Supplementary Information

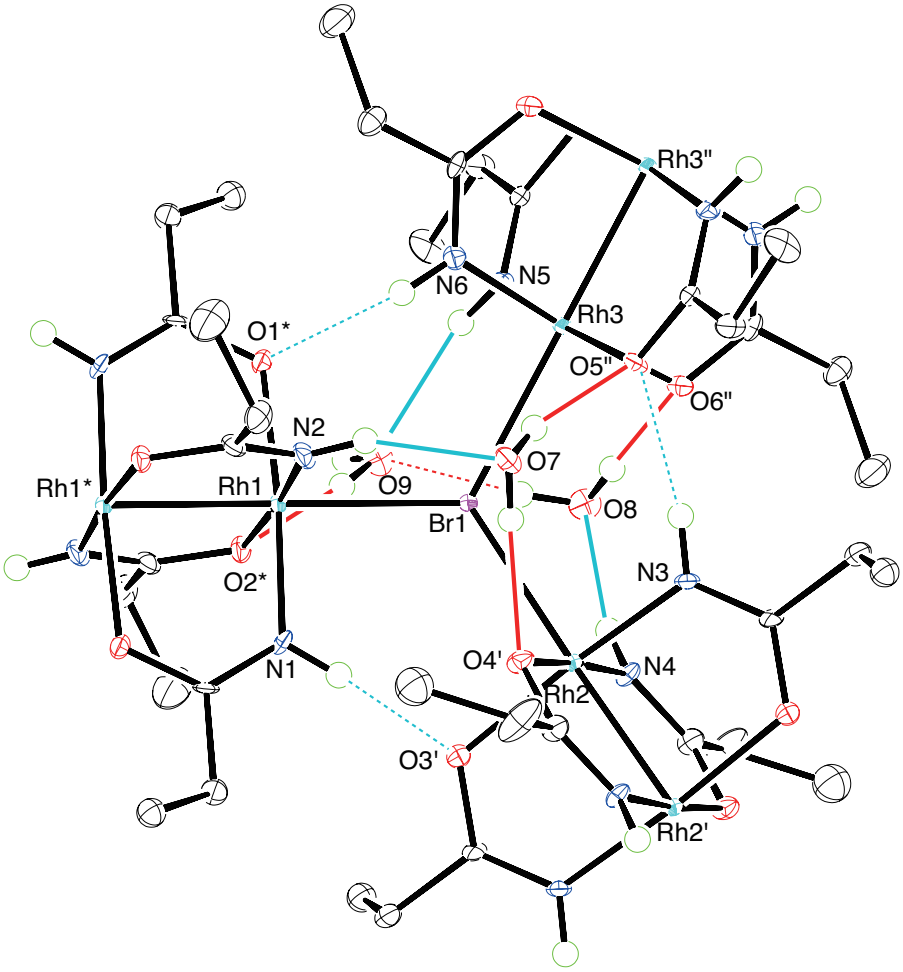

Fig. S1 ORTEP view of $[\{Rh_2(pram)_4\}_3(\mu_3\text{-}Br)_2]\cdot 6H_2O$ (**5**·$6H_2O$). Thermal ellipsoids are shown at 50% probability. Water molecules, ethyl hydrogen atoms and some disordered ethyl groups are omitted for clarity. The blue dotted lines show hydrogen bonds from the NH of pram ligands to the O atoms of pram ligands. Symmetry operations *: –x, –y, –z+1; ′: –x, –y, –z; ″: –x+1, –y+1, –z+1.

