



PEEK biomaterials handbook

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Elsevier Science [distributor],
2011

Monografía

PEEK biomaterials are currently used in thousands of spinal fusion patients around the world every year. Durability, biocompatibility and excellent resistance to aggressive sterilization procedures make PEEK a polymer of choice replacing metal in orthopedic implants, from spinal implants and hip replacements to finger joints and dental implants. This Handbook brings together experts in many different facets related to PEEK clinical performance as well as in the areas of materials science, tribology, and biology to provide a complete reference for specialists in the field of plastics, biomaterials, medical device design and surgical applications. Steven Kurtz, author of the well respected UHMWPE Biomaterials Handbook and Director of the Implant Research Center at Drexel University, has developed a one-stop reference covering the processing and blending of PEEK, its properties and biotribology, and the expanding range of medical implants using PEEK: spinal implants, hip and knee replacement, etc. Full coverage of the properties and applications of PEEK, the leading polymer for spinal implants. PEEK is being used in a wider range of new applications in biomedical engineering, such as hip and knee replacements, and finger joints. These new application areas are explored in detail. Essential reference for plastics engineers, biomedical engineers and orthopedic professionals involved in the use of the PEEK polymer, and medical implants made from PEEK

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Título: PEEK biomaterials handbook [Recurso electrónico] Steven M. Kurtz

Editorial: Norwich, N.Y. William Andrew Oxford Elsevier Science [distributor] 2011

Descripción física: 1 recurso electrónico (x, 298 p.) il. col

Mención de serie: Plastics design library Science Direct e-books

Bibliografía: Incluye referencias bibliográficas e índice

Contenido: PART 1: PEEK Foundations, properties and behavior -- 1. Introduction to PEEK Biomaterials -- 2. Processing of PEEK -- 3. Blending and PEEK Composites -- 4. Morphology and Crystalline Architecture of Polyaryletherketones -- 5. Static Mechanical Behavior of PEEK -- 6. Fatigue and Fracture Behavior of PEEK -- 7. Chemical and Radiation Stability of PEEK: Implications for Device Sterilization -- PART 2: Bioactive PEEK Materials -- 8. Biocompatibility of PEEK -- 9. Microbial Properties of PEEK Biomaterials -- 10. Thermal Plasma Spray Deposition of Titanium and Hydroxyapatite on PEEK Implants -- 11. Plasma Surface Treatment of PEEK --

12. HA/PEEK Biocomposites -- 13. Porosity in PEEK Marcus -- PART 3: PEEK Applications in Medical Devices -- 14. Development and Clinical Performance of PEEK Intervertebral Cages -- 15. PEEK Biomaterials for Posterior Dynamic Stabilization of the Spine -- 16. PEEK Research for Trauma and Arthroscopy Applications -- 17. Development and Clinical Performance of PEEK Composite Hip Stems -- 18. Total Joint Arthroplasty Bearing Surfaces -- 19. Tribology of PEEK Biomaterials for Artificial Discs -- 20. FDA Regulation of PEEK Implants

Detalles del sistema: Forma de acceso: World Wide Web

ISBN: 9781437744637 143774463X electronic bk.) 9781437744644 1437744648 128333156X 9781283331562

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