

Methods for correcting the isotopic fractionation of Fe determined by TIMS

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The determination of very small isotopic fractionations of Fe may be carried out by Termic Ionization Mass Spectrometry (TIMS). A major limit of this technique is the potential high mass fractionation of the element during either chromatographic separation from the matrices and isotopic measurements by mass spectrometer. In this respect, we have developed some graphical methods aimed at providing a relatively simple way to correct the isotopic fractionation of Fe during the analysis. An example of the proposed methods is here presented. We plot on the $^{54}\text{Fe}/^{57}\text{Fe}$ ratio versus the $^{54}\text{Fe}/^{56}\text{Fe}$ ratio graph the isotopic values obtained from a given sample placed on different filaments of the mass spectrometer. The different lines meet at a point on the plot, that provides the "true" isotopic ratio of the sample before its deposition on the different filaments. Fig. 1 illustrates the proposed example.

