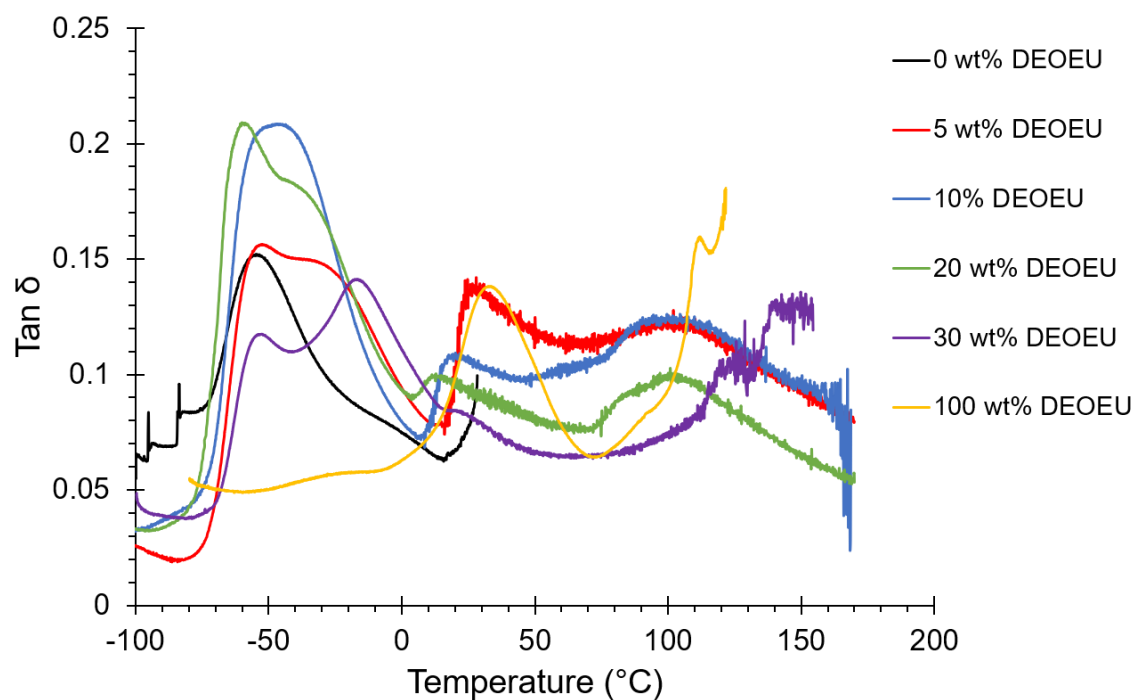
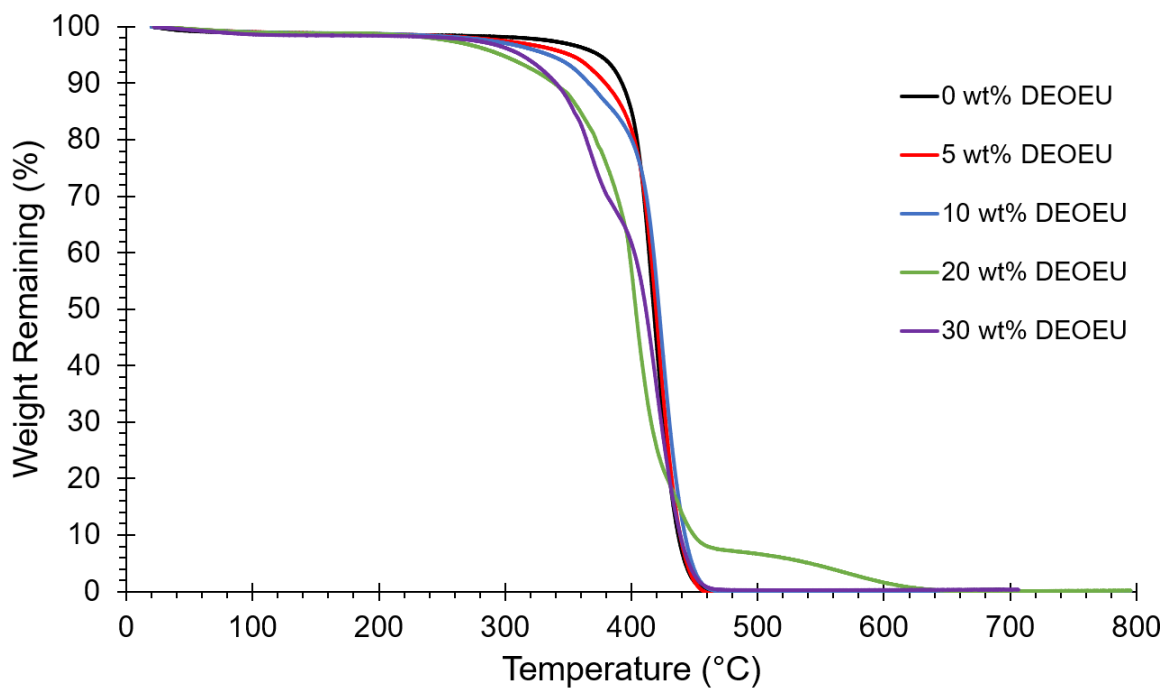


