Electronic Supplementary Information

Uranyl oxide hydrate frameworks with lanthanide ions

Kimbal T. Lu,^{a,b} Yingjie Zhang,^{*a} Robert D. Aughterson,^a and Rongkun Zheng^b

^a Australian Nuclear Science and Technology Organisation, Locked Bag 2001, Kirrawee DC, NSW 2232, Australia.

^b School of Physics, The University of Sydney, Camperdown, New South Wales 2006, Australia.

* Corresponding author: <u>yzx@ansto.gov.au</u> (Y. Zhang)



Figure S1. Powder XRD patterns of **UOF-Eu** (a) and **UOF-Gd** (b) with measured on top of simulated ones.





Figure S2. A backscattered SEM image (top) and an EDS spectrum (bottom) of compound UOF-Eu.



Figure S3. EDS mapping of UOF-Eu.



50µm



Figure S4. A backscattered SEM image (top) and an EDS spectrum (bottom) of compound

UOF-Gd.



Figure S5. EDS mapping of UOF-Gd.



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Figure S6. A polyhedral view of uranyl cation-cation interactions between U1/U2/U3 and double U7 polyhedra in **UOF-Eu** and **UOF-Gd**.



Figure S7. Thermogravimetric analysis results for UOF-Gd.

Figure S8. PXRD patterns of the residue oxide U-Gd (top) and UO₂ (bottom) for comparison, with minor U_3O_8 (*) in U-Gd.

Figure S9. A Backscattered SEM image (top) and an EDS spectrum (bottom) of the residue oxide (**U-Gd**) from the thermal decomposition of **UOF-Gd**.