Response to Comments on “Solubility and Dissolution Thermodynamic Data of Cefpiramide in Pure Solvents and Binary Solvents”

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We greatly appreciate Prof. William E. Acree Jr. for his valuable comments on our recent paper entitled “Solubility and Dissolution Thermodynamic Data of Cefpiramide in Pure Solvents and Binary Solvents”.

First, we need to make a correction to Eq. 15 in our published paper. Equation 15 should be represented as Eq. 1 here:

$$\ln(x_A)_{m,T} = A_1 + A_3 \ln T + A_5 \frac{x_B^0}{T} + A_7 \frac{(x_B^0)^3}{T} + A_8 \frac{(x_B^0)^4}{T}. \quad (1)$$

The values of coefficients, A_1 , A_3 , A_5 , A_7 and A_8 , are shown in Table 1. Just as Prof. William E. Acree Jr. suspected, the A_7 coefficient (in bold) should be negative. All the calculated solubilities of cefpiramide in binary ethanol + water solvent mixtures in Table 3 and Fig. 7 in the published paper were calculated according to Eq. 1.

Second, after we made a thorough investigation of the calculated solubility of cefpiramide in binary 2-propanol + water solvent mixtures, Eq. 16 in the published paper should be changed into Eq. 2 here:

$$\ln(x_A)_{m,T} = A_1 + A_3 \ln T + A_5 \frac{x_B^0}{T} + A_6 \frac{(x_B^0)^2}{T} + A_7 \frac{(x_B^0)^3}{T} + A_8 \frac{(x_B^0)^4}{T}. \quad (2)$$

The corresponding values of coefficients, A_1 , A_3 , A_5 , A_6 , A_7 and A_8 (all in bold), are listed in Table 1. As compared with Eq. 16 in the published paper, the $A_9 x_B^0 \ln T$ term is

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Table 1 Parameters of Eqs. 1 and 2 for cefpiramide in binary solvents mixtures

Parameters	Ethanol + Water		2-Propanol + Water	
	Parameter values	<i>P</i> value	Parameter values	<i>P</i> value
A_1	– 93.252	0.0000	– 97.089	0.0000
A_2	–	–	–	–
A_3	13.927	0.0000	14.607	0.0000
A_4	–	–	–	–
A_5	3559.445	0.0000	6564.039	0.0000
A_6	–	–	– 18,344.960	0.0000
A_7	– 10,448.710	0.0000	20,679.680	0.0000
A_8	8314.726	0.0000	– 8547.894	0.0000
A_9	–	–	–	–
r	0.991	–	0.994	–
100MRD	9.83	–	6.49	–

x_B^0 is from 0 to 0.9

removed because the significance level α we used in the curve-fit was 0.01, not 0.05 as the published paper reported. Namely, only when the associated P-values were found to be less than 0.01, were the corresponding items kept. In fact, all the calculated solubilities of cefpiramide in binary 2-propanol + water solvent mixtures listed in Table 4 and Fig. 8 in the published paper were calculated from Eq. 2 above.

Finally, we must apologize for the misunderstanding and errors we made and say thanks to Prof. William E. Acree Jr. again.