

Development of a New Polymeric Material with Controlled Surface Micro-Morphology Aimed for Biosensors Applications

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Abstract : Compositions of different molar ratios of polymethylmethacrylate-co-methacrylic acid (PMMA-co-MAA) were synthesized via free- radical polymerization. Polymer coated surfaces have been produced on silicon wafers. Coated samples were analyzed by atomic force microscopy (AFM). The results have shown that the roughness of the surfaces have increased by increasing the molar ratio of monomer methacrylic acid (MAA). This study reveals that the gradual increase in surface roughness is due to the fact that carboxylic functional groups have been generated by MAA segments. Such surfaces can be desirable platforms for fabrication of the biosensors for detection of the viruses and diseases.

Keywords : polymethylmethacrylate-co-methacrylic acid (PMMA-co-MAA), polymeric material, atomic force microscopy, roughness, carboxylic functional groups

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