QUANTITATIVE POLYMORPH ANALYSIS IN DRUG PRODUCT BY XRD

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Quantitative Polymorph Analysis in Drug Products is a challenging subject in pharmaceutical industry. As one of the standard test for polymorphism, powder XRD faces the issue of excipient inference, sample preparation, detection limit and resolution limitations. There are also different approaches and methodologies of quantitative data treatment. These issues are addressed in case studies. In order to detect low levels of the undesired API polymorph (Form II) in drug products, the X-ray diffractometer is used approaching its limit of noise reduction. There is severe excipient interference and preferred orientation issues in the case studies. For quantitative analysis, a linear calibration, which has a correlation coefficient of R^2=0.9974 and RSD of less than 10%, is established between the relative peak intensity and the Form II percentage. TOPAS P peak fitting software is used to calculate the peak intensities. Qualification and/or validation of such detection limit and quantitative method in pharmaceutical industry environment are discussed.