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inorganic CRT; 2.4. Theory and Practical Modelling of Drug Controlled Release Kinetics; References; Further Reading; Chapter 3: Materials Characterization of Inorganic Controlled Release; 3.1. Introduction; 3.2. Chemical Analysis; 3.2.1. X-Ray Fluorescence; 3.2.1.1. Case Study: Contamination Investigation; 3.2.2. Inductively Coupled Plasma Mass Spectrometry; 3.2.2.1. Case Study: Controlled Release of Strontium from P-glass; 3.2.2.2. Case Study: Detection of Cobalt and Chromium Ions in Patients with Metal-on-Metal Implants; 3.2.3. FTIR; 3.2.3.1. Case Study: FTIR Study of Silanol Groups in Silica, Silica-Alumina, and Zeolites; 3.2.3.2. Case Study: Quantification of Bridging and Non-bridging SiO as a Function of SiO₂ % by FTIR; 3.2.4. X-Ray Photoelectron Spectroscopy (XPS)-Surface Chemistry 1; 3.2.4.1. Case Study: XPS Study on SiOSi Bridging Energy Variation; 3.2.5. Secondary Ion Mass Spectrometry (SIMS)-Surface Chemistry; 3.2.5.1. Case Study: Investigation of the Surface Chemistry of a Bioglass-Polymer Hybrid Composite; 3.3. Physical Property Analysis; 3.3.1. X-Ray Diffraction; 3.3.1.1. Case Study: Characterization of a Calcium Hydroxyapatite Reference Material; 3.3.1.2. Case Study: Characterization of Amorphous and crystalline Materials; 3.3.2. Nanoporosity Characterization; 3.3.2.1. Case Study; 3.4. Microscopy; 3.4.1. SEM, BEM and EDX; 3.4.1.1. Case Study: drug-loaded sol-gel glass particles; 3.4.2. TEM; 3.4.2.1. Case Study: drug-loaded mesoporous silica

Sommario/riassunto

Inorganic Controlled Release Technology: Materials and Concepts for Advanced Drug Formulation provides a practical guide to the use and applications of inorganic controlled release technology (iCRT) for drug delivery and other healthcare applications, focusing on newly developed inorganic materials such as bioresorbable glasses and bioceramics. The use of these materials is introduced for a wide range of applications that cover inorganic drug delivery systems for new drug development and the reformulation of existing drugs. The book describes basic concepts, principles, and industrial practice

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