Supporting Information

Figure S1 shows a representative ThermoGravimetric Analysis run for a 1.0 wt.% cellulose solution in BMImCl that had been exposed to 50% RH air for 24 hours. The sample is first heated to 80°C and held there for 50 min to find a total weight loss of 12.5%, attributed to water. The sample is then cooled to 20°C and then heated to 300°C to study the thermal stability of the native cellulose and the ionic liquid.

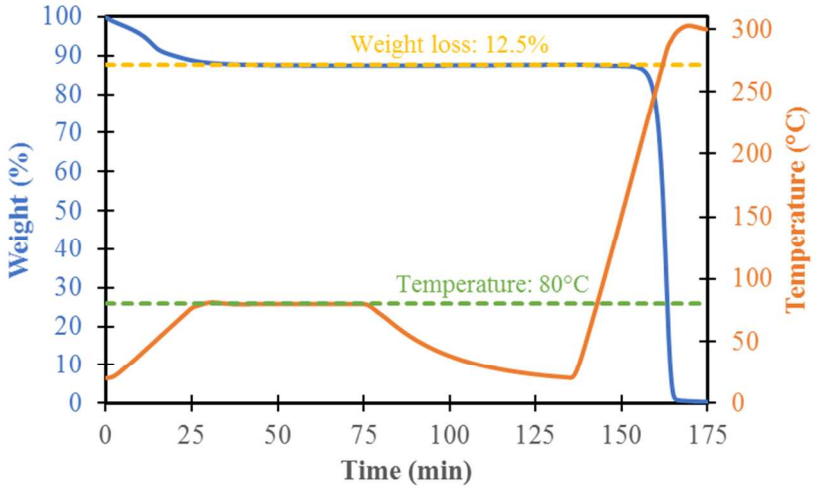
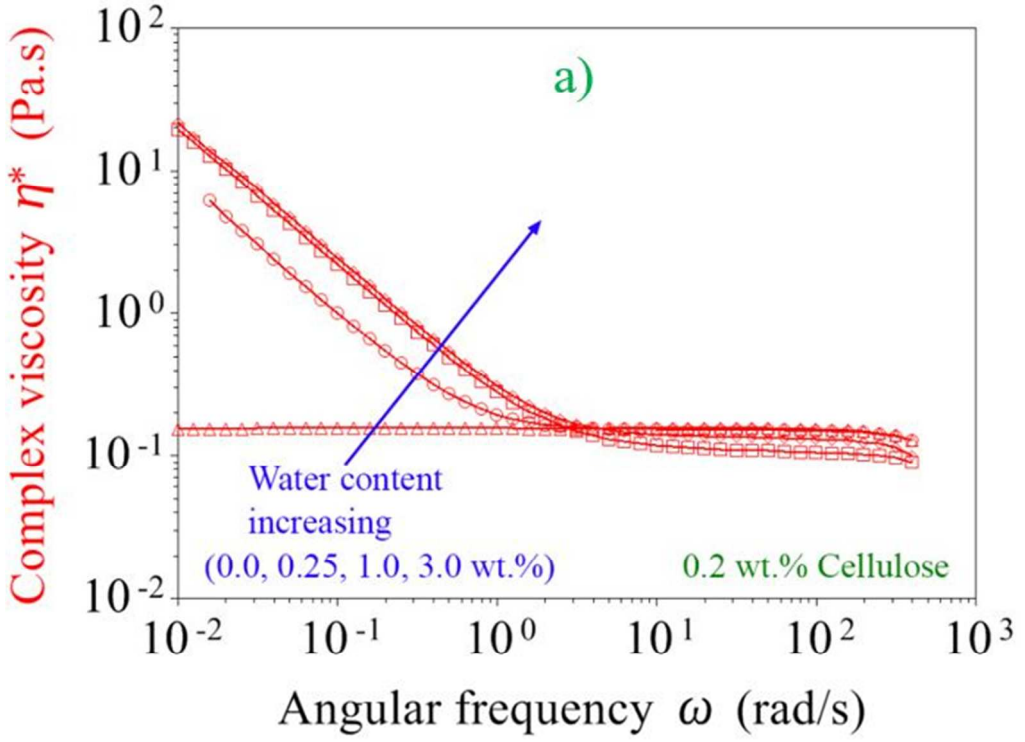
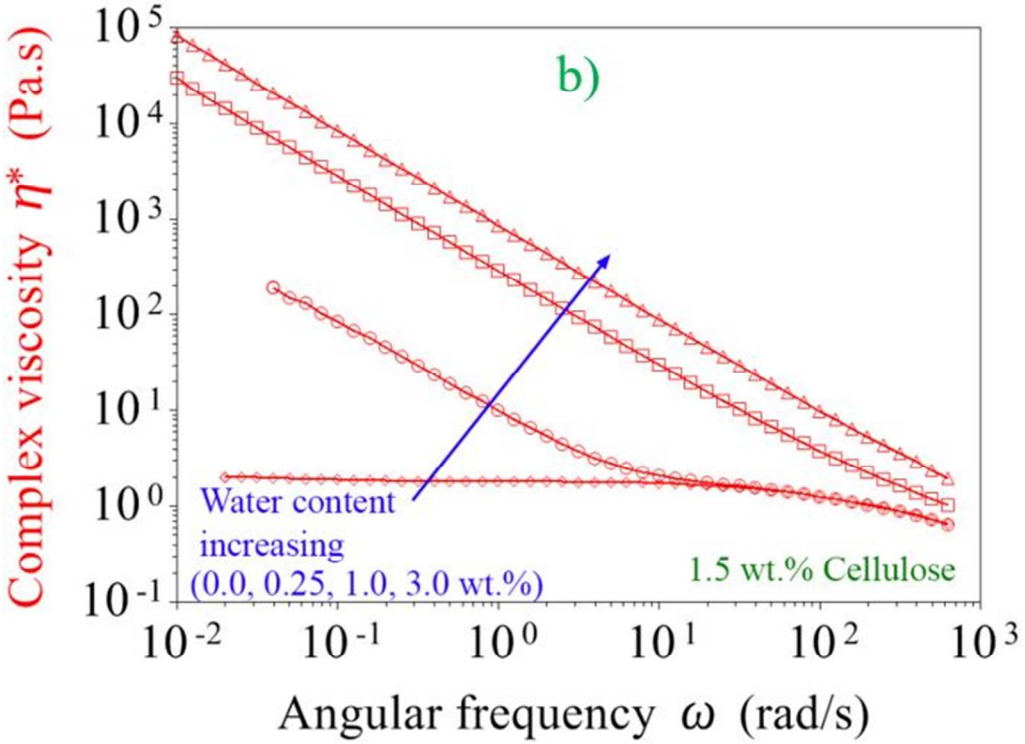


