Supplementary Material

3D Printing of Thermal Insulating Polyimide/Cellulose Nanocrystal Composite Aerogels with Low Dimensional Shrinkage

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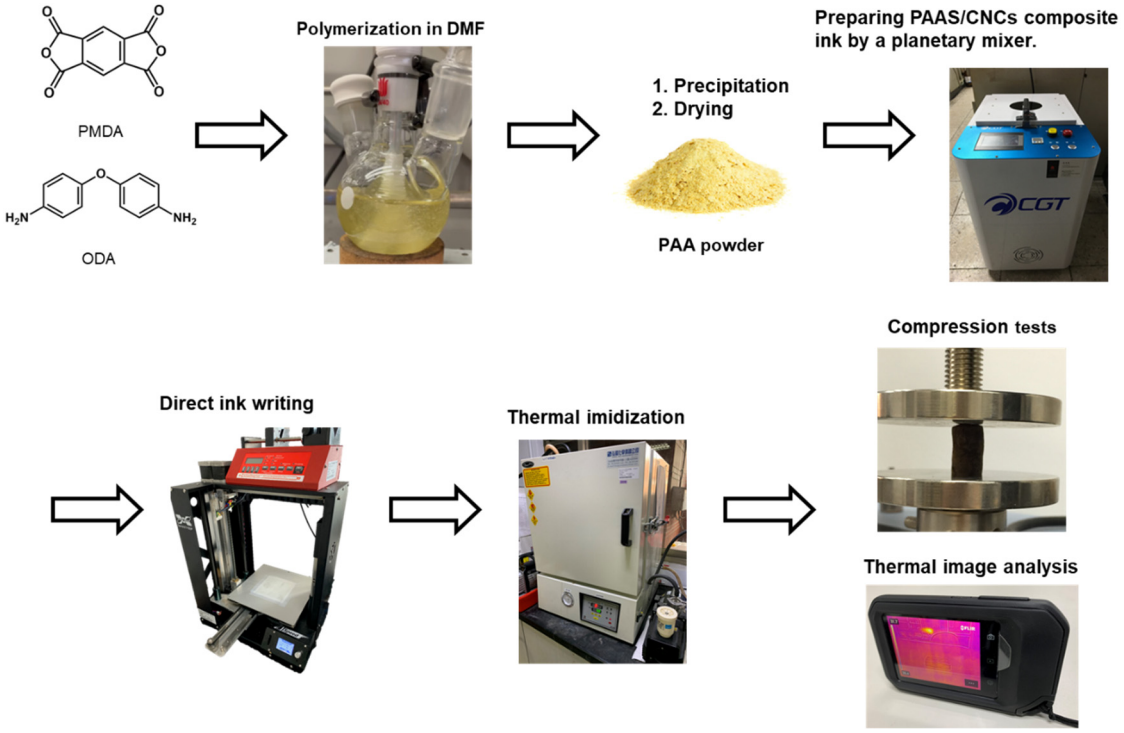

Figure S1. Synthesis and characterization of the 3D printable PI/CNCs composite aerogels.

