

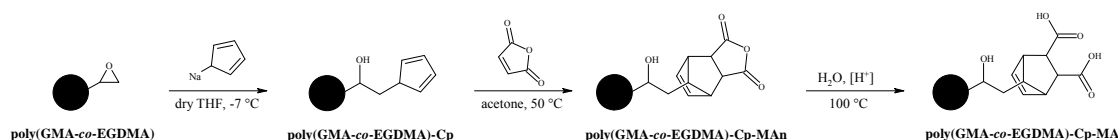
SURFACE ANALYSIS OF FUNCTIONAL POLY(GMA-co-EGDMA) MICROSPHERES BY INFRARED PHOTOACOUSTIC SPECTROSCOPY

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According to Scheme 1, the post-polymerization modification of microspheres was subsequently achieved firstly by reacting glycidyl functions with sodium cyclopentadienide and secondly by Diels-Alder click reaction with maleic anhydride. Analysis of this surface-modified polymer materials using spectroscopic methods, often causes problems for researchers in unambiguously confirmation of the changes carried out in the surface of the solid material.



Scheme 1. The poly(GMA-co-EGDMA) microspheres' modifications steps.

Infrared photoacoustic spectroscopy (PAS) method has been used for the investigations of powdered or porous samples, solids, and surface species, chemisorbed species, and catalysis. As a supplementary technique for the solid state studies, photoacoustic spectroscopy is a powerful tool for research in this area [1].

In this work, PAS is an interesting, simple, and non-destructive technique used for confirmation of successful surface modification.

[1] J. Ryczkowski, *Appl. Surf. Sci.*, **256**, 5545-5550, (2010).