Sheets in Excel workbook – Support_Dataset.xlsx

Fig.3 Young's modulus (a), tensile strength (b), and peel strength (c) of all-cellulose composites prepared with interleaf film and without interleaf film using various S/C weight ratios. Samples were processed for 10 minutes using an 80/20 ratio of [C2MIM][OAc] to DMSO. Mechanical properties were tested in the longitudinal direction.

Fig. 6: XRD diffraction patterns of ACCs produced using a 3:1 solvent to cellulose weight ratio, without interleaf film (red line) and with interleaf film(blue line).

Fig. 7: The deconvolution curves of ACCs produced using a 3:1 solvent to cellulose weight ratio, without interleaf film (a) and with interleaf film(b). The experimental measurement is shown in the black dotted line, and the solid black curve is a summation of the crystalline peaks of cellulose I (shown in blue, orange and brown), and cellulose II (shown in grey and green). The broad amorphous peak is shown in red.

Fig. 8: Mechanical properties of ACCs produced with additional interleaf film in-between layers of cotton textile, using a 3:1 solvent to cellulose weight ratio, using various [C2MIM][OAc] % in DMSO. Tensile strength and Young's modulus are shown in (a) and peel strength is presented in (b).

Fig. 10: Comparison of longitudinal (0°), transverse (90°) and bias (45°) mechanical properties of all-cellulose composites prepared with stacking sequences (0,0), (0,90) and (0,90,90,0). Unprocessed cotton cloth (Raw cloth), and the sample made without interleaf film (C0) is also shown for comparison.

Fig. 11: Comparison of longitudinal peel strength of all-cellulose composites prepared with stacking sequences (0,0), (0,90) and (0,90,90,0). The sample made without interleaf film (C0) is also shown for comparison.