

Supplementary Information for

**The Structure, Thermal Properties and Phase Transformations of the Cubic Polymorph of
Magnesium Tetrahydroborate**

W. I. F. David^{1,2*}, S. K. Callear¹, A. H. Pohl¹, P. C. Aeberhard^{1,2}, S. D. Culligan², M. O. Jones^{1,2}, S. R. Johnson^{1†}, K. R. Ryan², J. E. Parker⁴,
P. P. Edwards², C. J. Nuttall³ and A. Amieiro-Fonseca³

1. ISIS Facility, STFC Rutherford Appleton Laboratory, Harwell Oxford, Didcot, OX11 0QX, UK

2. Inorganic Chemistry Laboratory, University of Oxford, South Parks Road, Oxford, OX1 0ER, UK

3. Johnson Matthey Technology Centre, Blounts Court Road, Sonning Common, Reading, RG4 9NH, UK

4. Diamond Light Source, Diamond House, Harwell Oxford, Didcot, Oxfordshire OX11 0DE, UK

† Address now 3.

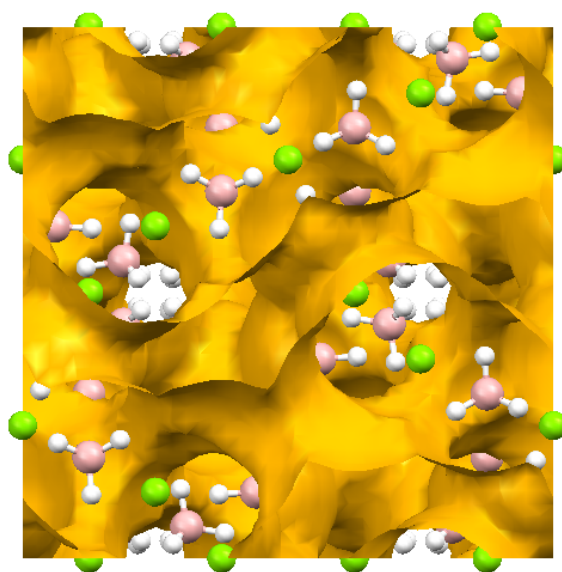


Figure S1 Pore space in γ -Mg(BH₄)₂ depicted for one unit cell; probe radius = 0.5, grid spacing = 0.4, viewed down *a*-axis.

Event	Starting mass / mg	End mass / mg	Δ mass / mg	Wt%	Calc. wt% via Eq. 1	Calc. wt% via Eq. 2
<i>a</i>	9.4852	9.4019	0.0833	0.88		
<i>b</i>	9.4019	9.3606	0.0413	0.43		
<i>c</i>	9.3606	8.9786	0.3820	4.03	11.22	8.10
<i>d</i>	8.9786	8.5758	0.4028	4.25		
<i>e</i>	8.5758	8.2952	0.2806	2.96	3.74	3.12

Table S1 Calculation of observed and calculated mass losses for decomposition of γ -Mg(BH₄)₂