Supporting information

Exploration of Multifunctional Wood Coating based on an Interpenetrating Network system of rosin-CO_2-based polyurethane and Mussel bionic rosin-based Benzoxazine

*Xixi Piao [a], Hanxiang Guo [a], Yizhong Cao [a], Zhe Wang * [a] and Chunde Jin * [a]*

[a] College of Chemistry and Materials Engineering, Zhejiang A & F University, Hangzhou, 311300, PR China

Corresponding author E-mail: wangzhe@zafu.edu.cn (Zhe Wang);

jincd@zafu.edu.cn (Chunde Jin)

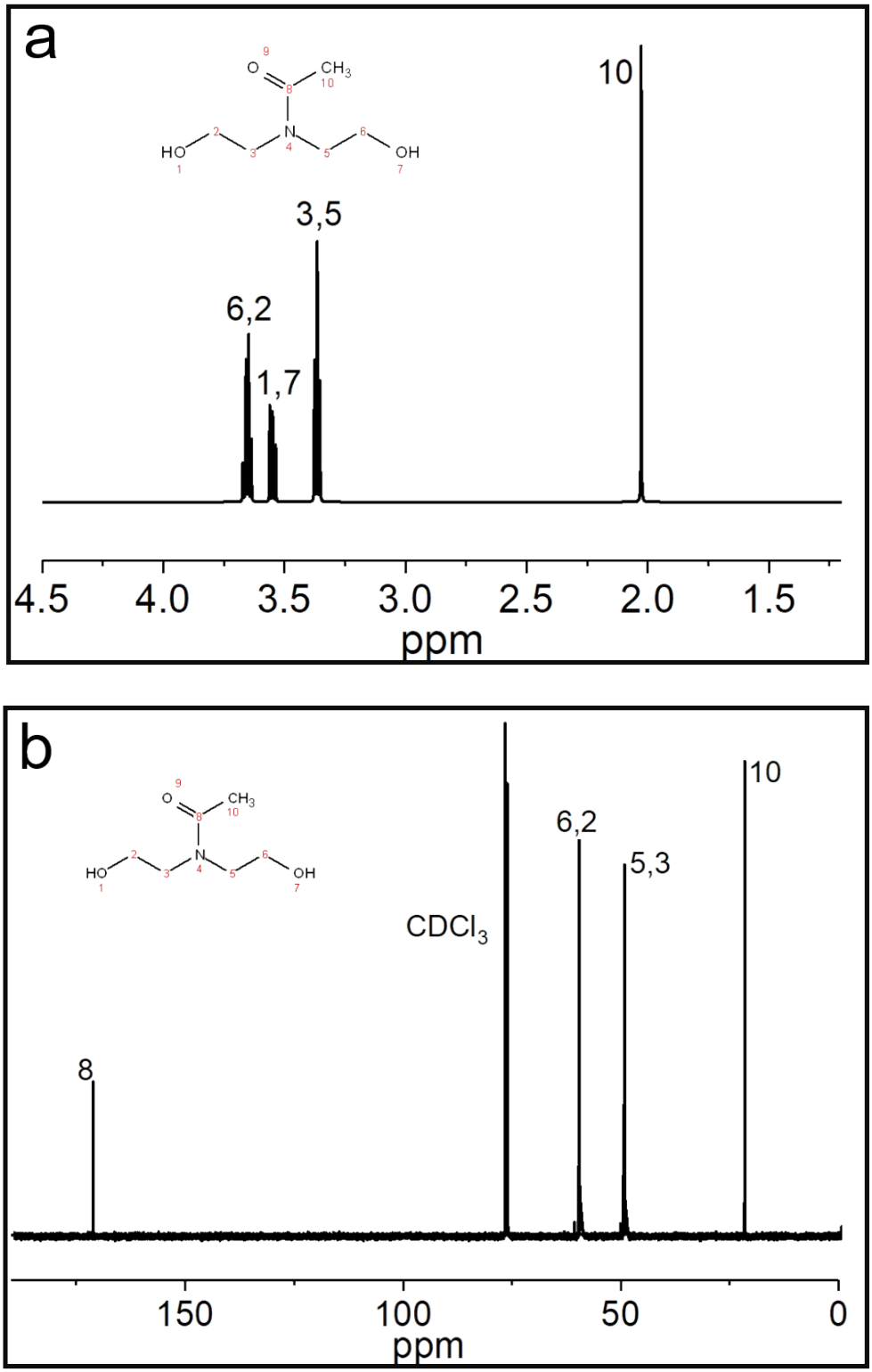

Figure S1. ^{1}H NMR (a) and ^{13}C NMR (b) spectra of rosin-polyol

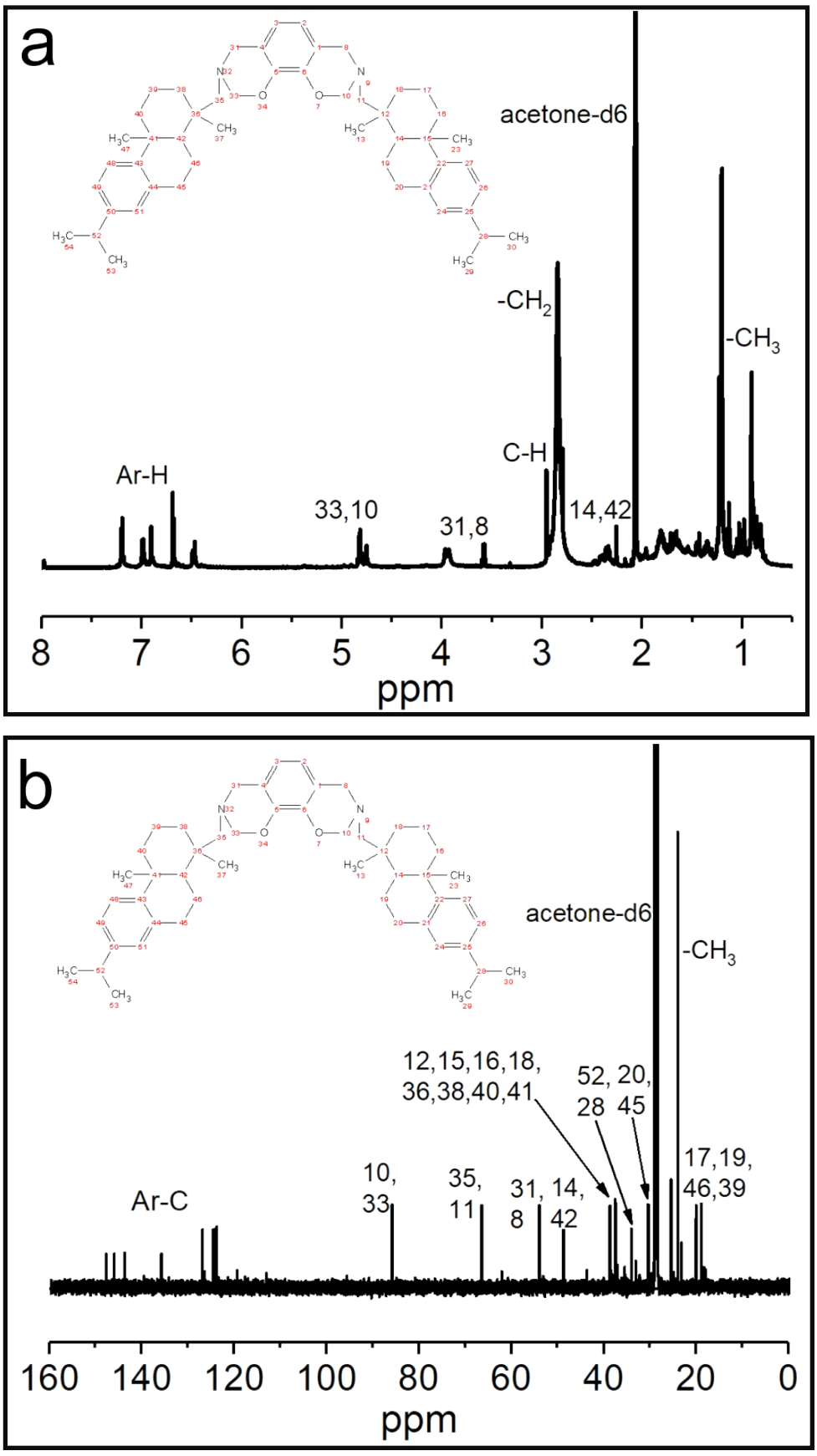

Figure S2. ^{1}H NMR and ^{13}C NMR spectra of BZ

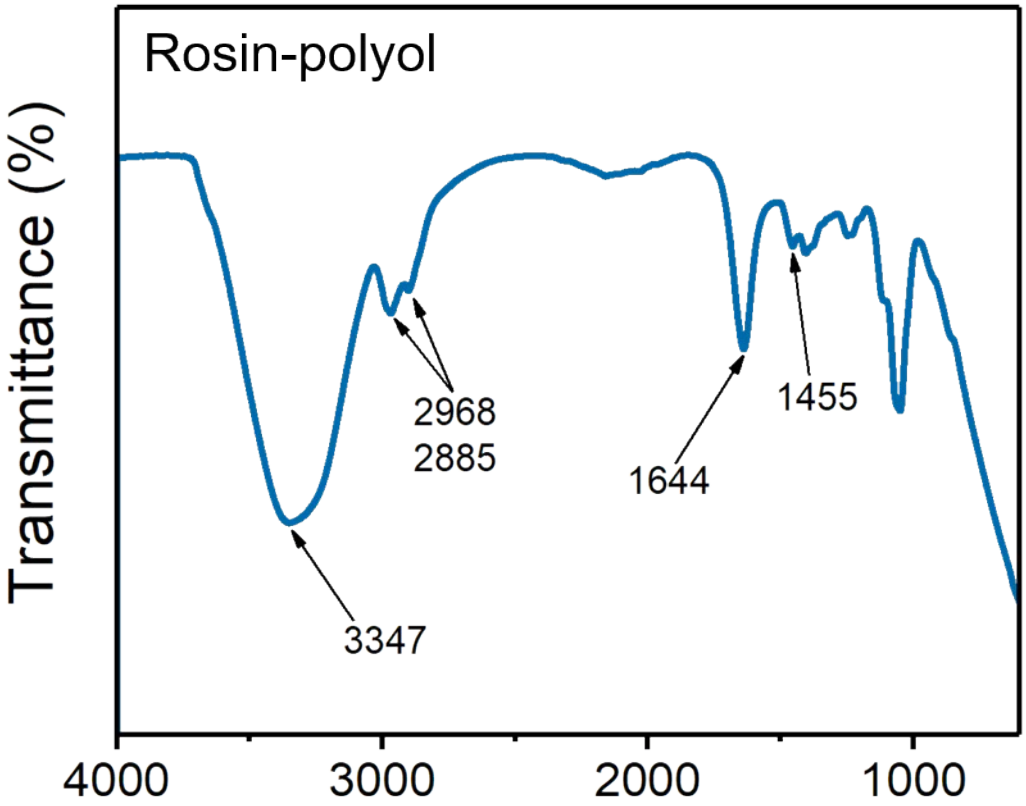

Figure S3. FTIR of rosin-polyol

