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SUPPORTING INFORMATION

Synthesis of Blocked Waterborne Polyurethane Polymeric Dyes with Tailored Molecular Weight: Thermal, Rheological and Printing Properties

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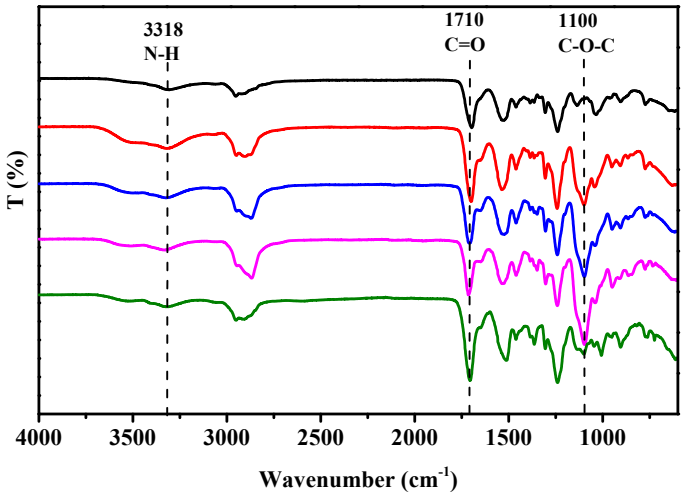

Fig.S1 FTIR spectra of BWPUs

As shown in Fig.S1, the absorptions at 3318 cm^{-1}, 1710 cm^{-1}, 1304 cm^{-1} and 1240 $cm^{-1}$are ascribed to the stretching band of N-H, C=O, C-O and N-C in the urethane group (-NH-COO-). The appearance of absorption around 1100 cm^{-1} is assigned to the stretching vibration of C-O-C in the PEG soft segments (except BWPU-PEG0). Additionally, the weak peak at 1645 cm^{-1} is associated with the stretching vibration of the C=O group in -N-CO-NH-, and the strong bands near 950 cm^{-1} and 774 cm^{-1} due to C-H in-plane and out-plane bending vibrations in anthraquinone ring confirms that the chromophore has been successfully introduced into polyurethane chains. Furthermore, the absence of characteristic stretching vibration at 2270 cm^{-1} indicates that NCO groups have been effectively blocked by the blocking agent. All the above typical peaks confirm the formation of polymeric dyes based on blocked waterborne polyurethanes.