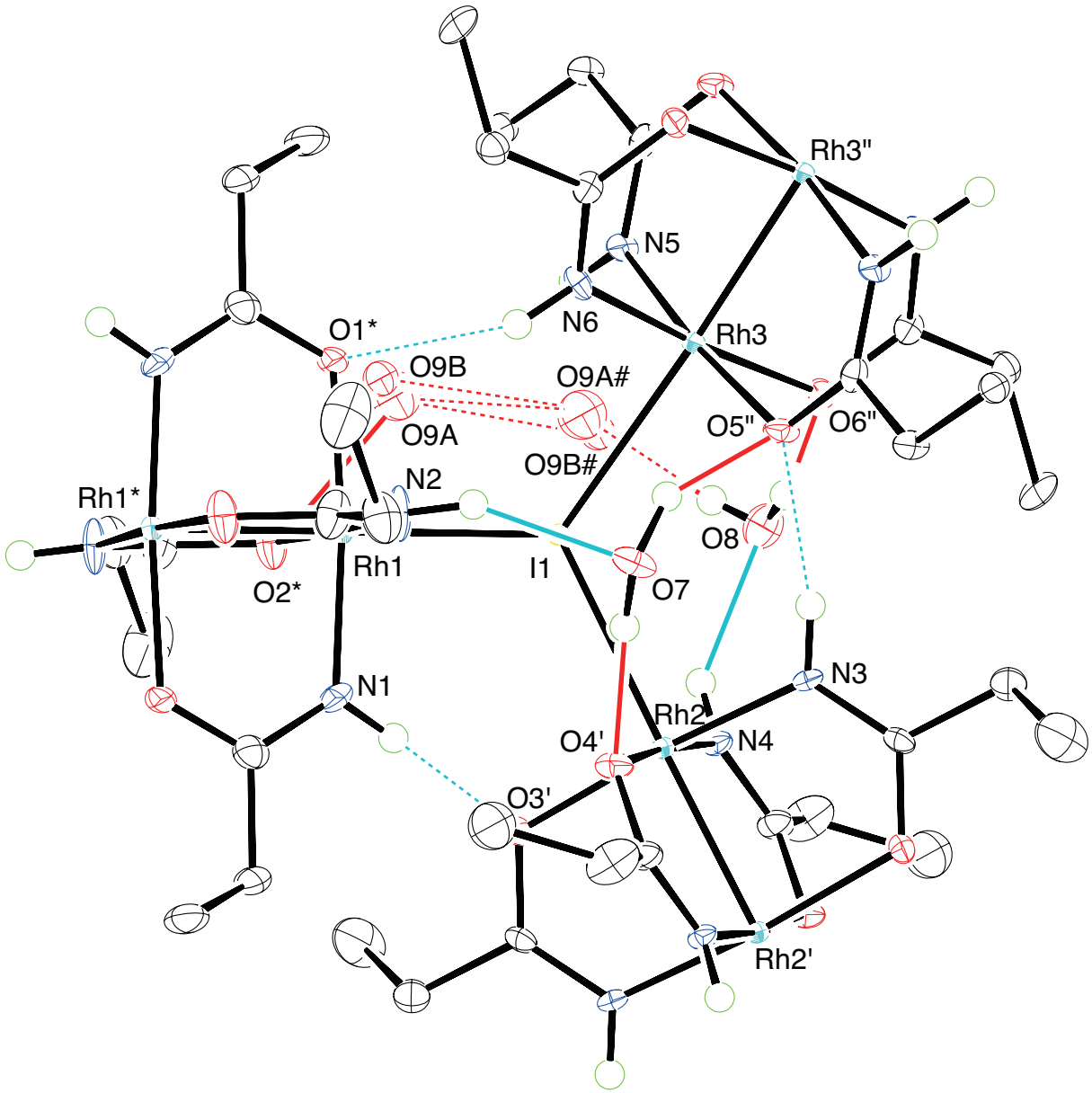

Fig. S2 ORTEP view of $[\{Rh_2(pram)_4\}_3(\mu_3\text{-}I)_2]\cdot 6H_2O$ (**6**·$6H_2O$). Thermal ellipsoids are shown at 50% probability. Water molecules, ethyl hydrogen atoms and some disordered ethyl groups are omitted for clarity. The blue dotted lines show hydrogen bonds from the NH of pram ligands to the O atoms of pram ligands. Symmetry operations *: –x, –y, –z+1; ′: –x, –y, –z; ″: –x+1, –y+1, –z+1; #: –x, –y+1, –z+1.

