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Non-destructive Quality control of tablets and blister packs by UV imaging - DTU Orbit (08/11/2017)

Non-destructive Quality control of tablets and blister packs by UV imaging

Quality control of tablets and its primary packing material within the manufacturing line requires analytical routines that allow monitoring of the desired product attributes with high efficiency. The aim of this study was to evaluate the suitability of multispectral UV imaging combined with multivariate image analysis for verification of blister pack filling, differentiation of tablets of varying composition therein, as well as detection of imprint defects and surface cracks of bulk tablets. Moreover, the influence of polymer sealing foils on tablet characterization within blister cavities was investigated. Several tablets of different composition were imaged either as bulk, within unsealed blister packs, or within blister packs that were manually sealed with three different types of either PVC or PCTFE foils. It was demonstrated that UV imaging is a fast and reliable technique for counting and differentiation of tablets within the blister packs. The sealing foils did not prevent characterization of the blister packs with regard to the tablets within the cavities. However, the polymer foils were found to cause changes in the multispectral UV image data set that allow to distinguish the blister packs based on the used polymer. Classification of the blister packs according to the composition of the tablets and the sealing foil was achieved. Furthermore, UV imaging was successfully applied to the detection of defects on imprinted codes and cracks on the surface of bulk tablets. Multispectral UV imaging is a powerful tool for quality control of tablets. Considering the highspeed of non-destructive image acquisition, this technique is promising for implementation in the tablet manufacturing process.

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