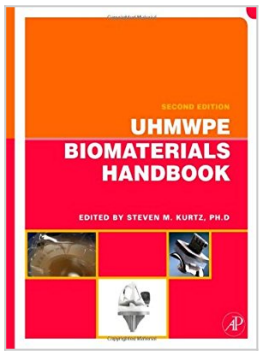

UHMWPE Biomaterials Handbook, Second Edition: Ultra High Molecular Weight Polyethylene in Total Joint Replacement and Medical Devices (Plastics Design Library)

By Steven M. Kurtz Ph.D.

UHMWPE Biomaterials Handbook, Second Edition: Ultra High Molecular Weight Polyethylene in Total Joint Replacement and Medical Devices (Plastics Design Library) By Steven M. Kurtz Ph.D.

This book describes the science, development, properties and application of of ultra-high molecular weight polyethylene (UHMWPE) used in artificial joints. This material is currently used in 1.4 million patients around the world every year for use in the hip, knee, upper extremities, and spine.

Since the publication of the 1st edition there have been major advances in the development and clinical adoption of highly crosslinked UHMWPE for hip and knee replacement. There has also been a major international effort to introduce Vitamin E stabilized UHMWPE for patients. The accumulated knowledge on these two classes of materials are a key feature of the 2nd edition, along with an additional 19 additional chapters providing coverage of the key engineering aspects (biomechanical and materials science) and clinical/biological performance of UHMWPE, providing a more complete reference for industrial and academic materials specialists, and for surgeons and clinicians who require an understanding of the biomaterials properties of UHMWPE to work successfully on patient applications.

* The UHMWPE Handbook is the comprehensive reference for professionals, researchers, and clinicians working with biomaterials technologies for joint replacement * New to this edition: 19 new chapters keep readers up to date with this fast moving topic, including a new section on UHMWPE biomaterials; highly crosslinked UHMWPE for hip and knee replacement; Vitamin E stabilized UHMWPE for patients; clinical performance, tribology an biologic interaction of UHMWPE * State-of-the-art coverage of UHMWPE technology, orthopedic applications, biomaterial characterisation and engineering aspects from recognised leaders in the field

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Editorial Review

Review
"The UHMWPE Handbook is a comprehensive yet concise presentation of the important role that polyethylene has played and continues to play in the treatment armamentarium of the orthopaedic surgeon." - Joshua J. Jacobs, MD, Rush University Medical Center, Chicago, IL

About the Author
Dr. Kurtz has been researching ultra-high molecular weight polyehtylene(UHMWPE) for use in orthopedics for over 10 years. He has published dozens of papers and several book chapters related to UHMWPE used in joint replacement. He has pioneered the development of new test methods for the material in orthopedics. Dr. Kurtz has authored national and international standards for medical upgrade UHMWPE.

As a principle engineer at Exponent, an international engineering and scientific consulting company, his research on UHMWPE is supported by several major orthopedic manufacturers. He has funding from the National Institutes for Health to stdy UHMWPE changes after implanatation in the body, as well as to develop new computer-based tools to predict the performance of new UHMWPE materials.

Dr. Kurtz is the Director of an orthopedic implant retrieval program in Philadelphia which is affiliated with Drexel University and Thomas Jefferson University. He teaches classes on the performance of orthopedic polymers (including UHMWPE) at Drexel, Temple, and Princeton Universities.

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