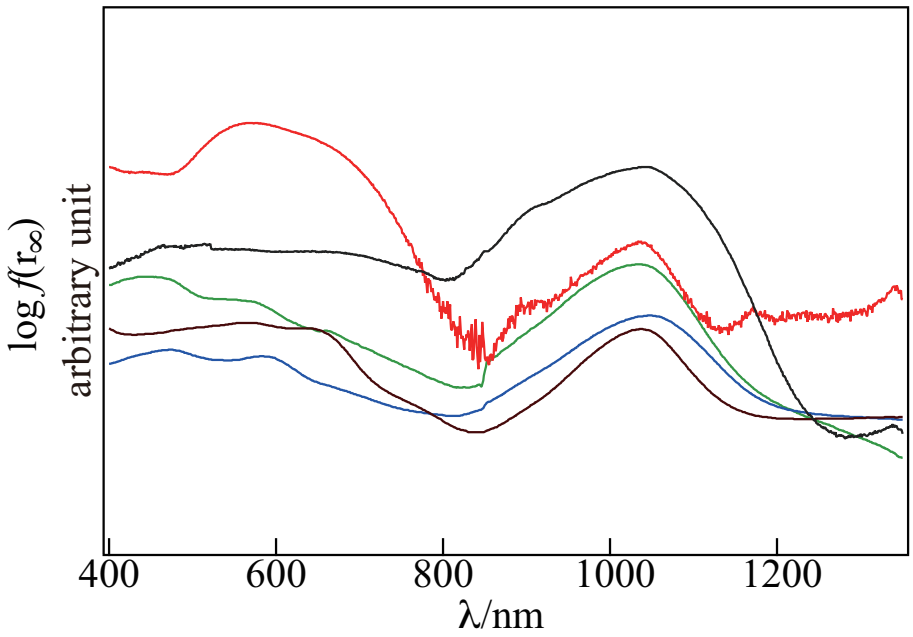

Fig. S3 Diffuse reflectance spectra of **1**·4H_2O (green), **2**·10H_2O (blue), **3**·4H_2O (brown), [Rh_2(acam)$_4$(H_2O)$_2$]·6H_2O (black) and [Rh_2(acam)$_4$(H_2O)$_2$]ClO_4 (red). The spectra were recorded for powder samples ground with MgO powder. The reflectance spectra are given in the form of Kubelka-Munk conversion {log $f(r_\infty)$}.[S1]

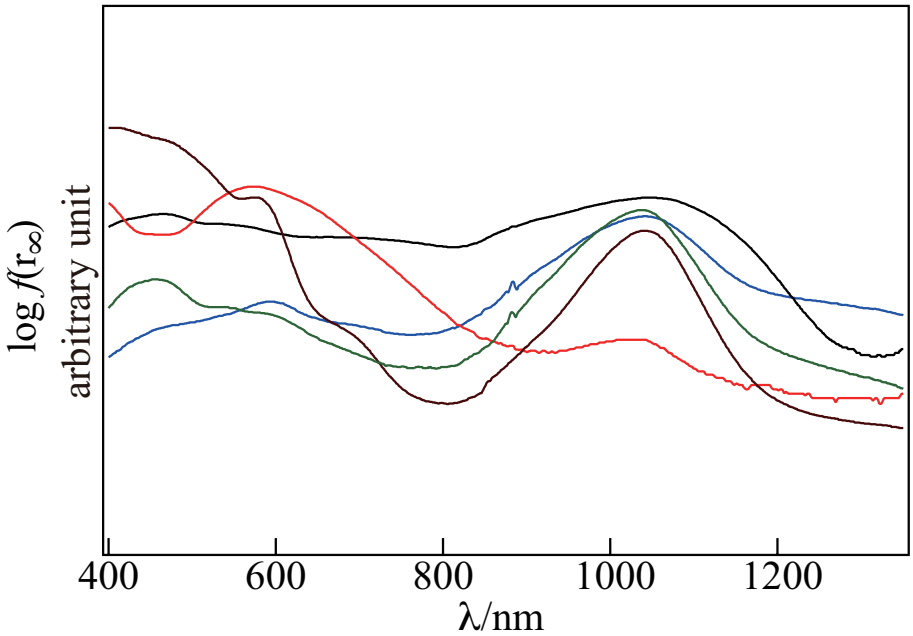

Fig. S4 Diffuse reflectance spectra of **4**·6H_2O (green), **5**·6H_2O (blue), **6**·6H_2O (brown), [Rh_2(pram)$_4$(py]·6H_2O (black) and [Rh_2(pram)$_4$(H_2O)$_2$]PF_6 (red). The spectra were recorded for powder samples ground with MgO powder. The reflectance spectra are given in the form of Kubelka-Munk conversion {log $f(r_\infty)$}.[S1]

(S1) P. Kubelka, F. Z. Munk, *Tech. Phys.* **1931**, *12*, 593.