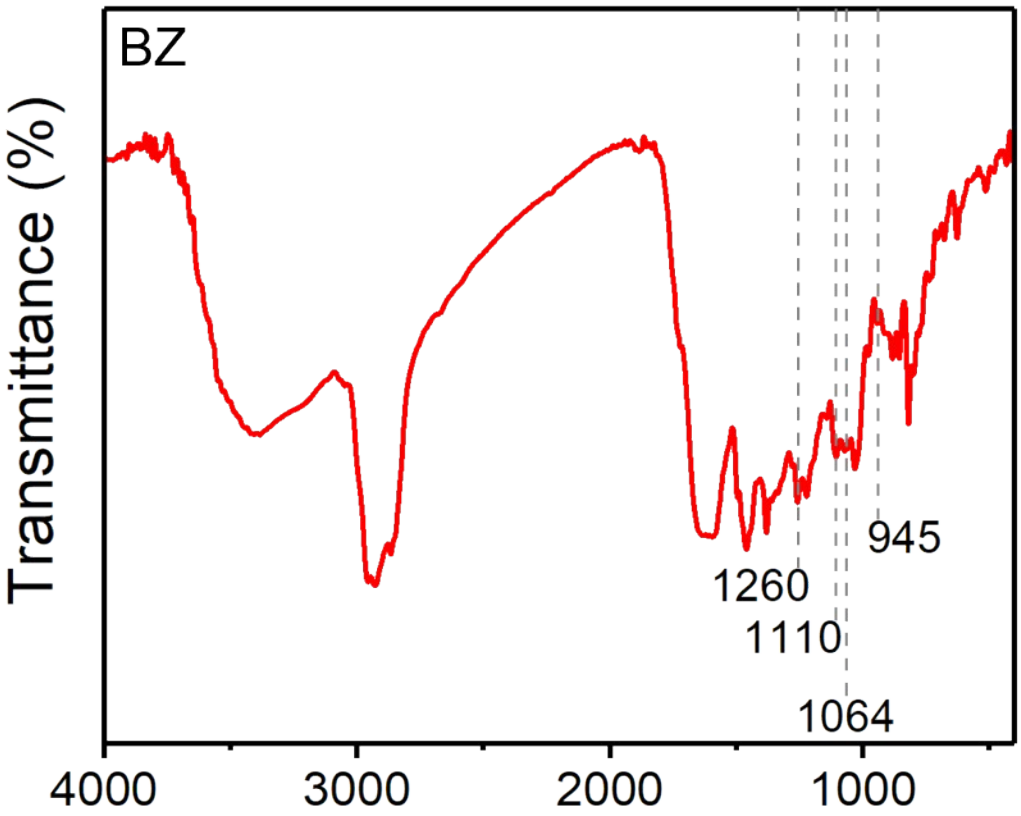

Figure S4. FTIR of BZ

Table S1. Chemical compositions of the prepared PU and BZ

PU	BZ
CO2-polyols	dehydroabietylamine
diphenylmethane diisocyanate (MDI)	paraformaldehyde
1,4-butanediol (BDO)	catechol
dibutyltin dilaurate (DBTDL)	toluene
N, N-dimethylacetamide	ethanol
turpentine oil/ sodium methylate	sodium bicarbonate

