

Supporting Information

Production and Processing of Zein Nanoparticles as Structural Colorants

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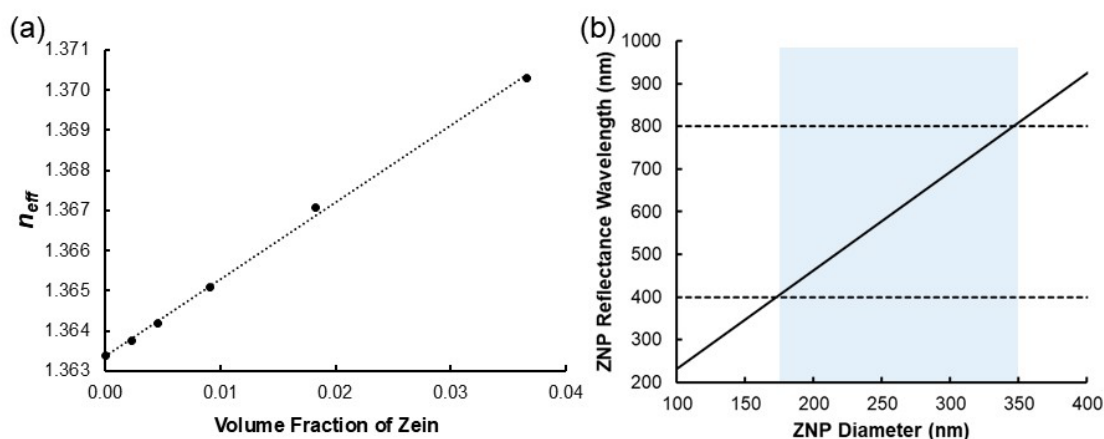


Figure S1: (a) Effective refractive index (n_{eff}) of the zein protein solution as a function of volume fraction. (b) The theoretical wavelength of Bragg reflection calculated as a function of ZNP diameter. ZNPs with diameters in the range of 175-350 nm (highlighted in blue) exhibit structural coloration across the visible range.

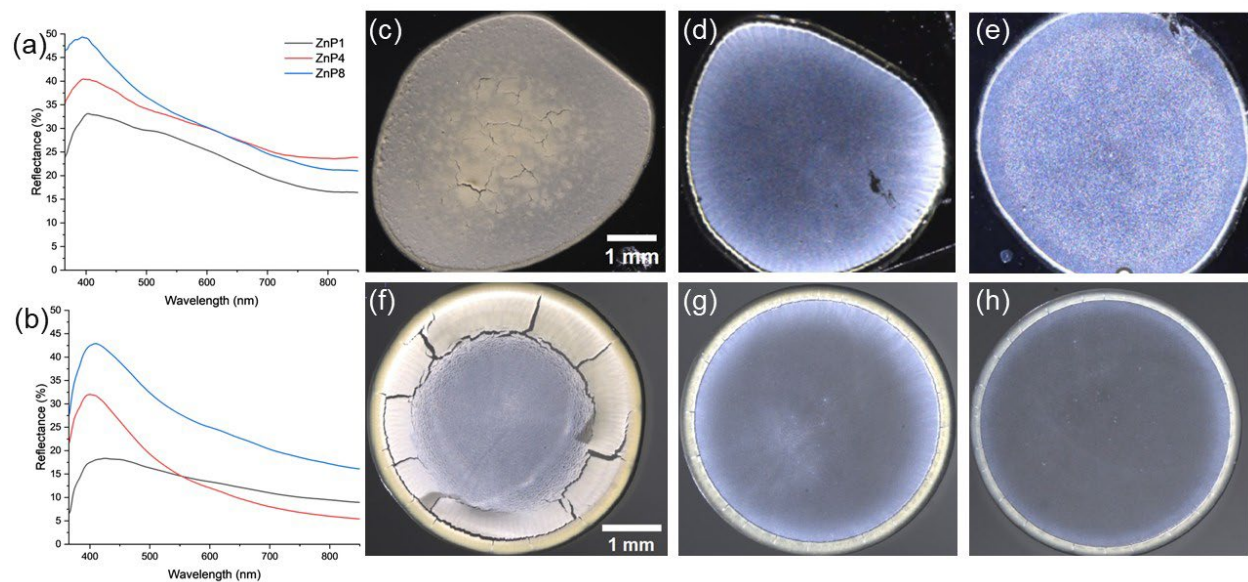


Figure S2: The corresponding reflectance spectra for the diluted ZNP samples on (a) silicon and (b) polystyrene substrates. Corresponding stereoscope images of ZNP films at varying dilution factors on silicon wafers (c) ZNP1, (d) ZNP4, (e) ZNP8 and polystyrene (f) ZNP1, (g) ZNP4, (h) ZNP8. All stereoscope images were taken of fully dried 10 μ L samples. All scale bars are 1 mm.