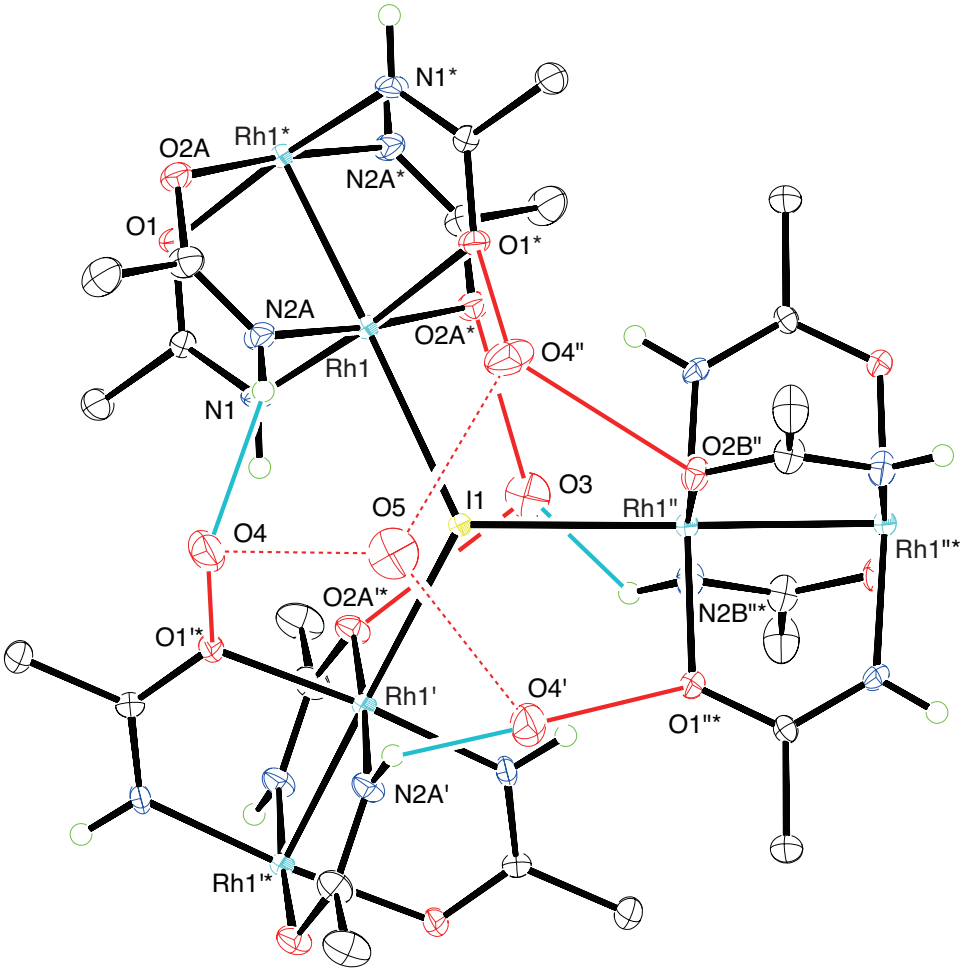

Fig. S5 ORTEP view of $[\{Rh_2(acam)_4\}_3(\mu_3\text{-}I)_2]\cdot 10H_2O$ (**3**·$10H_2O$). Thermal ellipsoids are shown at 30% probability. Methyl hydrogen atoms are omitted for clarity. Disordered O and N atoms of acam ligands O2A, N2A and O2B, N2B are drawn in a ratio of 2:1. Symmetry operations *: 1/3–x, 2/3–y, 2/3–z; ′: –x+y, –x, z; ″: –y, x–y, z; ′*: 1/3+x–y, –1/3+x, 2/3–z; ″*: –2/3+y, –1/3–x+y, 2/3–z.

