Effects of sulfonation and thermal history on mechanical properties of poly(etheretherketone, PEEK) membranes

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ABSTRACT

Effects of sulfonation and thermal history on mechanical properties of poly (etheretherketone, PEEK) was studied by both static and dynamic mechanical testing. The main results showed that both sulfonation and thermal treatment induce dramatic structural changes of the original PEEK as evidenced by various techniques including modulated differential scanning calorimetry (MDSC), wide-angle X-ray scattering (WAXS), birefringence, and optical microscopy. The complex hysteresis thermomechanical response of the material will be discussed in connection with the reversible-irreversible induced macro and micro structural changes.