Supporting information for

Morphology preserving transformation of minerals mediated by a temperature responsive polymer membrane: calcite to hydroxyapatite



Figure S1: turbidity measurements of PNIPAM-b-PAAc in the presence of the CaCl₂, Na₃PO₄ at high pH and Na₂CO₃.



Figure S2: pH development over the reaction as a function of time with polymer added and at 60 °C. The large increase in pH is associated with the addition of the phosphate solution.



Figure S3: ATR-FTIR of the final product. The presence of the polymer can be seen by the presence of the amide band at ~1650 cm⁻¹. The presence of phosphate is seen by the bands at ~550 and ~1000 cm⁻¹. The carbonate is mainly contributed from carbonate incorporated into the HAP as the band is a double peak and not a single peak as characteristic for calcite.



Figure S4: EDX map of the calcite/HAP interface with C (green), N (blue) and P(red) exposed by FIB. As expected the carbon is present in both the HAP and calcite material as carbonate incorporates into HAP. The Nitrogen was mapped to locate the PNIPAM polymer; unfortunately the results were not significant as the technique is poorly sensitive to nitrogen. Below is shown the average spectrum of the map. Ga originates from the FIB preparation of the sample.