

## Electronic supplementary information

### Enhanced Mechanical Properties and Functional Performance of Cationic Waterborne Polyurethanes Enabled by Different Natural Phenolic Acids

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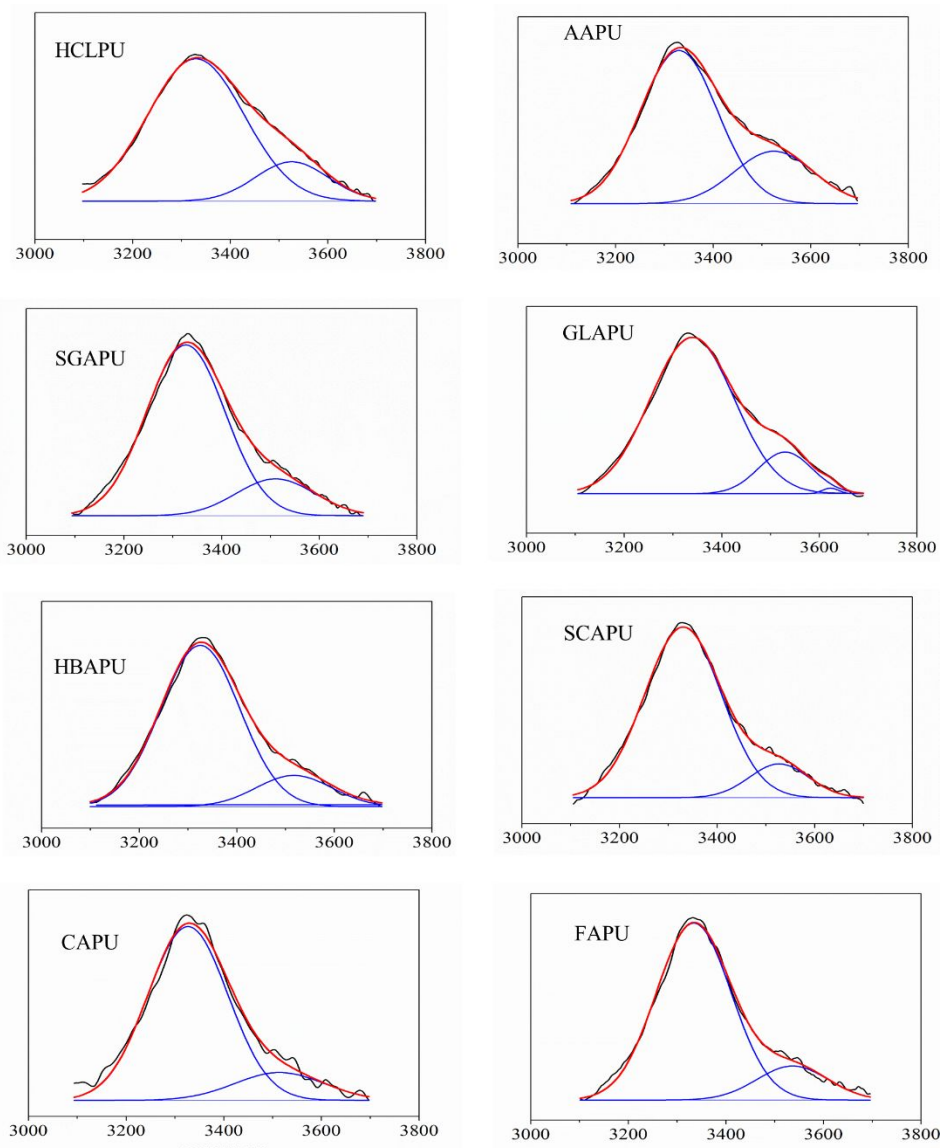
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**Figure S1.** Curve-fitting results of the N-H of the ATR-FTIR spectra for CWPU (3100–3700  $\text{cm}^{-1}$ ). The value of R-Square in the curve-fitting results of the N-H bands is above 0.99.

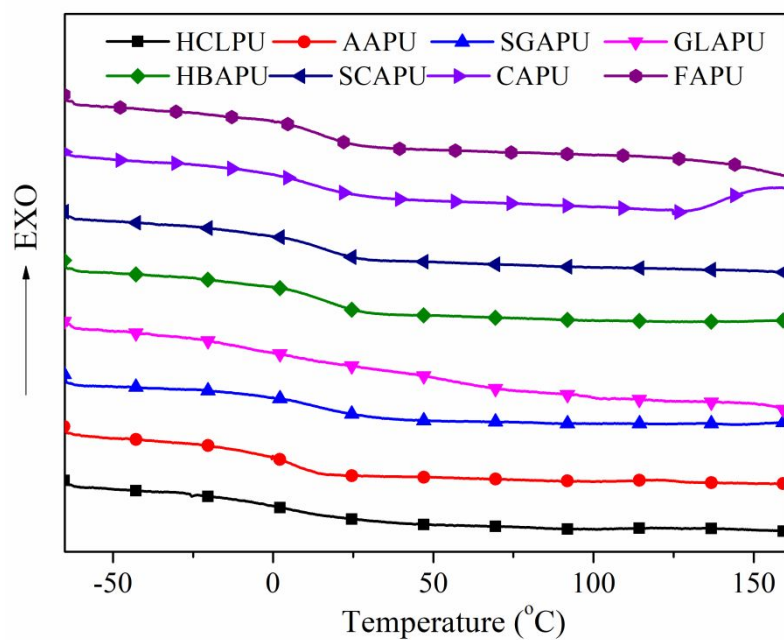


Figure S2. DCS thermograms of CWPU.

