
A Novel Differential Thermal Analysis Method for Quantifying the Sorption Capacity of Smectite Clay

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Abstract: The enthalpy of freezing of methyl salicylate sorbed by four commercial montmorillonite clays was used to estimate the adsorption/adsorption capacity of the clay. Differential thermal analysis was therefore employed to give a quantitative estimate of the sorption capacity of the clay for methyl salicylate. The adsorption capacity of the clay depended on the state of hydration and ranged from 30.4% for an 8% water content to 9.7% for a montmorillonite containing 24% water.

Key Words: Adsorption • Differential thermal analysis • Hydration • Methyl salicylate • Smectite

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