



Pharmaceutical and Medical Applications of Near-Infrared Spectroscopy, Second Edition (Practical Spectroscopy)

Emil W. Ciurczak, Benoit Igne

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Since the completion of the first edition of this book, major developments have occurred in the pharmaceutical industry that have shaped the field of near-infrared (NIR) spectroscopy. A new initiative from the U.S. Food and Drug Administration (FDA) to modernize regulations of pharmaceutical manufacturing and drug quality has helped position NIR spectroscopy as an effective tool for pharmaceutical testing. **Pharmaceutical and Medical Applications of Near-Infrared Spectroscopy: Second Edition** reflects these developments and brings readers an up-to-date summary of how this technique is being applied to pharmaceutical manufacturing.

Topics include:

- The origins and principles of NIR spectroscopy, including early instrumentation, spectroscopic theory, and light-particle interaction
- The physics of each instrument type, the strengths and weaknesses of each, and the manufacturers that produce them
- The possible advantages of using NIR methods for monitoring or controlling blending, as well as practical concerns for mixing processes
- NIR spectroscopy as applied to traditional granulation, drug layering, and film coating of beads or granules
- Pharmaceutical assays, including qualitative analysis, quantitative analysis, determination of actives in tablets and capsules, and considerations for intact dosage form analysis
- Steps involved in the validation and acceptance of an NIR spectroscopy method, including quality assurance, qualification and verification of instruments, and the International Conference on Harmonization (ICH) guidelines
- Medical applications, including those related to blood glucose measurements, tissue and major organ analysis, fetal analysis, and cancer research

Providing comprehensive coverage of NIR spectroscopy, from theory, mathematics, application, and mechanics of NIR analysis, the book supplies ample references to facilitate further research into this burgeoning field.

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