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标题: Coating and Density Distribution Analysis of Commercial Ciprofloxacin Hydrochloride Monohydrate Tablets by Terahertz Pulsed Spectroscopy and Imaging

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摘要: Terahertz pulsed spectroscopy was used to qualitatively detect ciprofloxacin hydrochloride monohydrate (CPFX center dot HCl center dot H2O) in tablets, and terahertz pulsed imaging (TPI) was used to scrutinize not only the coating state but also the density distribution of tablets produced by several manufacturers. TPI was also used to evaluate distinguishability among these tablets. The same waveform, which is a unique terahertz absorption spectrum derived from pure CPFX center dot HCl center dot H2O, was observed in all of the crushed tablets and in pure CPFX center dot HCl center dot H2O. TPI can provide information about the physical states of coated tablets. Information about the uniformity of parameters such as a coating thickness and density can be obtained. In this study, the authors investigated the coating thickness distributions of film-coated CPFX center dot HCl center dot H2O from four different manufacturers. Unique terahertz images of the density distributions in these commercial tablets were obtained. Moreover, B-scan (depth) images show the status of the coating layer in each tablet and the density map inside the tablets. These features would reflect differences resulting from different tablet-manufacturing processes.

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