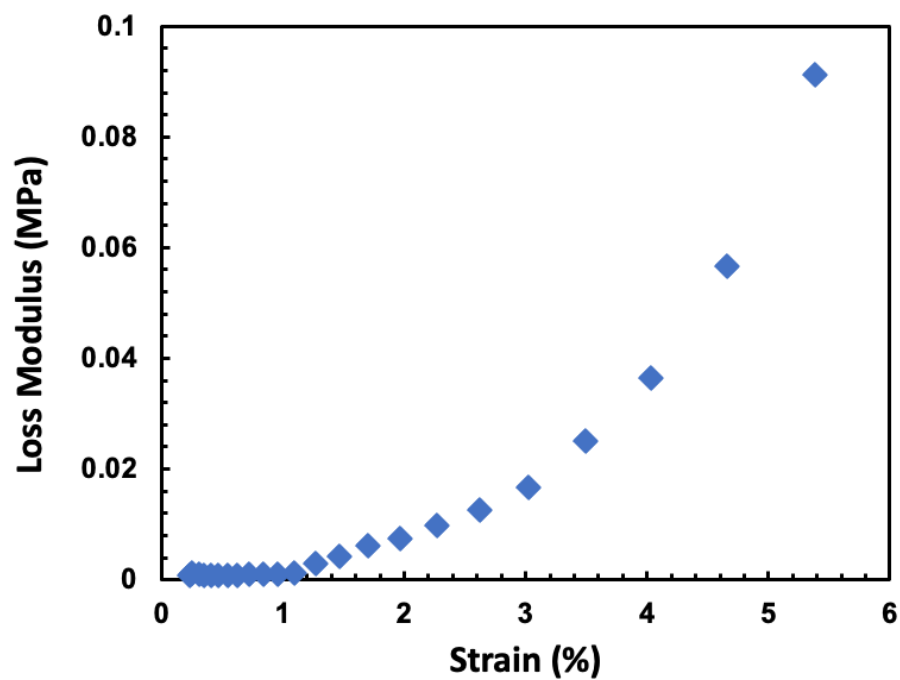


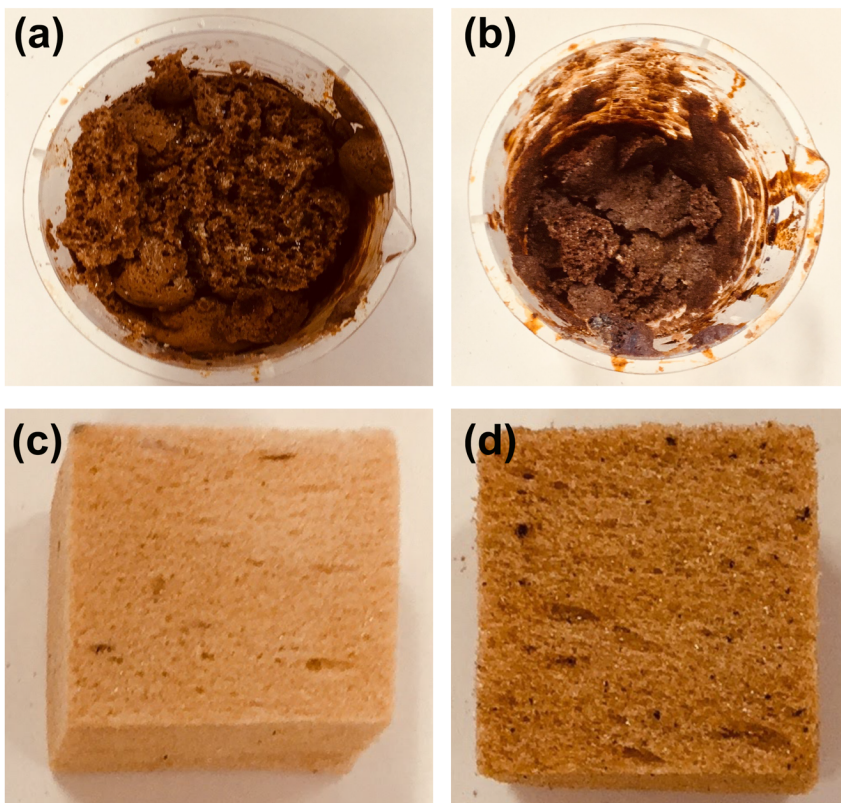
# Supporting information: Thermo-responsive shape-memory polyurethane foams from renewable lignin resources with tunable structures-properties and enhanced temperature resistance

