

functions, revealing the mathematical law that these models conformed to. Effects of

the Langmuir constant K_L and the empirical parameter n of the Freundlich isotherm

on the isotherm curves were also investigated. Comprehending the mathematical law

that these models follow will conduce to insights into distribution of solute in the

solid/solution phases.

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