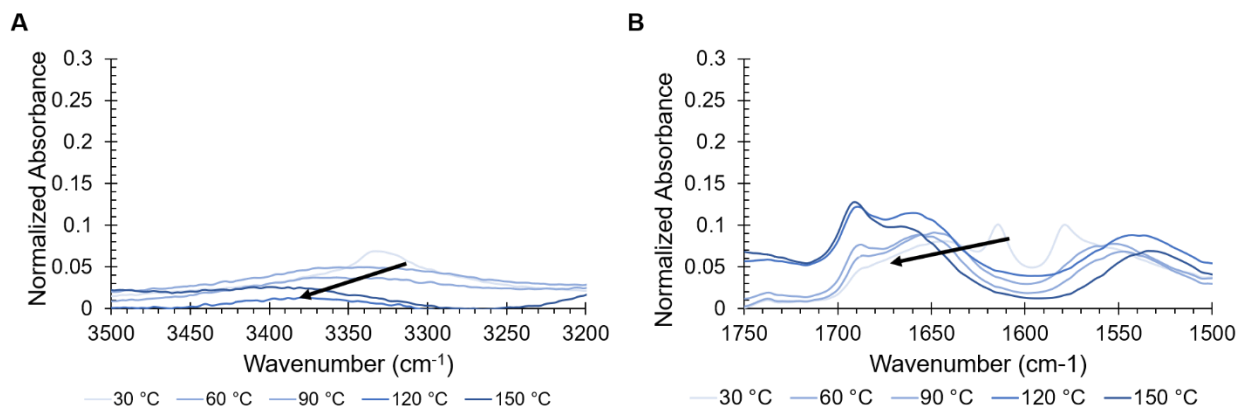
### Supporting Information



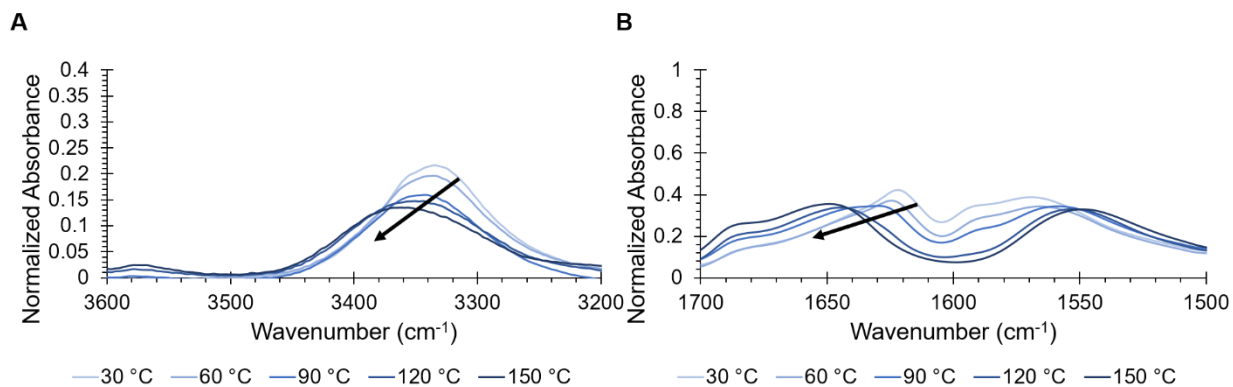
**Figure S1:** Corresponding DMA  $\tan \delta$  behavior for polyurea homopolymers and copolymers



**Figure S2:** Thermogravimetric analysis utilizing a  $10\text{ }^{\circ}\text{C min}^{-1}$  temperature ramp to  $800\text{ }^{\circ}\text{C}$  for the series of polyureas



**Figure S3:** Variable temperature FTIR of the 0 wt% DEOEU polyurea showing (A) the N-H stretching band shifting from  $\sim 3325\text{ cm}^{-1}$  for strongly hydrogen bonded ureas to  $\sim 3350\text{ cm}^{-1}$  for weakly hydrogen bonded with increasing temperature (B) the amide band shifting from  $\sim 1650\text{ cm}^{-1}$  for strong hydrogen bonding to  $\sim 1690\text{ cm}^{-1}$  for weak hydrogen bonding with increasing temperature



**Figure S4:** Variable temperature FTIR of the 30 wt% DEOEU polyurea showing (A) the N-H stretching band shifting from  $\sim 3325\text{ cm}^{-1}$  for strongly hydrogen bonded ureas to  $\sim 3350\text{ cm}^{-1}$  for weakly hydrogen bonded with increasing temperature (B) the amide band shifting from  $\sim 1650\text{ cm}^{-1}$  for strong hydrogen bonding to  $\sim 1690\text{ cm}^{-1}$  for weak hydrogen bonding with increasing temperature