

**ASPECTS OF APPLIED AND ENVIRONMENTAL MINERALOGY  
AT LOW TEMPERATURE**

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The fields of activity in applied and environmental mineralogy are strongly linked to physical and chemical as well as to material and engineering sciences. Special emphasis is put on the structure and composition of minerals providing insight into their chemical and physical properties. In particular, for low temperature environments substantial tasks are related to the neoformation and dissolution behaviour of solids examined in experiments and field studies.

Significant impact to the understanding of reaction mechanisms and kinetics on the formation and destruction of nanostructured solids can be obtained by analysis of the boundary layers between separated phases, like minerals and aqueous solution. Beyond classical mineralogical and chemical characterization special focus is given on micro- and nanostructural analyses, spectroscopic techniques, isotope distribution as well as on thermodynamic and kinetic modelling.

Dissolution of minerals causes structural decomposition accompanied with liberation and transport of compounds. Neoformation of solids comprises crystallization, solid solution, and colloid formation as well as adsorption and co-precipitation phenomena. New data and techniques to decipher reaction mechanisms and kinetics with regard to applied and environmental tasks, e.g. water treatment, carbonate precipitation, iron corrosion, alteration of cements, and stability of silicates, are presented.