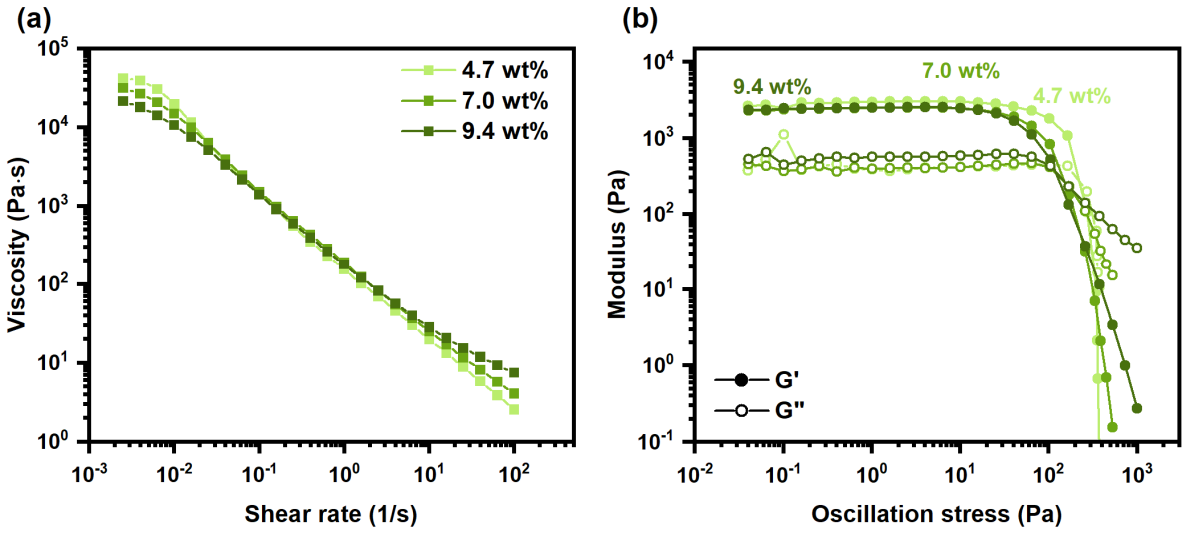

Figure S2. Rheological analysis of the inks under different concentrations of polyamic acid. (**a**) Steady-state shear viscosity of the ink. (**b**) Oscillatory rheological measurement.

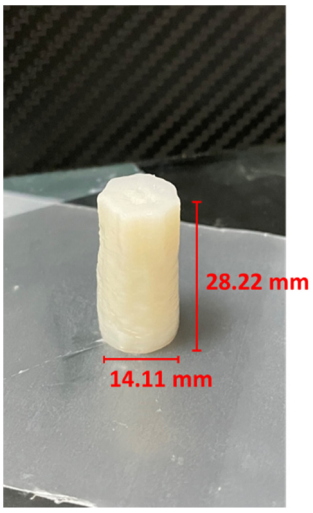

Figure S3. A 3D printed cylinder that shows the thickness achievable by the PAAS/CNCs ink. The concentrations of PAAS and CNCs were 7.0 wt% and 6.5 wt%, respectively.

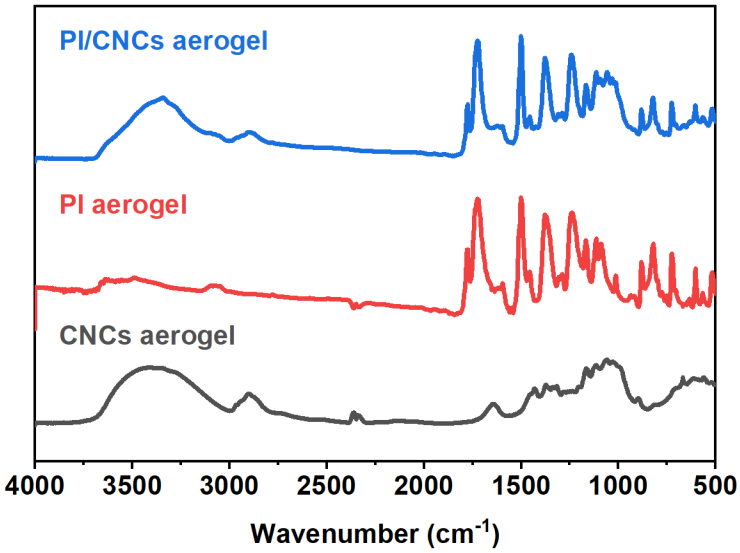

Figure S4. Full FT-IR spectra of different aerogels.

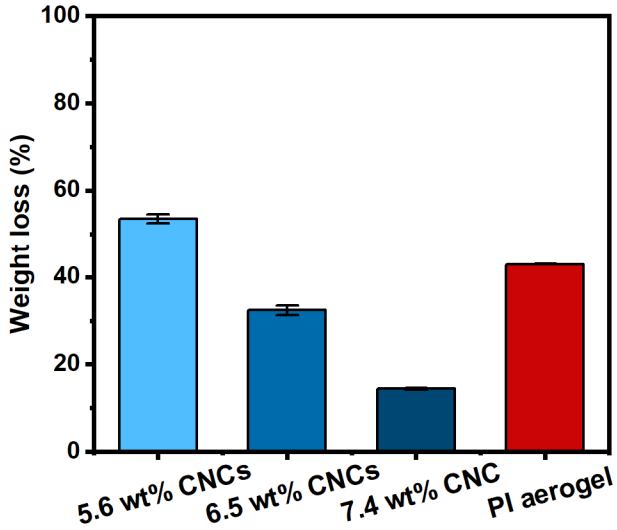

Figure S5. Weight loss of the freeze-dried samples after thermal imidization.

