

[54] MULTI-LAYERED POLY(TETRAFLUOROETHYLENE)/ELASTOMER MATERIALS USEFUL FOR IN VIVO IMPLANTATION

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[58] Field of Search ..... 428/422, 421; 427/2; 623/1, 11, 66; 128/334 R

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[57] ABSTRACT

Biologically compatible materials capable of being formed into implants, comprising layers of poly(tetrafluoroethylene) and mixtures of poly(tetrafluoroethylene) and elastomer, having excellent compliance, strength, elasticity and suturability are disclosed. The materials are preferably prepared as implants or vascular grafts by co-extruding a relatively thin luminal layer of poly(tetrafluoroethylene) having a distinct fibril nodal microstructure within a layer of a mixture of poly(tetrafluoroethylene) and elastomer to impart elasticity to the implant. A preferred embodiment comprises a radially asymmetric composite vascular graft having a luminal layer of poly(tetrafluoroethylene), a second layer of poly(tetrafluoroethylene)/elastomer mixture, a third layer of elastomer, and a fourth layer of a monomer fibrous elastomer matrix with each layer having a distinctive pore size, pore shape and porosity to promote tissue ingrowth and periprosthetic tissue anchoring.

42 Claims, 6 Drawing Sheets

