Polyether Ether Ketone

Subjects: Polymer Science

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Polyether ether ketone is a semi-crystalline aromatic thermoplastic whose repeat unit joins para-substituted phenyl rings through ether and ketone linkages [1]. The aromatic backbone gives chemical resistance and a high continuous service temperature, while the crystallinity of about thirty per cent fixes stiffness and the amorphous phase governs toughness [1]. The polymer melts near 343 degrees Celsius, keeps a glass transition at about 143 degrees, dissolves only in strong acids, and is sulfonated by concentrated sulfuric acid at the ring [1]. Carbon or glass fibre raises modulus and creep resistance and reduces the mismatch in thermal expansion with metal [2]. Because the elastic modulus approaches that of cortical bone, the unfilled polymer is examined as an implant material, although its bioinert surface bonds weakly to tissue [3].

aromatic thermoplastic | semi-crystalline polymer | sulfonation resistance | carbon fibre composite | bioinert implant

References

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