# The pH-controlled hydrothermal synthesis and crystal structures of two zinc N,N'-piperazinebis(methylenephosphonate) frameworks

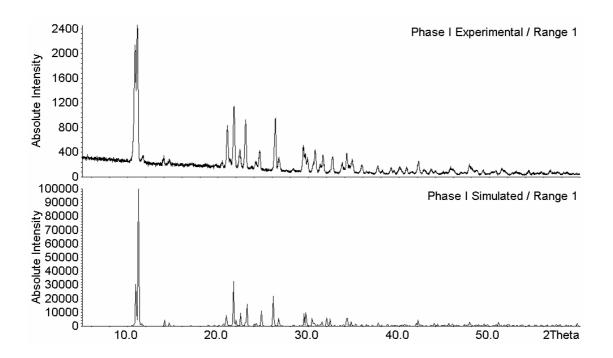
John A. Groves, Paul A. Wright and Philip Lightfoot\*

School of Chemistry, University of St Andrews, St Andrews, Fife, KY16 9ST, UK

#### **Supplementary Information**

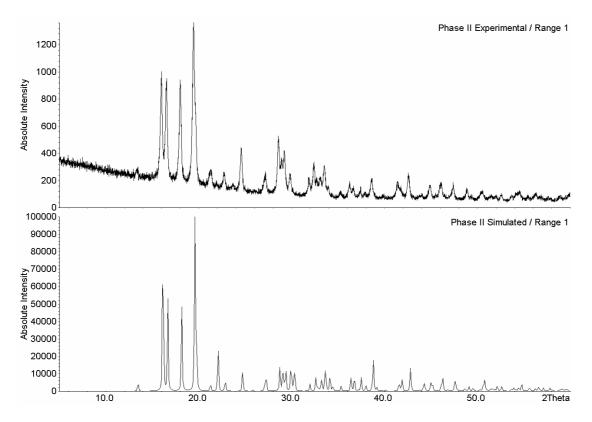
#### Figure S1.

Experimental X-ray powder diffraction pattern for phase I, and the pattern simulated on the basis of the crystal structure.

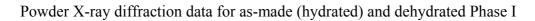


### Figure S2.

Experimental X-ray powder diffraction pattern for phase II, and the pattern simulated on the basis of the crystal structure.



## Figure S3.



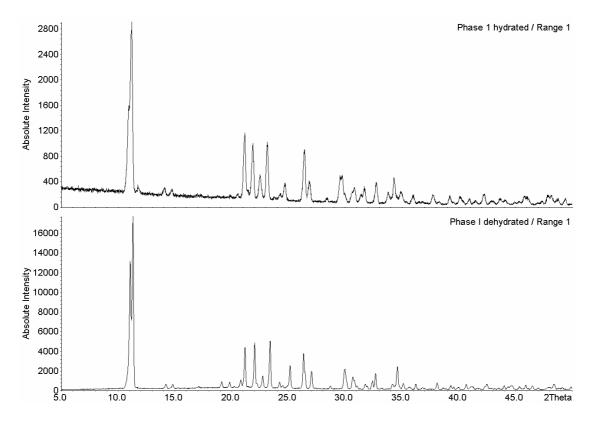


Figure S4. <sup>31</sup>P MASNMR spectra for phase II (top) and phase I (below).