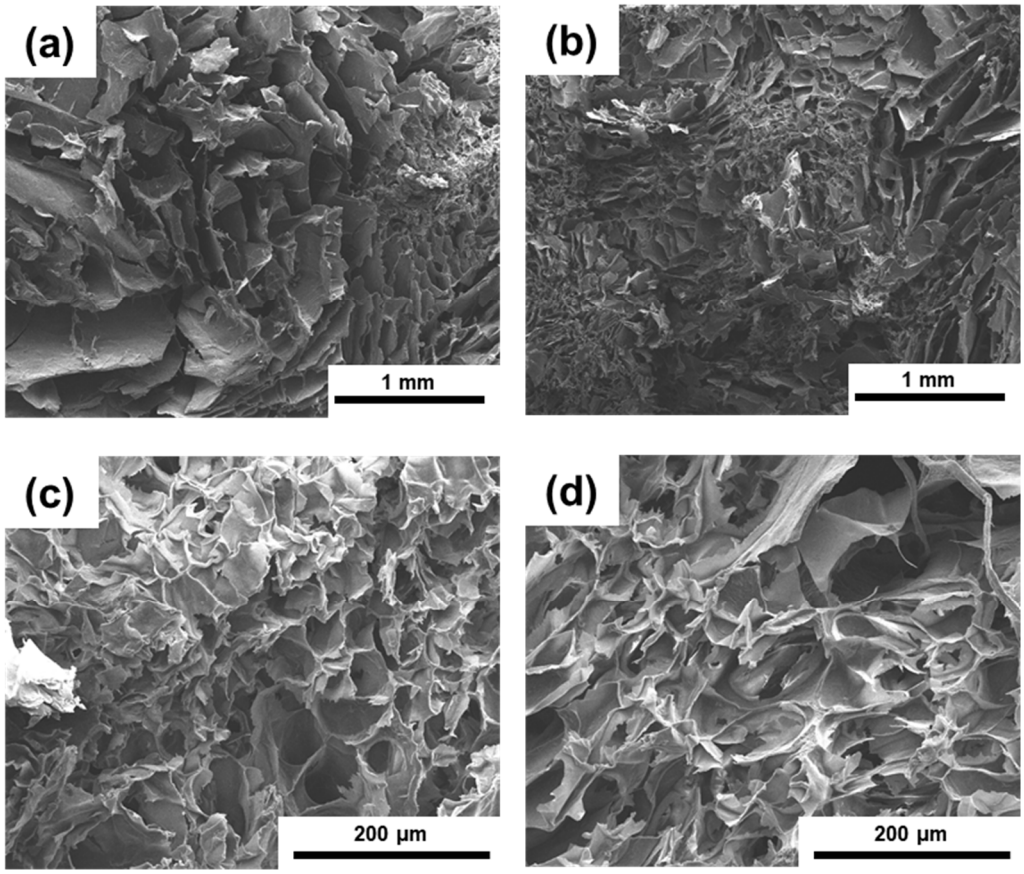

Figure S6. Cross-sectional SEM images of the composite aerogels after the thermal imidization process. (**a**,**c**) 5.6 wt% CNCs. (**b**,**d**) 7.4 wt% CNCs.

