Abstract

The possibilities of electrochemical generation of volatile thallium hydride have been studied in this work. A thin-layer electrolytic cell with minimal volume of cathode chamber has been employed. All experiments have been employed in electrochemical continuous flow generation. An electrochemical hydride generation technique was developed to improve the determination of analytes by atomic spectrometry. Effect of various experimental conditions such as kind of cathode material, type and concentration of electrolyte, amount of generation current and flow rate of carrier gas on the absorption signal was examined. Under the optimal values of previously mentioned parameters, the low sensitivity of thallium determination was achieved. So the experimental setup is not suitable for determination of low concentration of thallium in specimens.

Keywords

Atomic absorption spectrometry, electrochemical generation of volatile compounds, hydrides, thallium, electrolytic flow cell, optimization