

MMT-Reinforced CA Aerogel for Robust Skeletal Structure

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A kind of novel nanocomposite based on cellulose acetate (CA) nanofibrillar aerogel and sodium montmorillonite (Na⁺-MMT) were synthesized by in-situ reaction. The effect of Na⁺-MMT content on mechanical and thermal properties, water absorption, pore morphology and porosity of material has been investigated. The nanocomposite showed very good mechanical and thermal properties with 2 wt% of Na-MMT. The obtained results of water absorption exhibited that the water absorption decreased with the increasing of clay content. The introduction of a small amount of MMT also led to improvement in thermal stability. Moreover, the surface morphology of the nanocomposite material and membrane also displayed porous structure. Potential applications of the material are be in bone tissue engineering or the other soft tissue applications.