

Factors Affecting Quantitative EDS Analysis in the TEM

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It is often assumed that EDS analysis on (S)TEM is straightforward. However, many factors may affect both quantitative and qualitative results. These include microscope alignment, sample holders, apertures as well as sample thickness, density and homogeneity. Careful sample preparation is essential for accurate quantitative results and usually a number of measurements are necessary to present a realistic representation of the sample under investigation. In addition, spectral mapping and linescans are open to misinterpretation if overlapping peaks are present in the sum spectrum. Finally, new aberration corrected TEMs with extremely small probe sizes with high beam current densities can create artifacts that are generally not experienced in microscopes with larger probes of lower beam current density.