

Medical Grade UHMW-PE for Long-term Implantation



Shapes for the Orthopaedic Implant Industry

Mitsubishi Chemical Advanced Materials' MediTECH® division is dedicated to serving the global orthopaedic implant market.

Products with proven success

For more than 30 years, Mitsubishi Chemical Advanced Materials MediTECH® has supplied leading orthopaedic implant manufacturers with premium grade UHMW-PE under the Chirulen® and Extrulen® brand names. Due to their superior physical and mechanical properties, cleanliness and consistency, Chirulen® and Extrulen® have become the materials of choice for articulating surfaces, helping restore a higher quality of life to millions of patients worldwide.

Quality from start to finish

Superior products begin with superior raw materials. MediTECH® uses GUR® Premium resins from Celanese, specified for use in surgical orthopaedic implant applications. This highly pure resin complies with standards ASTM F648, ISO 5834-1 and ISO 5834-2, and exhibits excellent biocompatibility with skin, blood and tissue. We have instituted a series of tests and implemented quality control measures to produce materials that far exceed ASTM F648 and ISO 5834 requirements.

Technology for today and tomorrow

MediTECH® invests heavily in advanced technology research, as well as new process and product development. Our focus on incremental improvement and break-through innovation helps bring continuously improving products and services to you. Our state-of-the-art polymer research, analysis and testing lab – one of only a handful worldwide – provides you immediate access to testing equipment and lab staff who have more than 30 years of expertise to work closely with your R&D team. The first to adapt inert annealing techniques for UHMW-PE in this market, MediTECH®'s expertise in thermal stress relieving and other post-sintering processes make Chirulen® and Extrulen® easier to machine to exacting tolerances.

Global Facilities, Service & Support

With manufacturing, distribution and sales facilities in the U.S., Germany, U.K., France, Japan, China, Italy and India MediTECH® is uniquely positioned to meet your implant material needs. Our dedicated team enables worldwide coordination while our multinational locations allow us to be responsive on a local level: local contacts, local supply, local language, local time zones and local service, all of which make it easier for you to do business with us.

Long-term record in orthopaedic joint replacement

- Hip
- Knee
- Elbow
- Shoulder
- Spine



Chirulen® UHMW -PE Premium Grade with Vitamin E

Sterilization and cross-linking by irradiation bear the risk of free radicals formed in the UHMW-PE which can result in in vivo oxidation and material degradation. Vitamin E known as an antioxidant has positive influence on this process and is used as a stabilizer for orthopaedic implants made from UHMW-PE.

Mitsubishi Chemical Advanced Materials provides Chirulen® and Extrulene® shapes with Vitamin E as per customers' requirements. Tests have proven unaffected biocompatibility of medical grade UHMW-PE blended with Vitamin E as well as shown mechanical properties to remain practically unchanged.

Medical grade UHMW -PE

- Compression moulded:

Chirulen® 1020
Chirulen® 1050

Sheets: 1000 x 500 mm
T = 20 – 80 mm
Rods: L = 1000 mm
Dia. 20 – 80 mm
Customised preforms

- Extruded:

Extrulene® 1020
Extrulene® 1050

Rods: L = 1000 mm
Dia. 12,7 – 80 mm

Expertise in Cross-Linking

Chirulen® and Extrulene® are the market leading products for use in today's highly cross-linked Polyethylenes (XL-PEs) – with more than 10 years of clinical history and follow-up. Recent clinical results and studies demonstrate significant improvements achieved in wear reduction and further improvements are in constant development. Mitsubishi Chemical Advanced Materials dedicates a considerable portion of their R&D efforts and know-how to the development of customized XL-PEs, also in combination with Vitamin E and other antioxidants.

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