

Quiz 5.4 – Ion Activities

Name: _____

Activities and ξ

A mixture is made by dissolving 0.025 *moles* of substance *B* into 1.5 *moles* of substance *A*. These two substances have endothermic mixing, with $\xi = 0.63$. Use the Margules equations to find γ_A and γ_B

Extended Debye-Hückel Law

Consider a solution made by adding 0.75 *moles* of NaCl and 1.50 *moles* of $\text{Fe}(\text{NO}_3)_3$ to 1.00 *kg* of water solvent

Find the activity coefficients γ_{\pm} for NaCl and $\text{Fe}(\text{NO}_3)_3$ in this solution. Use the extended Debye-Hückel law, with $A = 0.5085$ and $B = 0.9843$ (values for water at 25°C and typical ion sizes).

Debye-Hückel Limiting Law

CaF_2 is a sparingly soluble salt whose solubility product is $K_{SP} = 1.6 \times 10^{-10}$. Give the molar concentration of CaF_2 in ① pure water, and ② an aqueous solution buffered with 0.50 *molal* NaNO_3 . Use the Debye-Hückel limiting law, with $A = 0.5085$

My Voice

By Rafael Campo

To cure myself of wanting Cuban songs,
I wrote a Cuban song about the need
For people to suppress their fantasies,
Especially unhealthy ones. The song
Began by making reference to the sea,
Because the sea is like a need so great
And deep it never can be swallowed. Then
The song explores some common myths
About the Cuban people and their folklore:
The story of a little Carib boy
Mistakenly abandoned to the sea;
The legend of a bird who wanted song
So desperately he gave up flight; a queen
Whose strength was greater than a rival king's.
The song goes on about morality,
And then there is a line about the sea,
How deep it is, how many creatures need
Its nourishment, how beautiful it is
To need. The song is ending now, because
I cannot bear to hear it any longer.
I call this song of needful love my voice.