

# SYNTHESIS AND APPLICATION OF ACRYLATE BASED THERMALLY EXPANDABLE CORE-SHELL MICROSPHERES

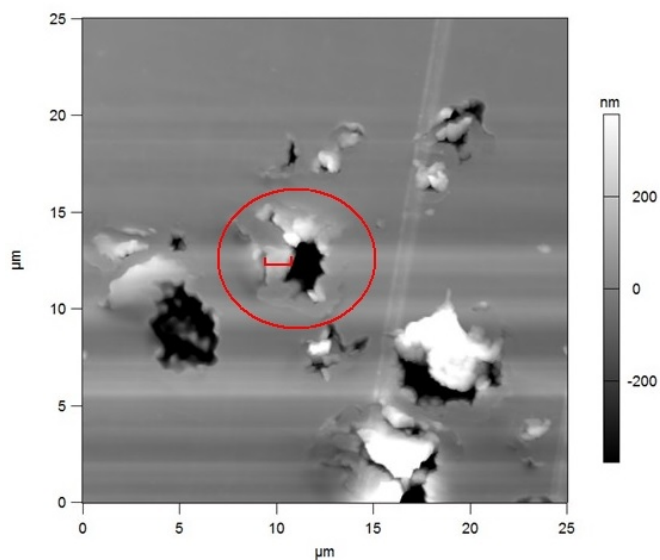
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Polymeric microspheres with a core – shell structure have a wide variety of applications, such as in the food industry or in the medical field as drug delivery systems [1-3]. In our study we synthesize microspheres with a core-shell structure, where the core is an inert carbohydrate and the shell is acrylate based. The reactions are carried out as an oil in water suspension, free radical polymerization via a known route [4]. The reactions are varied with respect to the monomer selection and parameters.

The received products have the ability to expand upon energy input (heat) and are analyzed via optical microscopy, thermogravimetric analysis and atomic force microscopy (AFM). It is shown that the different shell compositions have an influence on the expansion temperatures as well as on the particle morphology. The Figure shows an AFM picture of several microspheres, with one circled and the shell thickness indicated.



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