THERMOANALYTICAL INVESTIGATION OF SUPRAMOLECULAR COMPOUNDS

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Methods of thermal analysis – thermogravimetry, differential scanning calorimetry, evolved gas analysis and other techniques – have been applied for the characterisation of supramolecular compounds (SMC-s) for a long time. The main goals of investigations include verifying SMC formation, discrimination between SMC-s and simple (mechanical) mixtures, determination of stoichiometric ratios, quantitative analysis of free host and guest compounds in mixtures, characterisation of thermal stability and description of decomposition processes. Thermoanalytical studies may also provide useful information on the enantioselectivity of chiral hosts.

The paper discusses the possibilities of using thermal analysis in studies mentioned above in cases of particular model systems. The systems to be discussed include inclusion compounds of different cyclodextrines and calixarenes, as well as SMC-s of dibenzoyl tartaric acid and related compounds with alcohols and phenols, which have been utilised in separation of enantiomers. Examples of industrial applications are also reported.