Implantable Polymer Applications
Foster Corporation

is a market leading provider of specialized polymeric solutions for the medical device industry. Our customized polymers support critical applications, including FDA registered Class II and Class III devices and implants. Foster provides implantable polymer functionality through twin screw and single screw compounding techniques.

Our dedication to serving critical device applications, such as polymers for a long-term and permanent implants is indicative of our unmatched polymer and process capability and support infrastructure.

IMPLANTABLE POLYMER CAPABILITIES

Foster’s capabilities regarding implantable polymer solutions includes the following:

**Processing Capability**

- Class 7 (10,000) clean room
- Loss-weight-feeders
- 27mm twin screw extruder
- Pelletization (customizable)
- ¾” single screw extruder
- Air & water cooling

**Medical Plastics Innovation Center & Developmental Services**

- R & D lots to production scale up
- Direct extrusion forms and shapes
- Formulation development
- • Rods
- Feasibility – small batch production
- • Fiber
- Process development
- • Tubing
- GMP trials
- • Co-extrusion
- Validation
- • Film
- Finished property testing
- • Pellets
Foster is experienced in working with the following implantable materials:

**Durable Implantable Materials**
- PEEK
- PAEK
- Polysulfones
- Polypropylene
- Thermoplastic polyurethane
- Polyethylene
- Others

**Non-Durable Bioabsorbable Implantable Materials**
- Polylactides(PLA)
- Polyglycolides(PGA)
- Poly(lactide-co-glycolides)(PLGA)
- Polycaprolactone(PCL)
- Alloys of the above

**Polymer Enhancements and Functionality**
- Osteoconductivity
- Pre-colored
- Radiopaque filled
- Antimicrobial
- Reinforcement
- Active pharmaceutical ingredients(API's)
- Other as needed

**PERMANENT IMPLANT APPLICATIONS**

- Sutures
- Dental devices
- Orthopedic fixation (metal replacement)
- Controlled drug delivery
- Tissue fixation
- Bone screws, etc.

- Biodegradeable stents
- Bone and tissue engineering
- Spinal cages
- Cosmetic surgery: thread lift
- Wraps to hold tissue masses in place
- Etc.

**LENGTH OF TIME BIORESORBABLES REMAIN IN THE BODY**

- PGA, PTMC
- PLLA-PGS (85%, 15%)
- PGA-PLLA (99%, 10%)
- PDO
- PDLLA
- PLLA

**Absorption Time, months**

- PGA-PTMC = Polyglycolic Acid – Poly-Tri-Methylene-Carbonate
- PLLA-PGS = Poly L- Lactide Acid/Poly Glycerol Sorbate
- PGA- PLLA = Polyglycolic Acid/Poly L- Lactic Acid
- PDO = Polydioxanone
- PDLLA = Poly – DL- Lactic Acid
- PLLA = Poly – L- Lactic Acid
- PGA = Polyglycolic Acid