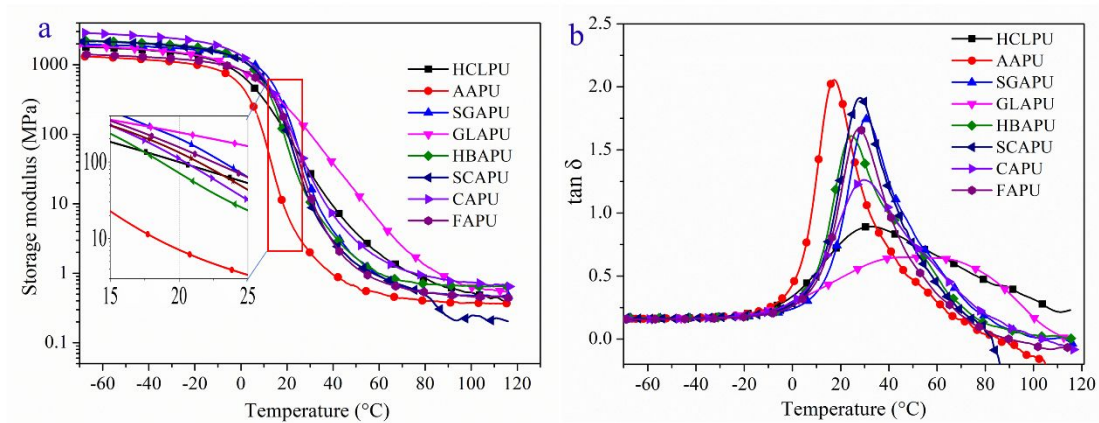
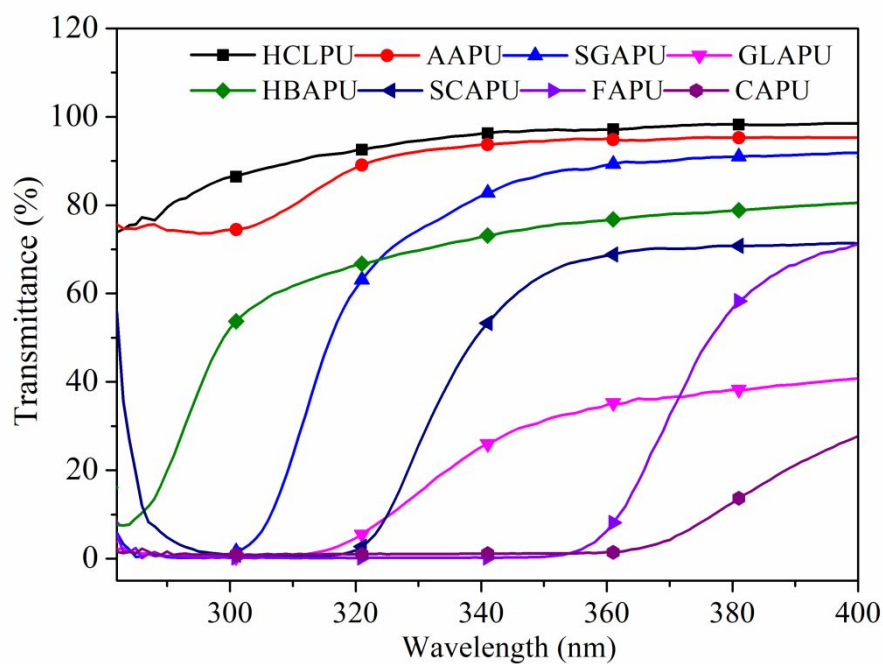


Figure S3. Dynamic-mechanical spectra of CWPU samples. a:  $E'$  vs.  $T$ ; b:  $\tan \delta$  vs.  $T$



**Figure S4.** Transmittance of all the CWPU films with different neutralizers.

**Table S1.** Water absorption data and water contact angle of CWPU films.

Sample	Water absorption for 72 h (%)	Weight loss (%)	Hydrophilic group (mmol/g)	Water contact angle after contacting 30 s (°)
HCLPU	160.8±2.4	3.7±0.5	0.778	73.35±3.46
AAPU	8.6±0.1	0.3±0.1	0.764	44.12±1.10
SGAPU	14.1±1.8	1.4±0.5	0.691	67.91±5.13
GLAPU	12.1±0.7	0.8±0.3	0.705	72.45±2.61
HBAPU	11.1±0.3	3.6±0.2	0.721	63.95±4.74
SCAPU	8.2±1.0	1.1±0.1	0.721	72.35±4.18
CAPU	9.9±0.5	1.0±0.6	0.700	65.90±1.96
FAPU	8.6±2.1	1.5±0.3	0.693	80.83±3.42