Abstrakt EN

The present diploma thesis is focused on optimization methods of titanium and phosphorus concentration for their use in the colloidal solution of TiO_2 nanoparticles modified by bisphosphonates. For these analyses was used atomic absorption spectrometry with flame and electrothermal atomization. The characteristics of the two analytes were compared to two different spectrometers. Using the F-AAS technique on the GBC 933 AA spectrometer has been achieved a detection limit of 5,2 mg l^{-1} for titanium and a detection limit of 163 mg l^{-1} for the phosphorus. Using the ContrAA 700 spectrometer, F-AAS has been achieved an almost five times lower detection limit of 1,1 mg l^{-1} for titanium determination. For determination of phosphorus using this spectrometer, was obtained a similar value of 151 mg l^{-1}, as using the GBC 933 AA spectrometer. The determination of phosphorus by the ET-AAS technique using the ContrAA 700 spectrometer resulted in a detection limit of 1,23 mg l^{-1}, which is a significant difference compared to the flame system. It has been proved that optimized methods are consistent with the intention, which was confirmed by the analysis of real titanium and phosphorus samples in the colloidal solution of TiO_2 nanoparticles modified bisphosphonates.