

## **BUFFER PROPERTIES OF SOIL MINERALS. PART 1. THEORETICAL ASPECTS**

Igor Povar\*, Oxana Spinu

*Institute of Chemistry, Academy of Sciences of Moldova, 3, Academiei str., Chisinau MD 2028, Republic of Moldova*  
*\*e-mail: ipovar@yahoo.ca; phone / fax: (+373 22) 73 97 36*

**Abstract.** The key quantitative characteristics of the theory of buffer action for polycomponent mono- and two-phase systems have been derived. It is shown, that the buffer properties in relation to the solid phase components are amplified with an increase of solubility due to protolytic or complex formation equilibria in saturated solutions. It has been established, that the buffer capacities of components are mutually proportional, whereas for heterogeneous systems these relationships depend on the stoichiometric composition of solid phases. The deduced equations can be applied to the assessment of buffer action of the systems “natural mineral – soil solution”, containing soluble and insoluble chemical species. A number of the important conclusions concerning the investigated buffer systems have been made. The obtained results are of interest for soil scientists and ecologists.

**Keywords:** buffer action, complex formation, soil solution, solid phase, thermodynamic stability.