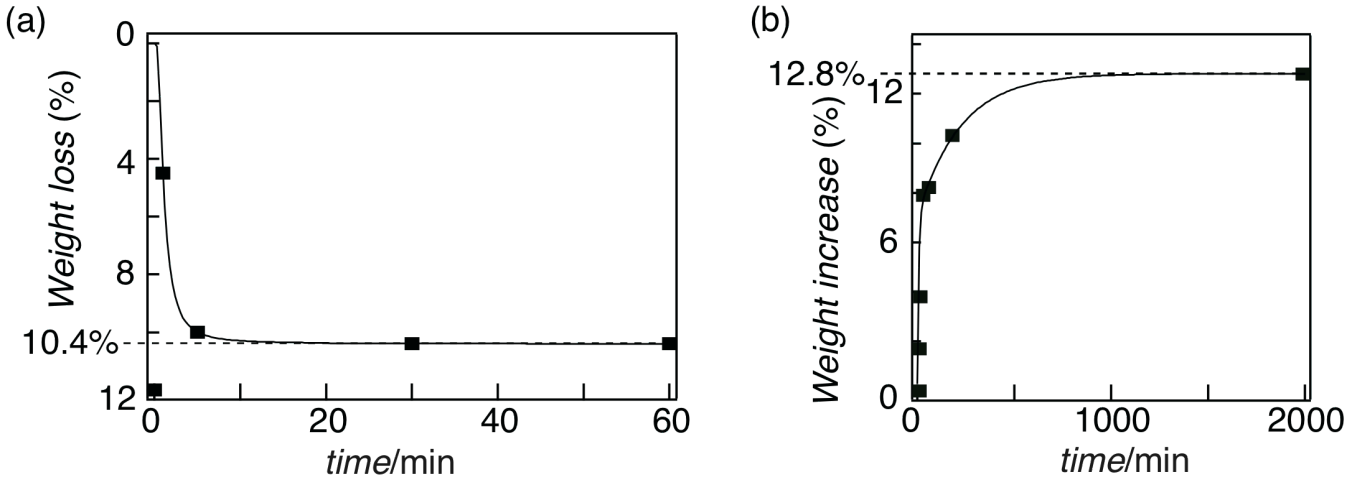

Fig. S6 (a) Weight loss of **2**·10H_2O under reduced pressure. (b) Weight increase of the dehydrated sample **2** under moisture saturated argon atmosphere.

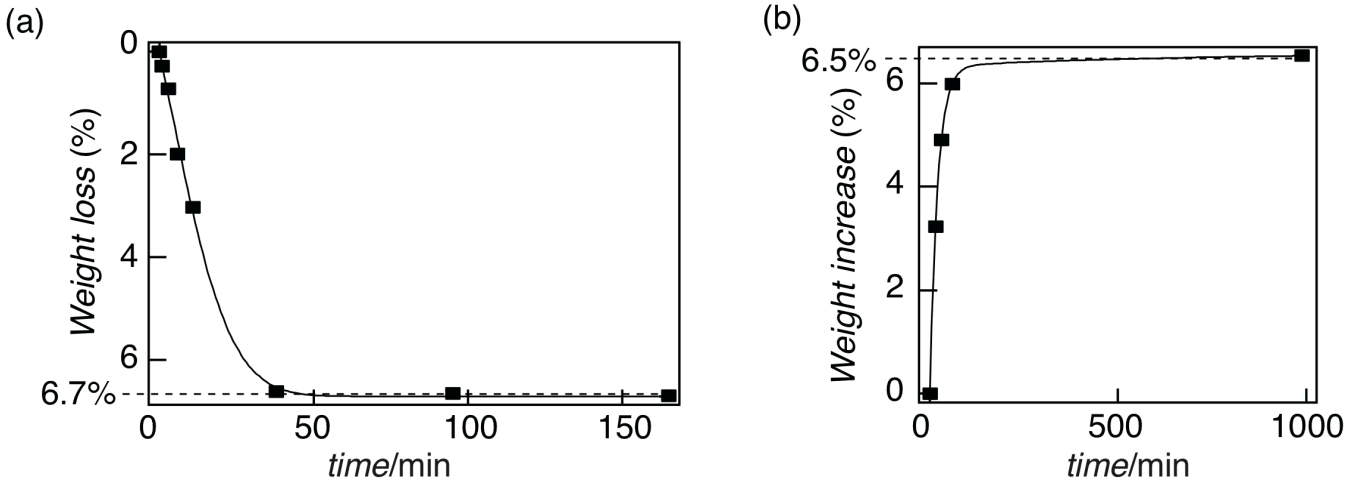

Fig. S7 (a) Weight loss of **4**·6H_2O under reduced pressure. (b) Weight increase of the dehydrated sample **4** under moisture saturated argon atmosphere.