

## A NEW MODEL OF CHEMICAL DISSOLUTION OF SOLIDS: AN ANALYSIS OF THE MECHANISM OF DISSOLUTION OF MONODISPERSED MATERIALS

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**Abstract.** On the basis of a new theoretical model of chemical dissolution, an empirical equation was estimated, which was used by experimenters to obtain the parameters of the mineral dissolution process. When analyzing the kinetic parameters obtained using this equation, it was found that the change in these parameters during the transition from one mineral to another has a compensatory character. This means that minerals of the same nature dissolve at the same rate and at a certain temperature. Consequently, at temperatures below that point, the reactivity of the minerals is located in one sequence, and at temperatures above - in the opposite sequence. In addition, a new equation for the rate constant of chemical dissolution of minerals has been obtained. Calculations based on the new dissolution model made it possible to distinguish between the systemic and individual properties of minerals of the same nature in the process of dissolution. These minerals differ from each other by the concentration of active surface complexes, and are combined into a system by a single transmission coefficient and the same value of the lifetime of the active complex.

**Keywords:** mineral, dissolution, kinetics, thermodynamics, reactivity.