

Abstract

The foundation of this thesis was the optimization and subsequent comparison of various atomic spectrometric methods for determining trace amounts of hafnium. The methods employed for this determination were Atomic Absorption Spectrometry (AAS) and Inductively Coupled Plasma Mass Spectrometry (ICP-MS). Hafnium is one of the less frequently analyzed elements in chemical practice, and its analysis is specific due to the presence of multiple isotopes. The goal of this work was to elucidate the analysis of this element and to identify solutions to potential measurement complications while searching for the most suitable method.

Standards were initially used for the determination, and calibration curves were developed to establish the optimal conditions for determining this element. The verification of hafnium determination in practice was conducted on two samples of zeolites.

During the optimization and comparison of the methods, it was found that AAS is not suitable for the determination of trace amounts of hafnium. ICP-MS proved to be far more effective and accurate and was subsequently used for analyzing the samples.