

Isopiestic measurements have been made for aqueous mixtures of  $\text{NaH}_2\text{PO}_4$  and  $\text{KH}_2\text{PO}_4$  at  $T = (298.15 \pm 0.01) \text{ K}$ , at  $\text{NaH}_2\text{PO}_4$  ionic strength fractions  $y = (0, 0.19108, 0.38306, 0.58192, \text{ and } 1)$ , assuming that both electrolytes dissociate as 1:1 electrolytes, using  $\text{KCl}(\text{aq})$  as the reference standard solution. Model parameters for an extended form of Pitzer's ion-interaction model and also for the Clegg–Pitzer–Brimblecombe equations based on the mole-fraction-composition scale were evaluated at  $T = 298.15 \text{ K}$  for  $\text{NaH}_2\text{PO}_4(\text{aq})$  using the present isopiestic results (13 values), as were those for  $\text{KH}_2\text{PO}_4(\text{aq})$  using the present isopiestic results (12 values), together with numerous critically-assessed osmotic coefficients for both electrolytes taken from the published literature. The thermodynamic models for  $\text{KH}_2\text{PO}_4(\text{aq})$  extend to  $m = 2.187 \text{ mol} \cdot \text{kg}^{-1}$ , which is slightly above saturation, while those for  $\text{NaH}_2\text{PO}_4(\text{aq})$  extend to  $m = 7.5 \text{ mol} \cdot \text{kg}^{-1}$ , which is below saturation. The 39 osmotic coefficients for the ternary mixtures from the present study along with 42 values from a published study were likewise represented with these models, with both the usual Pitzer mixing terms and also Scatchard's neutral-electrolyte model mixing terms being used for the extended ion-interaction model. Two mixing parameters were needed for each of the models, and all three models gave similar quality representations of the experimental results. Maximum differences in calculated values of mean molality-based activity coefficients for these three models are  $\Delta\gamma_{\pm}(\text{NaH}_2\text{PO}_4) \leq 0.0080$  and  $\Delta\gamma_{\pm}(\text{KH}_2\text{PO}_4) \leq 0.0043$ . The experimental results were also found to nearly conform to Zdanovskii's rule.