

Supplemental files

Effects of infill patterns on resistance-dependent strain and ammonia gas sensing behaviors of 3D-printed thermoplastic polyurethane modified with polypyrrole

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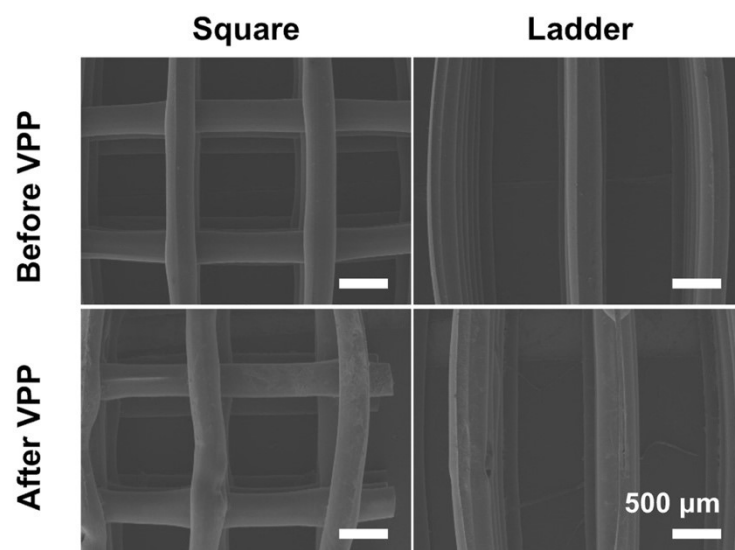


Fig. S1 Representative SEM images of different infill patterns (square & ladder) of TPU before/after VPP with PPy.