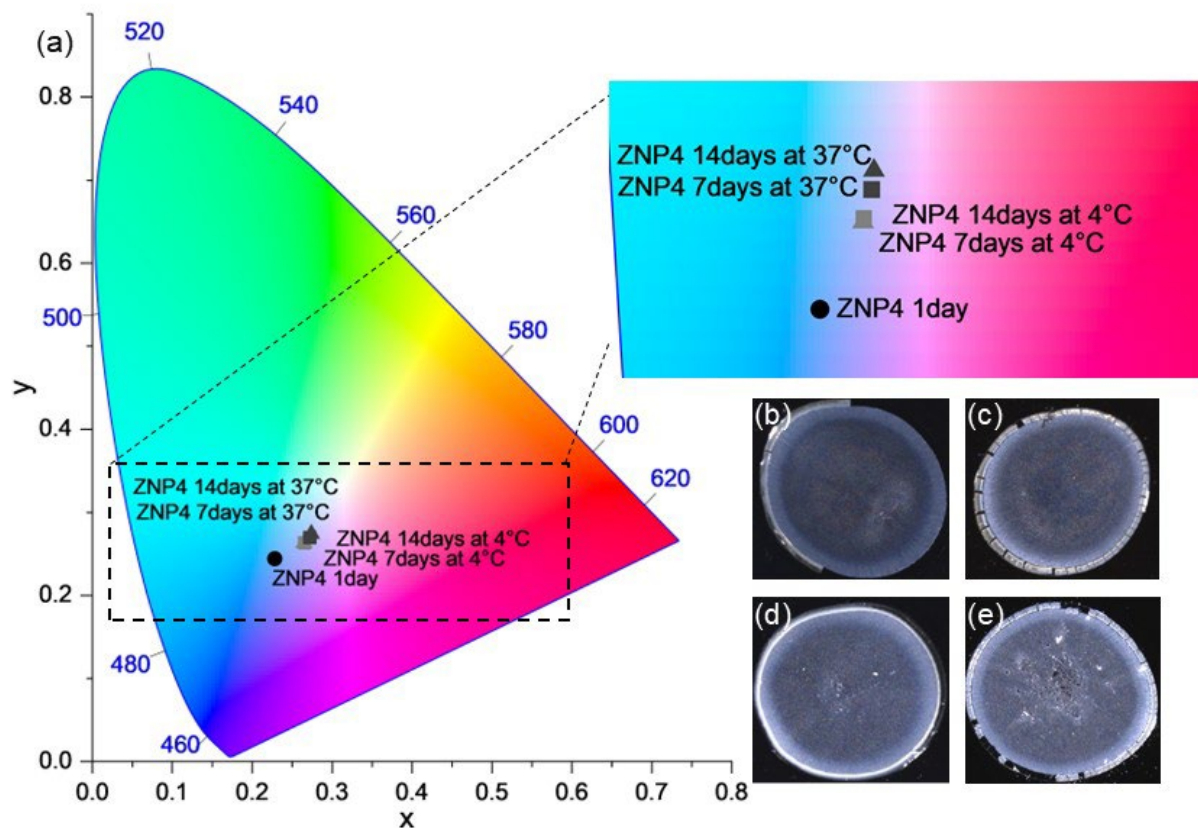


Figure S3: (a) The CIELAB diagram for ZNP4 films cast 7 and 14 days after ZNP formation, where particles were stored at low (4 °C) and high (37 °C) temperatures. The corresponding stereoscope images of films formed after 7 days stored at (b) 4 °C and (c) 37 °C and after 14 days stored at (d) 4 °C and (e) 37 °C.

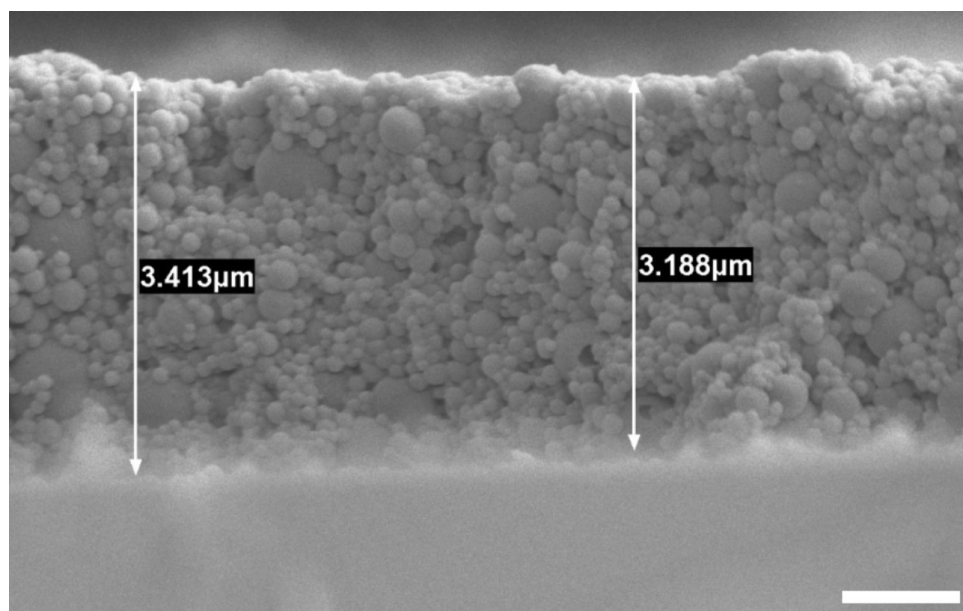


Figure S4: A representative SEM image of the cross-section of ZNP4 and corresponding thickness measurements.

The scale bar corresponds to 1 µm.