FEATURES OF THE QUANTITATIVE ANALYSIS
IN MOSSBAUER SPECTROSCOPY

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The Mössbauer spectroscopy technique belongs to few methods of defining the phase state or crystallographic sites of substance. The Mössbauer spectra bear information on various hyperfine interactions, many of which are indirectly related to the chemical nature of the Mössbauer atom and its nearest environment. Determination of parameters of hyperfine interactions that can be extracted from Mössbauer spectra and used for qualitative analysis is a routine task. In present work we studied the influence of various factors on experimental errors encountered in quantitative defining the phase composition or site populations of the substance under study. Such as measurements geometry, Lamb - Mössbauer coefficients, absorber thickness, efficiency and dead time of the detection system and spectral line shape. The absolute f measurements were made with "black" absorber method. Mössbauer measurements were carried out under carefully controlled of background intensities. Since the accuracy of f evaluation is directly depend on the measurement of background. The influence of a non-uniformity of samples on results of the quantitative analysis is discussed Data analysis we divided into two parts: removal of instrumental artifacts by folding and baseline correction and deconvolution to extract hyperfine parameters of individual local environments. In our approach calibration graphs were drawn by measuring the spectra of a series of analogous samples having different known concentrations. For the same purpose, internal standard method also was used. Experimental data are presented for phase analysis of different samples.

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