

TRACE PHASE ANALYSIS USING THE CALIBRATION CURVE METHOD UNDER VARIOUS CONDITIONS

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Quantitative phase analysis using x-ray powder diffraction has become a widely used analytical method for the determination of composition in crystalline materials. In practice the, lower limits of detection for trace phases often depends on sample features such as crystal quality and absorption, as well as the experimental geometry used for the measurements. In this presentation, quantitative x-ray diffraction measurements have been made using the Rigaku TTRAX III 18kW theta-theta diffractometer configured for trace phase analysis. The quantitative method of standard addition has been used to determine the effects of absorption, crystal quality, crystallite size, and sample uniformity on achievable lower limits of detection.