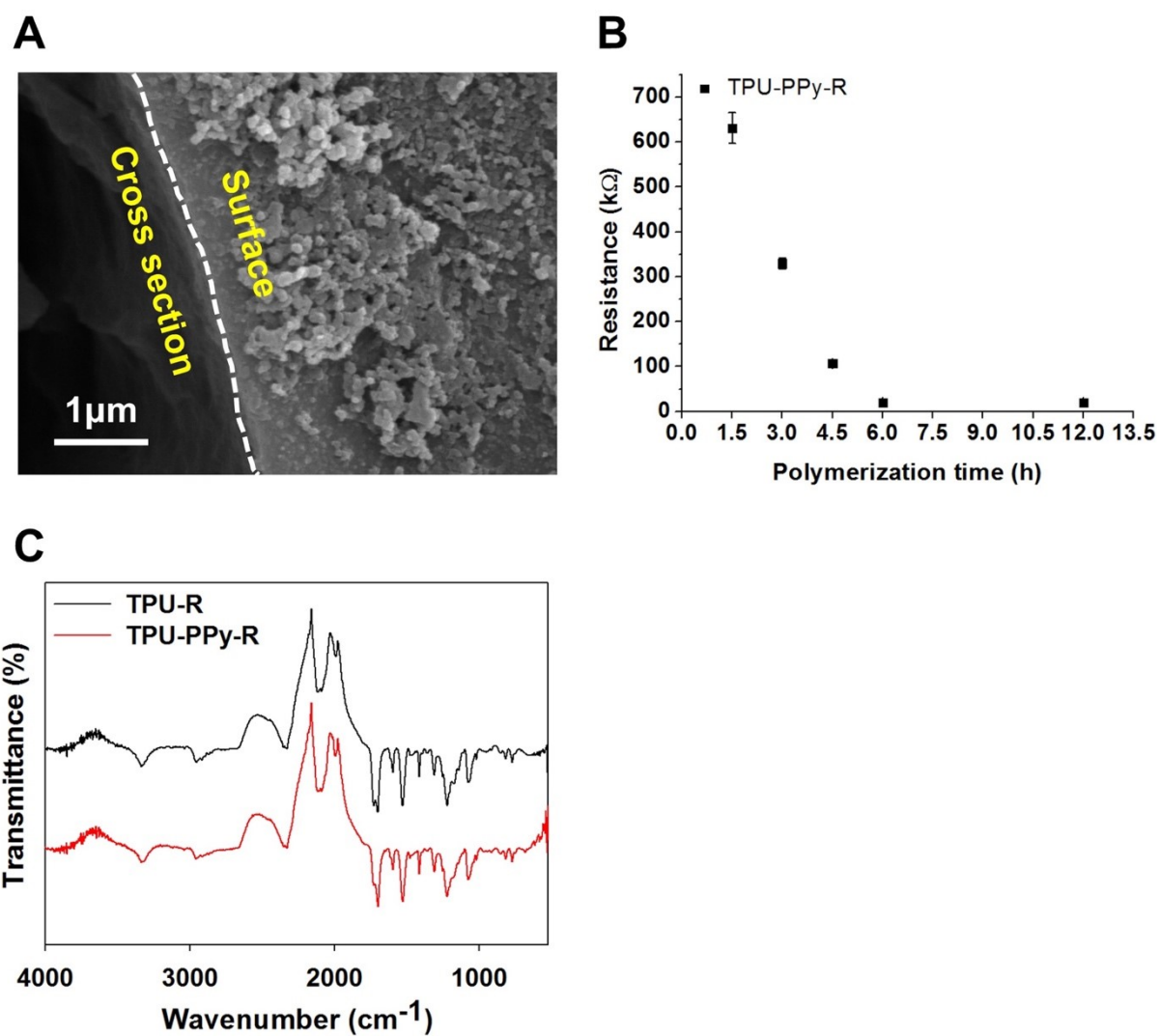


Fig. S2 (A) representative SEM image of PPy on the TUP after VPP, (B) Resistance changes as a function of time of VPP, (C) FT-IR spectra before/after VPP

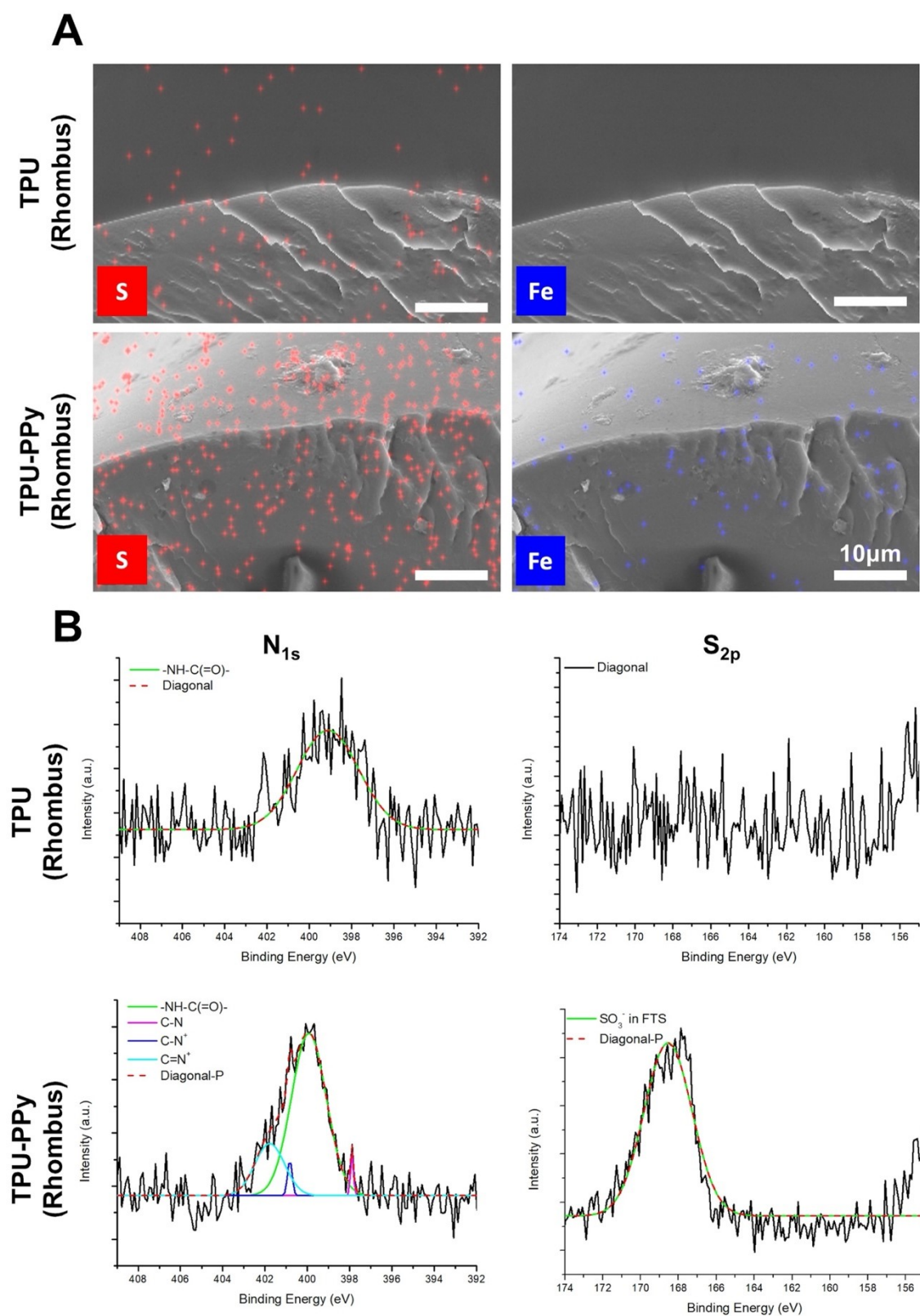


Fig. S3 Chemical characterization of TPU, and TPU-PPy. (A) EDS elemental mapping, (B) XPS spectra.

