

Abstract

The presented thesis deals with optimization of parameters speciation analysis based on a selective hydride generation in a direct transfer mode of hydrides and on-line atomization in an atomic absorption spectrometer.

In the first part of the thesis processes during generation were investigated. Important indicator of a reactions taking place in a generator is volume of hydrogen (created by decomposition of NaBH_4) which is subsequently introduced to the atomizer. In this part of the thesis a new approach to determine a flow rate of hydrogen delivered to the atomizator was developed. An influence of relevant parameters of the atomizers and atomic absorption spectrometers on basic analytical characteristics of arsenic determination based on hydride generation was performed in the second part. Three atomic absorption spectrometers were used and three sources of radiation were compared. The most important analytic characteristic was the limit of detection which is influenced by standard deviation of measurement values of blank samples and by sensitivity. The best values of the limit of detection were achieved with electrodeless discharge lamps.

Key words: hydride generation, arsenic, speciation analysis, atomic absorption spectrometry