

Effect of Cellulose Nanofibers' Structure and Incorporation Route in Waterborne Polyurethane–Urea Based Nanocomposite Inks

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Thermogravimetric Analysis (TGA)

The thermal stability of the freeze-dried materials was determined by thermogravimetric analysis (TGA). TGA was performed in a TGA/STDA 851 (Mettler Toledo) equipment. The samples, between 5–10 mg, were heated from 30 to 700 °C in a nitrogen atmosphere at a scanning rate of 10 °C min^{−1}.

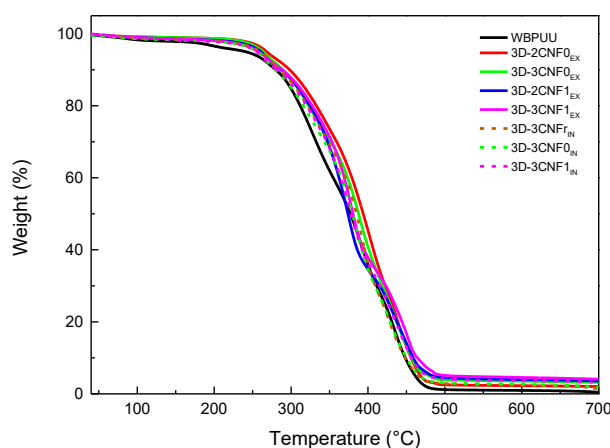


Figure S1. Weight evolution of freeze-dried neat WBPU and WBPU/CNF 3D printed parts.

Dynamic Mechanical Analysis (DMA)

The thermomechanical behavior of the 3D printed parts was determined by dynamic mechanical analysis (DMA) using an Eplexor 100 N analyzer Gabo equipment. The measurements were carried out in compression mode from -100 to 180 °C at a scanning rate of 2 °C min^{-1} . The initial strain was established as 0.3 % and the operating frequency was fixed at 1 Hz.

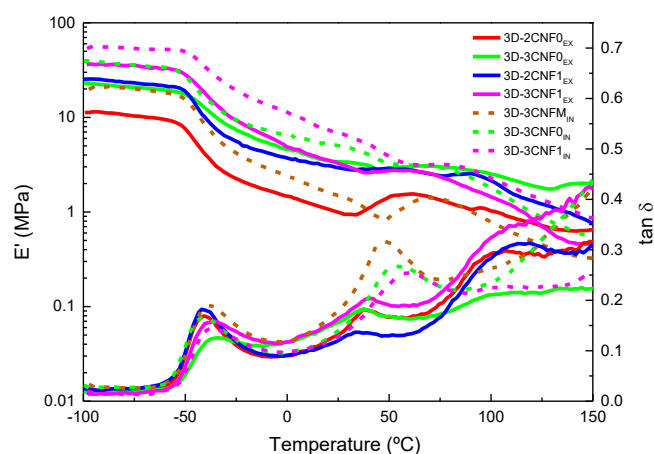


Figure S2. Storage modulus and $\tan \delta$ of freeze-dried neat WBPU and WBPU/CNF 3D printed parts.