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# ACTIVITY COEFFICIENTS IN MIXED ELECTROLYTE SOLUTIONS

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Recently the equations necessay for the evaluation of activity coefficients in multicomponent solutions were derived by us, and the advantages of the new forms of the equations over previous forms were discussed. This communication shows that our equations can be applied to mixed electrolyte solutions with advantage both for theoretical analysis as well as for the analysis of experimental results.

. In a ternary solution of electrolytes it is usual to express activity coefficients in the form

$$\nu_2 \ln\gamma_2 (k_2 m_2, k_3 m_3) = \nu_2 \ln\gamma_2 (m_w, o) - \sum_{i=1} A_i (m_w) (k_3 m_3)^i$$

and

$$\nu_3 \ln\gamma_3 (k_2 m_2, k_3 m_3) = \nu_3 \ln\gamma_3 (o, m_w) - \sum_{i=1} B_i (m_w) (k_2 m_2)^i$$

where $m_w$ is the ionic strength. Our equations can be used to derive a general relation between the $A_i$ and the $B_i$. Such an equation in closed form has not appeared in the literature.

The general equations are also used to derive general expressions for $\ln\nu_i$ from an assumed expression for $\ln a_1$ ; such equations are useful in the analysis of vapour pressure data.

The results obtained by earlier workers can be regarded as special cases of the equations developed here. An advantage of the method adopted by us is that the assumptions necessary for the validity of the results can be examined in a rigorous way.