Supplementary material

The parameters α, β and γ of the mathematical expression of the GAB adsorption model (Equation (S1)), were determined by adjusting the data of C_{eq}/C_{ads} versus C_{eq} to a polynomial function.

$$\frac{C_{eq}}{C_{ads}} = \alpha C_{eq}^2 + \beta C_{eq} + \gamma \quad \text{(S1)}$$

Then, the expressions of α, β and γ shown in the Equations (S2)–(S4), allowed calculating the parameters W_m, k and C.

$$\alpha = \frac{k}{W_m}\left(\frac{1}{C} - 1\right) \quad \text{(S2)}$$

$$\beta = \frac{1}{W_m}\left(1 - \frac{2}{C}\right) \quad \text{(S3)}$$

$$\gamma = \frac{1}{W_m C k} \quad \text{(S4)}$$

First, the equations (S2) and (S3) were expressed in terms of k and W_m,

$$k = \frac{W_m \alpha}{\left(\frac{1}{C} - 1\right)} \quad \text{(S5)}$$

$$W_m = \frac{1}{\beta}\left(1 - \frac{2}{C}\right) \quad \text{(S6)}$$

Then, the parameter W_m is substituted in the eq. (S5) by the eq. (S6),

$$k = \frac{1}{\beta}\left(1 - \frac{2}{C}\right)\alpha \frac{1}{\left(\frac{1}{C} - 1\right)} \quad \text{(S7)}$$

Then, the parameters W_m (Equation (S6)) and k (Equation (S7)) are substituted in the Equation (S4). Finally, the quadratic equation shown in (Equation (S13)) allows to obtain the parameter **C**.

$$\gamma = \frac{\beta}{\left(1 - \frac{2}{C}\right)} \frac{1}{C} \frac{\beta}{\left(1 - \frac{2}{C}\right)} \frac{\left(\frac{1}{C} - 1\right)}{\alpha} \quad \text{(S8)}$$

$$\gamma = \frac{\beta^2}{\alpha} \frac{1}{C} \frac{1}{\left(\frac{4}{C^2} - \frac{4}{C} + 1\right)} \frac{\left(\frac{1}{C} - 1\right)}{1} \quad \text{(S9)}$$

$$\gamma = \frac{\beta^2}{\alpha} \frac{1}{\left(\frac{4}{C} - 4 + C\right)} \frac{\left(\frac{1}{C} - 1\right)}{1} \quad \text{(S10)}$$

$$\gamma = \frac{\beta^2}{\alpha} \frac{(1 - C)}{(4 - 4C + C^2)} \quad \text{(S11)}$$

$$4\gamma - 4\gamma C + \gamma C^2 = \frac{\beta^2}{\alpha}\ (1 - C) \tag{S12}$$

$$\gamma C^2 + \left(\frac{\beta^2}{\alpha} - 4\gamma\right) C + \left(4\gamma - \frac{\beta^2}{\alpha}\right) = 0 \tag{S13}$$

The value of γ equals to 4.6122 according to the polynomial fitting of the experimental data. Then, the equation (S13) becomes in the following expression,

$$4.6122\ C^2 - 498.6968\ C + 498.6968 = 0 \tag{S14}$$