

Abstract

The topic of this thesis was the preparation of fibers with new polymeric cyclophosphazene phase for a headspace microextraction on a solid phase followed by a separation on a gas chromatograph.

The surface of platinum wires was covered by a layer of poly (cyclo) phosphazene-benzoquinone using electrochemical polymerization. The characteristic of the polymer layer was subsequently verified by the infrared spectroscopy.

The new polymeric material was used as a stationary phase a for solid-phase headspace microextraction. Two different model solutions, a mixture of hydrocarbons in pentane and alcohols in water, were selected to test the selectivity of the film. It has been found that the films are extracting better hydrocarbons than alcohols.

The extraction of the alcohol mixture sample was optimized by the experimental design, which makes it possible to determine the factors and their combinations, which have the greatest influence on the investigated response. A Minitab 16 program evaluated the final optima for individual alcohols as well as for the sum of the absolute areas of the whole mixture. A separation of model analytes was performed using a gas chromatograph with flame ionization and mass detector.

Keywords

electrochemical polymerization, poly (cyclo) phosphazene-benzoquinone film, solid phase microextraction, gas chromatography