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Keywords

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Abstract

Regularly sized platinum electrodes were modified with a layer of thermosensitive hydrogel based on poly(N-isopropylacrylamide) and containing different amounts of crosslinker. The layers were formed by using the electrochemically induced free radical polymerization. The transport of electroactive species through the layers was examined in function of crosslinker content and for two possible forms of the hydrogel. It was found that in the shrunken state, within a specific scan-range, the shape of the voltammograms was typical for a set of independent micro/nanoelectrodes, while in the swollen state of the layers the voltammograms were peak-shaped in the entire scan-rate range. This was a result of either through-film transport (swollen layer) or pinhole/pore (shrunken layer) diffusion of electroactive species. 2% content of crosslinker caused the biggest limitation to the probe transport to the electrode surface.