

Determination of oxidation states of sulfur and magnesium with x-ray spectrometry

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(received: 23/1/2003, received in revised form: 30/4/2003)

Abstract: The energies of the emission spectral lines originating from vacancies in deep atomic shells change if the elements are in different oxidation states. These changes of energies cause small shifts in spectral lines. For Sulfur and Magnesium, these shifts are shown in this work, and also the influence that they may have on the calibration of wavelength-dispersive spectrometers and in consequence, on quantitative and qualitative analysis by XRF. Also, these changes prove to be useful in identifying oxidation states and in some cases phases in different oxidation states.

Keywords: *Chemical Shift, X-Ray Spectrometry, Sulfur, Magnesium.*