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| Nota di contenuto | Cover; Title Page; Copyright; Contents; Preface; List of Contributors; Chapter 1 Surface Modification of Nanomaterials for Application in Polymer Nanocomposites: An Overview; 1.1 Introduction; 1.2 Types of Nanomaterials; 1.2.1 Zero-Dimensional (0D) Nanomaterial; 1.2.2 One-Dimensional (1D) Nanomaterials; 1.2.3 Two-Dimensional (2D) Nanomaterials; 1.2.4 Three-Dimensional (3D) Nanomaterials; 1.3 Synthetic Methodologies of Nanomaterials; 1.4 Surface Modification of Nanomaterials and Their Advantages in Polymer Composites; 1.4.1 Silane Grafting; 1.4.2 Polymer Grafting 1.4.3 Surface Modification of Nanomaterials Using Surfactants1.5 Method for the Incorporation of Nanomaterials in a Polymer Matrix; 1.5.1 Sol-Gel Method; 1.5.2 Blending Method; 1.5.2.1 Solution Blending Method; 1.5.2.2 Melt Blending; 1.5.3 In Situ Polymerization; 1.6 Influence of Surface-Modified Nanomaterials on the Properties of Polymer Nanocomposites; 1.6.1 Thermal and Flame-Retardant Properties; 1.6.2 Mechanical Properties; 1.6.3 Electrical Properties; 1.7 Conclusion; Abbreviations; References; Chapter 2 Surface Modification of Boron Carbide for Improved Adhesion to an Epoxy Matrix 2.1 Introduction2.2 Powder Synthesis; 2.3 Ceramic Components; 2.4 Composites; 2.5 Native Surface Chemistry; 2.6 Silane Surface |

Modification; 2.7 Silane-Treated Boron Carbide; 2.7.1 Surface Free Energy of BC; 2.7.2 Wettability of the Adhesive on the BC Surface; 2.7.3 Surface Chemistry of BC Surfaces; 2.7.4 Silane Layer on BC Surface; 2.7.5 Silane Layer Coverage; 2.7.6 Adhesion at Particle/Adhesive Matrix Interface; 2.8 Proposed Mechanism for the Silane Treatment of BC Surface; 2.9 Summary; References; Chapter 3 Surface Modification of Hydroxyapatite for Bone Tissue Engineering
 3.1 Introduction 3.2 Surface Modification of HA; 3.2.1 "Grafting Onto" Method; 3.2.1.1 Condensation Reaction; 3.2.1.2 "Click" Reaction; References; 3.2.2 "Grafting From" Approach; 3.2.2.1 Ring-Opening Polymerization (ROP); 3.2.2.2 Radical Polymerization; 3.2.3 Other Techniques; 3.3 Applications for Bone Tissue Engineering; 3.4 Conclusion and Perspective; Acknowledgment; Chapter 4 Influence of Filler Surface Modification on the Properties of PP Composites; 4.1 Introduction; 4.2 Silica Modification; 4.3 Glass; 4.4 Silicates; 4.5 Mg (OH)₂ and Eggshell Modification; 4.6 Cellulose; 4.7 Carbon
 4.8 Conclusion References; Chapter 5 ScCO₂ Techniques for Surface Modification of Micro- and Nanoparticles; 5.1 Introduction; 5.2 Compressed CO₂ and {CO₂ + Solvent} Properties; 5.3 Modification of Particles Using CO₂ as Solvent (Route 1); 5.3.1 Chemical Grafting; 5.3.1.1 Dyeing; 5.3.1.2 Silanization; 5.3.1.3 Application-Driven Processes; 5.3.2 Decoration of Structures by Physical Deposition; 5.3.2.1 By Metals (scCO₂ Precursor Deposition and Post-decomposition); 5.3.2.2 With Neat Ingredients (scCO₂ Infiltration, No Posttreatment); 5.4 Modification of Particles Using CO₂ as Non-solvent (Route 2)
 5.4.1 Modification by Coprecipitation from Homogeneous Solution

Sommario/riassunto

A review of the various methodologies for the surface treatment of different types of inorganic spherical and fibrous fillers, describing ball milling, cationic polymerization, vapor phase grafting, plasma treatment and UV irradiation in detail. In addition, the book connects the resulting composite properties to the modified filler surface properties, thus allowing for a purposeful, application-oriented composite design.