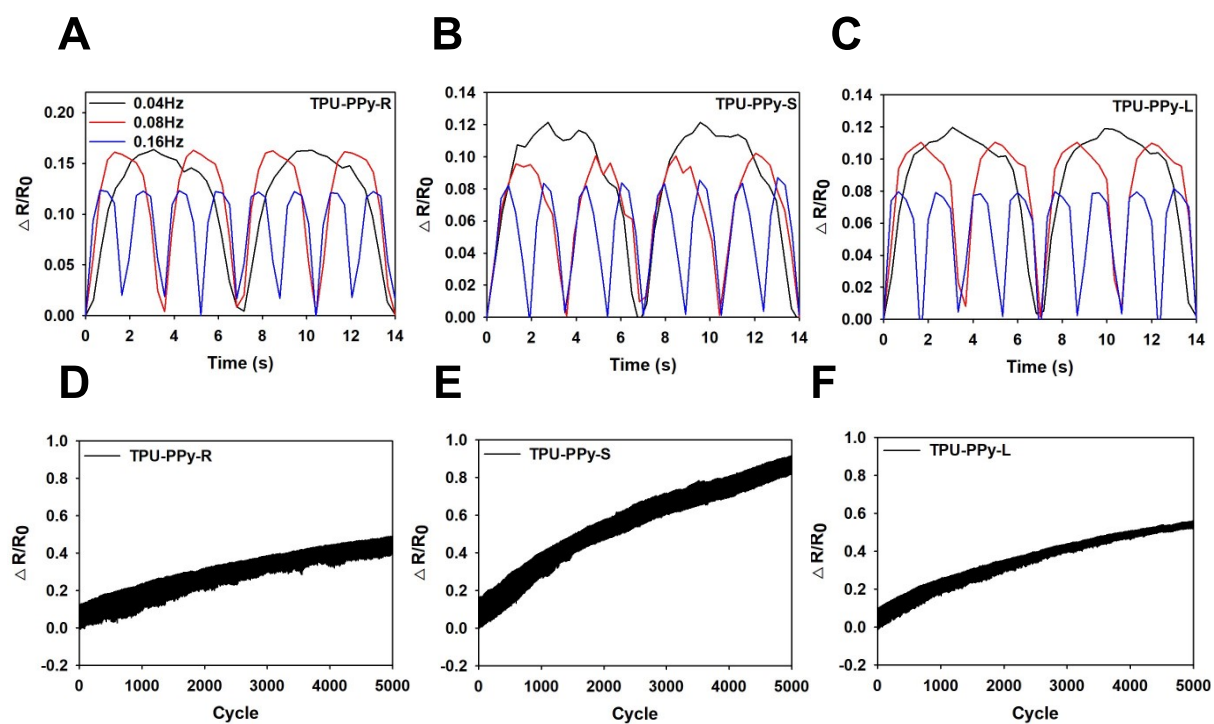


Fig. S4 Strain sensor behavior of TPU-PPy composites. (A-C) 10% applied strain at different strain rates, (E-F) Durability test for 5000 cycles at 10% applied strain.

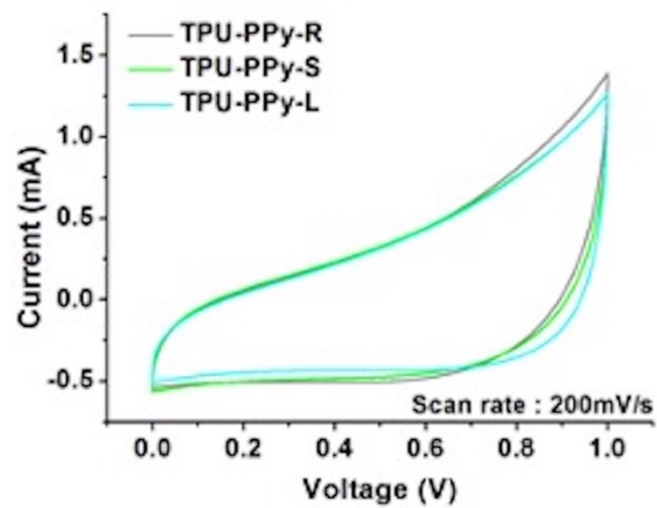


Fig. S5 I-V hysteresis with respect to different infill patterns

Table S1. Element wt.% of rhombus infill pattern of TPU, and TPU-PPy.

Element	norm C (wt%)	
	TPU-R	TPU-PPy-R
C	67.57	71.01
O	24.1	20.16
N	8.13	7.16
S	0.21	1.58
Fe	0	0.09