*Li-Yang Liu<sup>a</sup>, Muzaffer A Karaaslan<sup>a</sup>, Qi Hua<sup>a</sup>, Mijung Cho<sup>a</sup>, Siwei Chen<sup>a</sup>, and Scott Renneckar<sup>a\*</sup>*

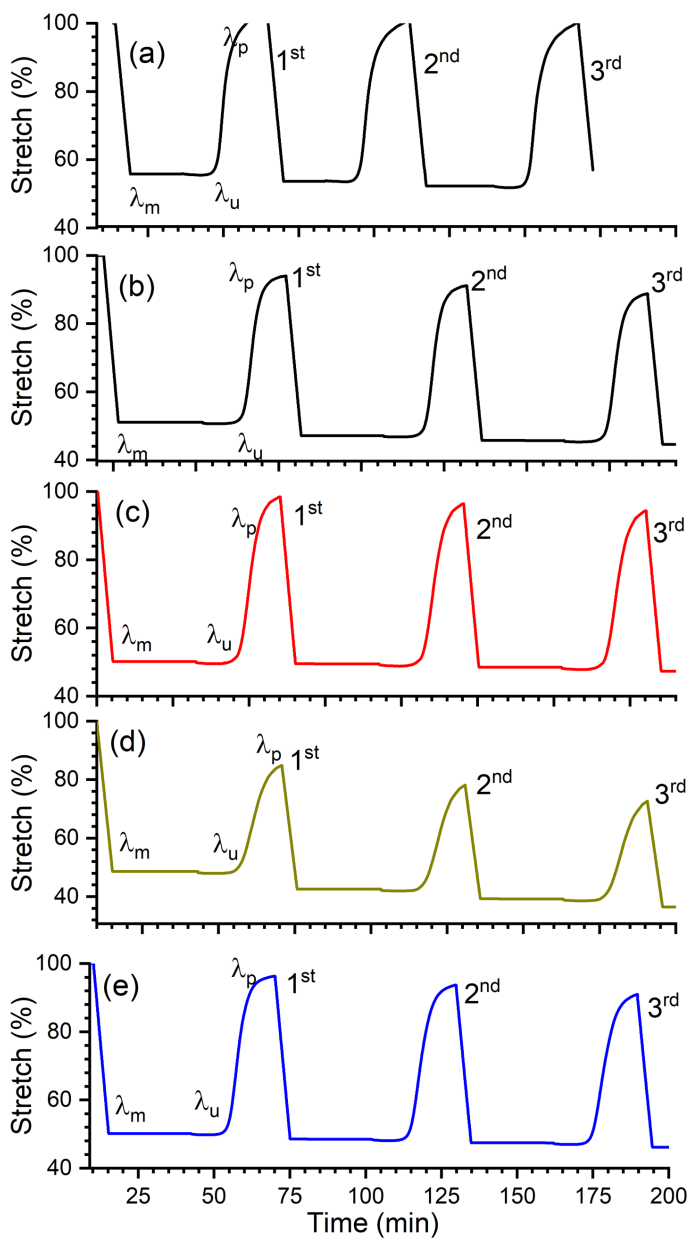
<sup>a</sup>Advanced Renewable Materials Lab, Faculty of Forestry, The University of British Columbia, Vancouver, BC, Canada, V6T 1Z4



**Figure S1** Amplitude (strain) sweeps test of PUF (containing 10% Lignin)



**Figure S2** Photos of softwood kraft lignin based PUFs (a, 18% wt.; b, 25% wt.), and hydroxypropyl softwood kraft lignin based PUFs (c, 18% wt; d, 25% wt)



**Figure S3** Shape memory properties of different lignin-based PUFs; (a) original-, (b) SKL-, (c) HPSKL-, (d) PBL-, (e) OBL-. Note Compressive stretch ratio (%) was reported, which is the ratio between of the final length( $l$ ) to the initial length ( $L$ ) of the sample after compressive deformation.