ON THE DISTINGUISHED POINTS OF THE COMPLEX FORMATION FUNCTION

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The complex formation function (average coordination number) introduced by BJERRUM and LEDEN

$$\bar{n} = \frac{c_X - [x]}{c_{Me}}$$

taking into consideration the successive equilibria, can be written in the following form:

$$\bar{n} = \frac{\sum_{j=0}^{N} j \, K_j [x]^j}{\sum_{j=0}^{N} K_j [x]^j} \tag{1}$$

Certain points of this function have peculiar properties. According to BJERRUM the reciprocal values of the free ligand concentrations in the so called "half value points" ($\bar{n} = n-1/2$) give directly the values of the equilibrium constants K_n. We stated those relations of the constants which render possible the very good approximation of the formation constants. Nevertheless it must be noted that the half value points have no exact chemical meaning.

In contrast to this the so called integer value points of formation function have the following chemical meaning : when $\bar{n} = n$ the concentration of MeX_n

$$[MeX_n] = \frac{K_n [x]^n}{\sum_{j=0}^{N} K_j [x]^j} \, c_{Me} \tag{2}$$

reaches its maximal value. This can be easily seen differentiating (2) and this is valid independently of the relation of the constants .

Experimental methods were elaborated to determine the the integral value points of the formation function. These methods make it possible to control the reality of the formation constants estimated by the usual methods.

The details of this work will be published in Acta Climica Hungarica.