Loeppert, R.H., Schwab, A.P., Goldberg, S. (ed.): **Chemical Equilibrium and Reaction Models**. - Soil Science Society of America and American Society of Agronomy, Madison 1995. 422 pp. ISBN 0-89118-817-7.

Soils are complex and variable systems that are also highly dynamic. Even if equilibrium could be assumed, a quantitative, thermodynamic description of the system is a difficult task because of the large number of possible chemical reactions. Knowledge of these systems has advanced remarkably because of ability to model them mathematically. Mathematical models of chemical reaction and their equilibrium states can be tested experimentally and new experimental approaches may be suggested by the observations of the behaviour of the model. The monograph is a written compilation of the presentations from symposium presented at the 1990 annual meeting of ASA and SSSA in San Antonio, Texas, USA. The first, theoretical group of seven presentations covers classification and validation of models, critical compilation of metal complex equilibrium constants, aqueous thermodynamic models, discussion on available computer programs on carbonate chemistry, adsorption models, chemical equilibrium in solute transport models and hypersaline solutions. The following three chapters deal with application of models to leachates from coal ash, validation of geochemical equilibrium models and application of models to plant nutrition research, especially to effect of chelator buffering in nutrient solutions. The other nine papers describe the models MINTEQA2, PRODEFA2, GEOCHEM-PC, SOILCHEM, C-Salt, ALCHEMI, CHESS, GMIN and LEACHM. The papers tend to be technical in content but are readable by a broad cross-section of scientists interested in soil modelling.

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