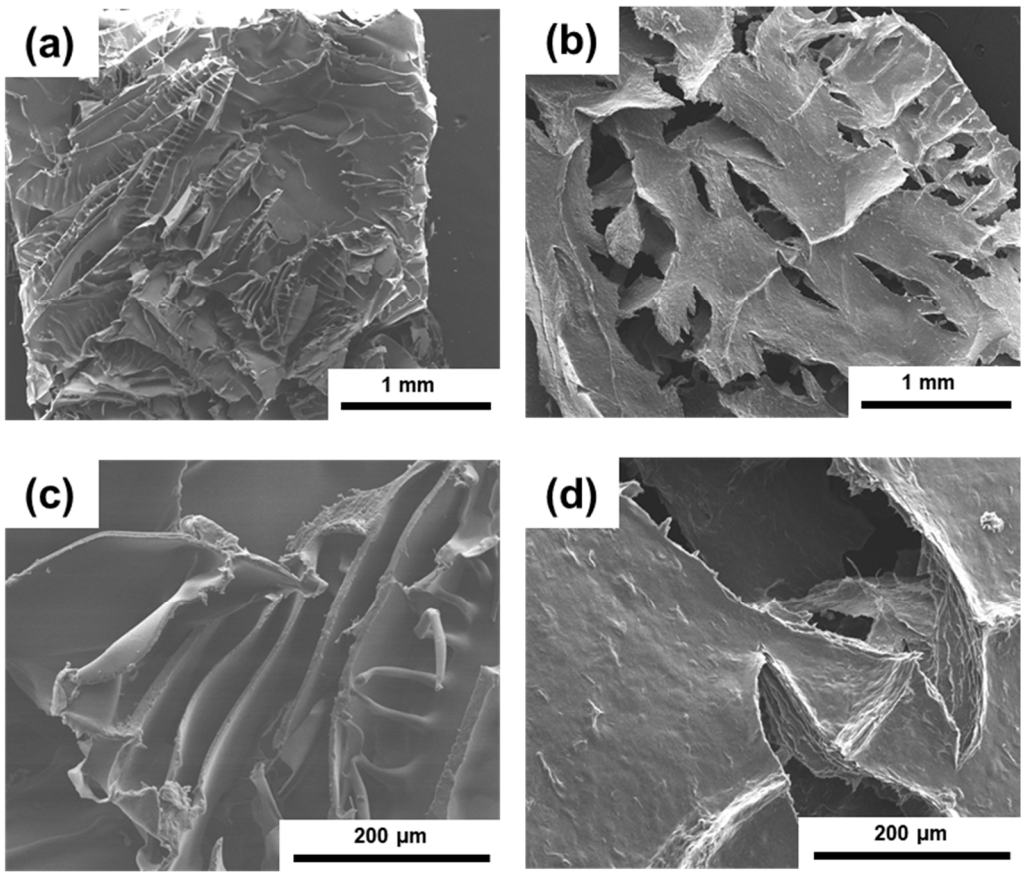

Figure S7. Cross-sectional SEM images. (**a**,**c**) Pure PAAS aerogels. (**b**,**d**) Pure CNC aerogels after freeze-drying.

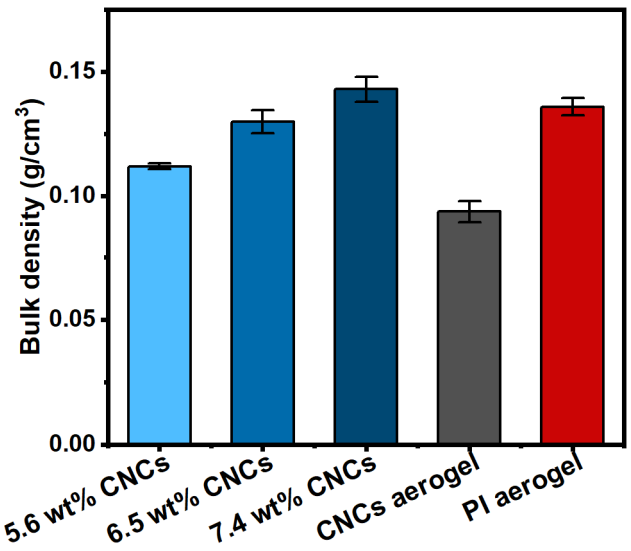

Figure S8. Bulk densities of PI/CNCs composite aerogels, CNCs aerogels, and PI aerogels.