

POSS® Biomedical Films - Case Study

POSS® Poly(carbonate urea) urethane copolymers - Improve film biocompatibility

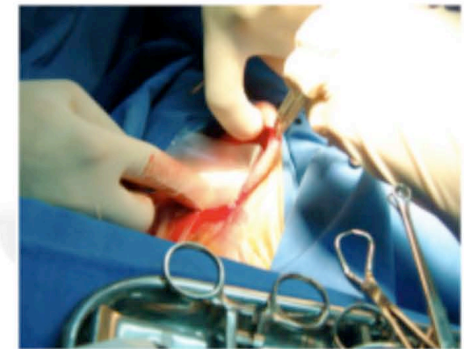
Problem:

While functional, existing materials used in biomedical implants have some difficulties:

- Poor cell, tissue, and blood compatibility
- High protein adsorption (thrombogenicity)
- Poor mechanical match to tissues
- In vivo failure and long recovery times

POSS® Copolymers can be tailored to mimic real body tissues

Research conducted at University College London has shown that POSS® Poly(carbonate urea) urethane copolymers are significantly more compatible with tissues and blood than commonly used urethane, polyester, and teflon biomaterials. These POSS® copolymers are non-toxic to cells and support the growth and proliferation of cells while inhibiting protein adsorption by conformationally deactivating any adsorbed fibrinogen. By modifying the amounts of the comonomers used, the properties of the copolymer can be tailor matched to the tissues being repaired/replaced. This improved biocompatibility leads to accelerated bone and tissue regeneration, and shorter recovery times.



Film implantation



Film after 36 months *in vivo*