Figure S1. TGA curves for a BMImCl solution containing 1.0 wt.% cellulose exposed to 50% RH air for 24 hours.

Figure S2 shows the same isothermal 20°C linear viscoelastic data as Figure 7 in the format of the frequency dependence of complex viscosity, for 0.2 wt.% cellulose (dilute), 1.5 wt.% cellulose (semidilute unentangled) and 5.0 wt.% cellulose (entangled) solutions in EMImAc, in the dry state and with various amounts of water, up to 3.0 wt.%.


a)
Complex viscosity η* (Pa.s)
Angular frequency ω (rad/s)
Water content
increasing
(0.0, 0.25, 1.0, 3.0 wt.%)
0.2 wt.% Cellulose


b)
Complex viscosity η* (Pa.s)
Angular frequency ω (rad/s)
Water content
increasing
(0.0, 0.25, 1.0, 3.0 wt.%)
1.5 wt.% Cellulose

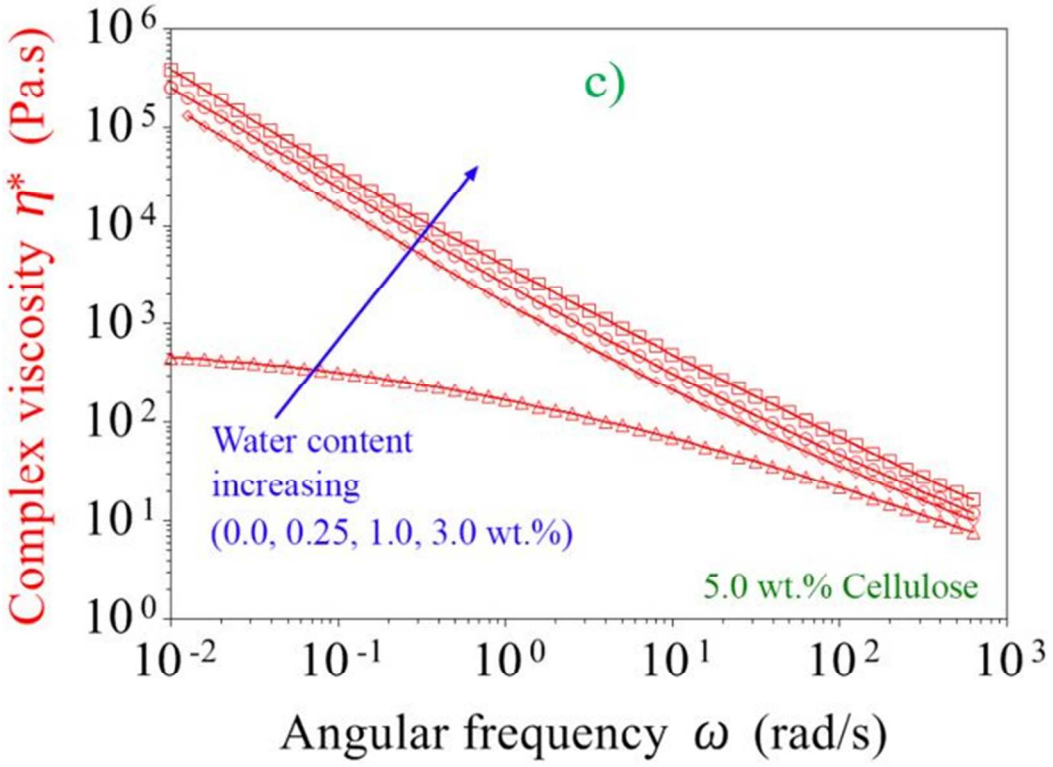


Figure S2. Complex viscosity vs frequency sweeps for solutions of cellulose/EMImAc with a) 0.2 b) 1.5 and c) 5.0 wt.% cellulose containing 0.0-3.0 wt.% water at 20°C and strain amplitude 0.005.

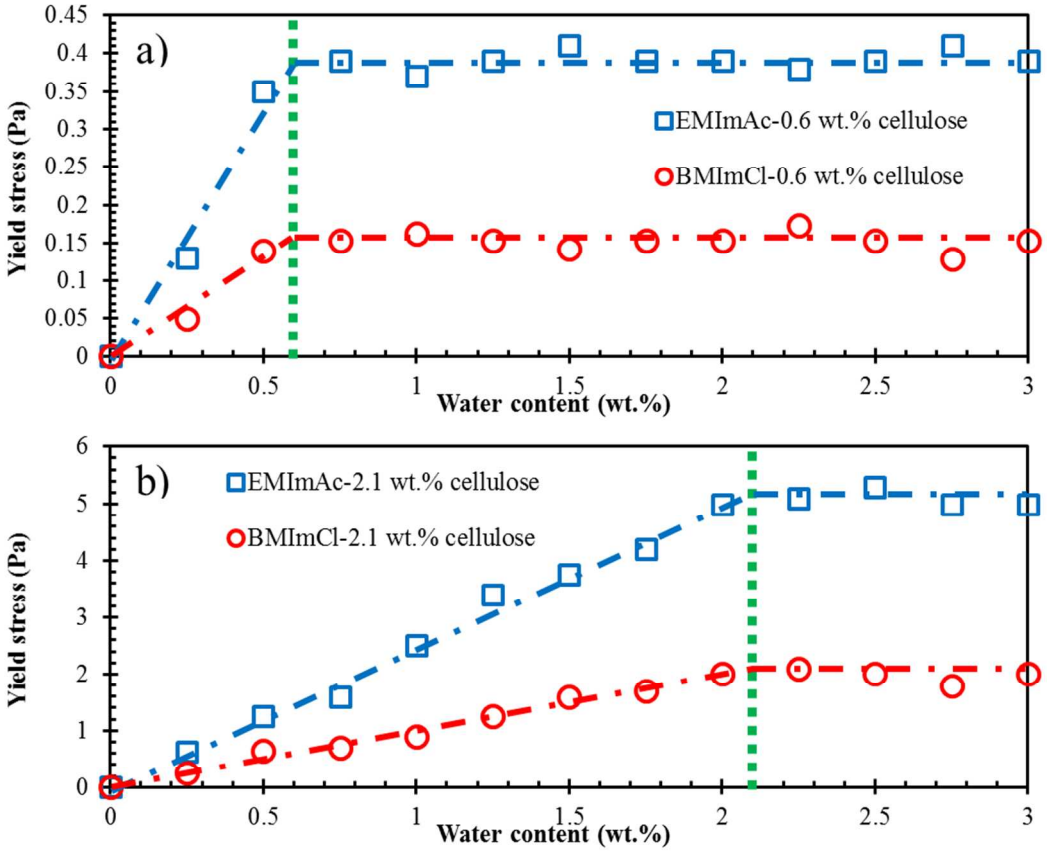


Figure S3. Yield stress of 0.6 (a) and 2.1 (b) wt.% cellulose in BMImCl and EMImAc containing different water contents at 20°C.