Electronic Supplementary Material (ESI) for Nanoscale Advances.

Electrical responses were also measured on free dealloyed NPG, despite the much greater challenges involved. Electrical measurements performed on thin samples reflected the hysteresis phenomenon observed in the mass change hysteresis of free dealloyed NPG. We observed a sudden rapid change in the reactance measurements around 80% RH, which reflects the sudden mass change at 80% RH. This sudden pore filling at the point of capillary condensation is reflected by a sudden increase in mass and a sudden increase in the capacitance. When the concentration decreases, the capacitance response differs from the mass response. This close association demonstrates that true water condensation is occurring within the pore network and that these capillary effects are significant sources of hysteresis in electrical measurements. This understanding can be extended to further validate the results seen in electrochemically dealloyed NPG.