P15 | **The combined free-volume and thermal response study of the low hydrated Ca-Montmorillonite**

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The common clay mineral, montmorillonite (MMT), belongs to the smectite group of the phyllosilicate minerals. Characteristic features of its structure are high swelling ability because of water absorption. It is used in different areas, e.g. as catalytic processes agent, desiccant to remove moisture, inorganic filler in the polymer industry, etc.

The aim of this study is to characterize free-volume structure in Ca-modified montmorrilonite [1,2] at the presence of different ammount of water inside of interlayer structure combined with thermoanalytical methods. Free-volume was studied at the samples prepared at simple ambient conditions (room temperature, presence of air). Amount of water was determined by weigh measurements. During the measurements the sample was hermertically sealed. Water desorption process occurring typically between 50°C and 180°C is analyzed in details by thermogravimetric analysis (Perkin Elmer 7). Thermal response of absorbed water for selected steps of desorption process is studied by Differential scanning calorimetry (Perkin Elmer 8500). The correlation of results of characterization methods are provided.

[1] V. Š. Fajnor and K. Jesenák, *J. of Thermal Analysis* 46, 489 (1996)
[2] K. Jesenák, Ľ. Kuchta, L. Guller and J. Fúsková, *Mineralia Slovaca* 29, 439 (1997)