Bölüm 4

Yüksek Performanslı Polimerlerin (YPP) Diş Hekimliğinde Kullanımı

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Giriş

Yüksek Performanslı Polimerlerin Genel Özellikleri

Yüksek performanslı polimerler (YPP'ler), fonksiyonel eter veya keton gruplarıyla bağlanan aromatik benzen moleküllerinden oluşan ve farklı poliarileterketon (PAEK) kombinasyonları ile sonuçlanan semi-kristalin termoplastik malzemelerdir (1,2, 3). Farklı PAEK'ler, yüksek sıcaklıklarda iyi boyutsal stabiliteye sahiptir (erime sıcaklığı 300 °C'nin üzerinde), aşınmaya karşı yüksek kimyasal ve mekanik dirence ve yüksek çekme, yorulma ve bükülme direncine sahiptirler (3). Aynı zamanda kemiğe yakın elastisite modülüne sahip olmaları, alerjiye sebep olmamaları, düşük sızıntı eğilimi göstermeleri ve metallere göre daha estetik olmaları üstün özellikleri arasında sayılabilmektedir. PAEK ailesi tüm termoplastik kompozitler arasında ultra yüksek performans gösteren yapıya sahiptir (4,5).

Poliarileterketon (PAEK), 1980'lerde endüstri alanı için ticarileştirildi ve üstün özellikleri ile dikkat çekici hale geldi. Kullanımı elektrik & elektronik, uçak, otomobil endüstrisinden medikal ürünlere kadar birçok alana uzanmaktadır (3).

PAEK ailesi farklı eter ve keton gruplarından oluşan birçok alt gruba sahiptir. Polieterketon (PEK), Polieterketoneterketonketon (PEKEKK), Polietereterketon (PEEK), Polieterketonketon (PEKK) sıklıkla kullanılan alt gruplarıdır. Yapısındaki keton içeriği arttıkça sertliği de artmaktadır. Polieterketonketon (PEKK) ve polietereterketon (PEEK), PAEK ailesinin en iyi bilinen iki alt üyesidir (6).

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