Table S2. Performance of gloss (60°), Pencil hardness and Adhesion

	Raw wood	PU	PU/BZ
Gloss (60°)	5.10	45.70	72.08
Pencil hardness	3B	H	2H
Adhesion	-	2.39	2.98

Table S3. Change in the hydrophobic angle of aging resistance test of PU- and PU/BZ- coated wood samples.

	PU	PU/BZ
10min	78.5 ± 0.3	90.0 ± 0.2
30min	74.1 ± 0.5	89.6 ± 0.3

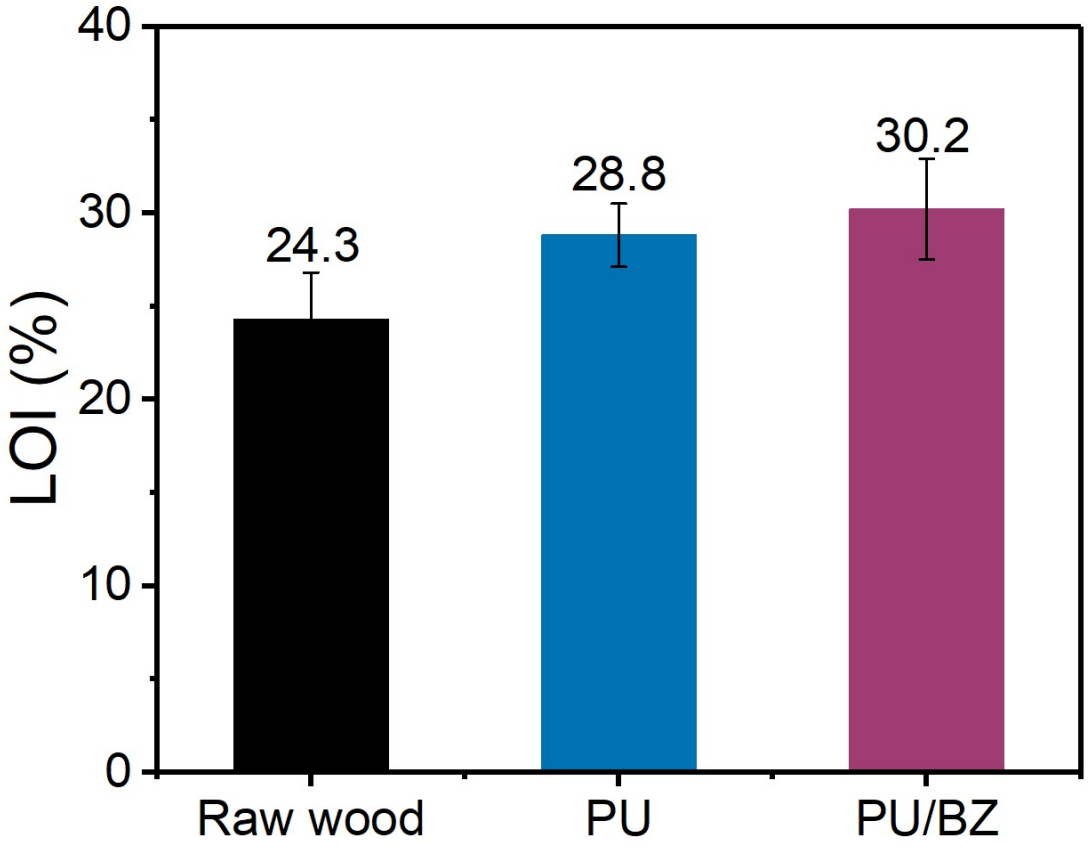

Figure S5. LOI of raw wood, PU and PU/BZ