

SUPPORTING INFORMATION

Crystal Structure, Physic-Chemical and Catalytic Properties Of Two Organic-Inorganic Hybrid Polyoxometalate-Based Lanthanide Complexes.

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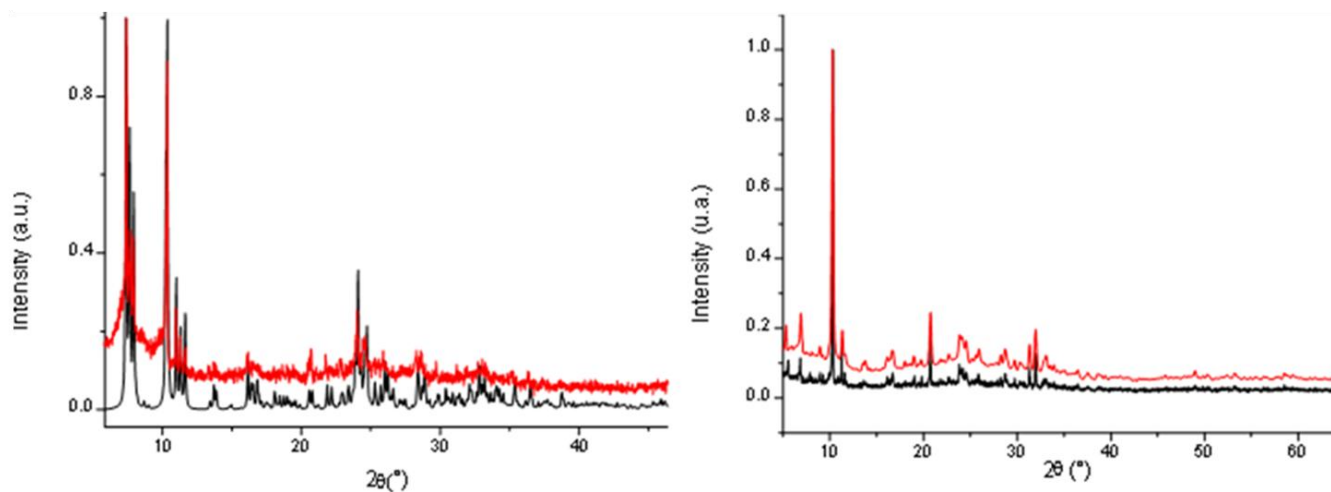


Figure S1. Experimental (red) and simulated (black) powder X-ray diffraction patterns for compounds **(1)** (Left) and **(2)** (Right).

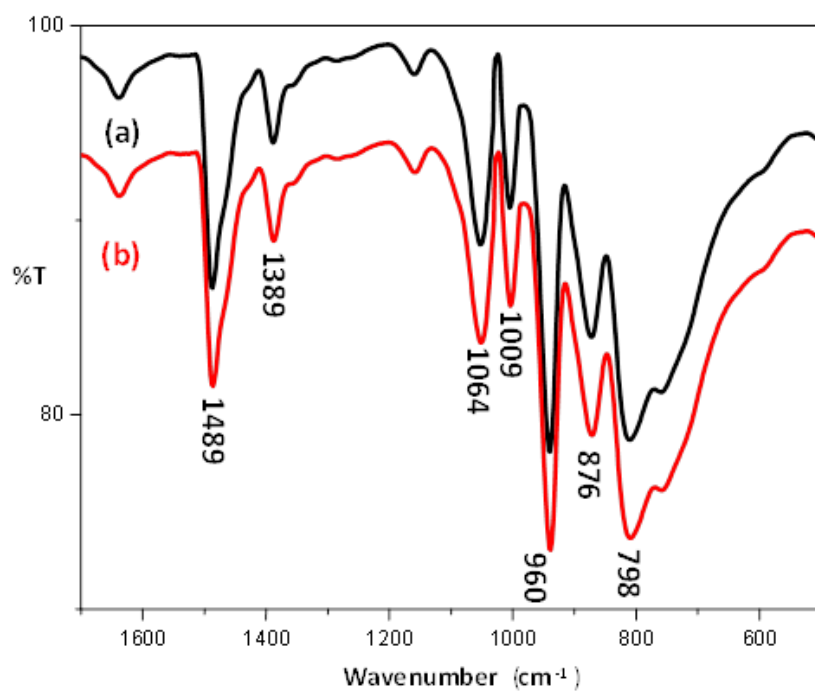


Figure S2. FT-IR spectra of $[\text{Eu}(\text{C}_2\text{H}_6\text{SO})_8][\text{PMo}_{12}\text{O}_{40}]$ **(a)** and $[\text{Er}(\text{C}_2\text{H}_6\text{SO})_8][\text{PMo}_{12}\text{O}_{40}].2(\text{C}_2\text{H}_6\text{SO}).1/2\text{H}_2\text{O}$ **(b)**

Table S1. Non typical contact interactions geometries in (1).

D–H...A	Symmetry codes	H...A distances(Å)	D...A distances (Å)	D–H...A angles (°)
C6–H1B...O48	1+x,-1+y,z	2.55	3.354(2)	142
C3–H2B...O46A	2-x,-y,1-z	2.58	3.433(16)	149
C13–H4A...O8	x,y,z	2.55	3.282(14)	133
C2–H5B...O2	x,y,z	2.48	3.424(14)	167
C5–H7B...O22B	1-x,1-y,1-z	2.60	3.384(2)	140
C1–H8B...O54A	x,y,z	2.57	3.421(16)	148
C9–H9C...O38	2-x,1-y,-z	2.54	3.348(13)	141
C7–H10A...O36	x,y,z	2.58	3.354(1)	138
C15B–H6...O53	2-x,2-y,-z	2.57	3.350(3)	138
C10–H11B...O18	1-x,1-y,-z	2.58	3.253(1)	127
C12–H15A...O9	x,1+y,z	2.53	3.463(15)	165

Table S2. Non typical contact interactions geometries in (2).

D–H...A	Symmetry codes	H...A distances (Å)	D...A distances(Å)	D–H...A angles(°)
C13–H1C...S6	x, y, z	2.85	3.727(2)	152
C17–H3C...O47	2-x, -1/2+y, 1/2-z	2.44	3.293(2)	148
C15–H6C...O50A	1-x, -1/2+y, 1/2-z	2.52	3.352(3)	145
C16–H7A...O39	1-x, -1/2+y, 1/2-z	2.53	3.343(3)	142
C9–H10A...O26	1+x, y, z	2.57	3.519(2)	172
C10–H11A...O12	1+x, 1/2-y, z-1/2	2.37	3.287(2)	160
C3–H52A...O38	x, y, z	2.60	3.458(3)	149
C20–H58C...O16	1+x, 1/2-y, z-1/2	2.59	3.481(3)	155
C11–H65B...O15	1+x, y, z	2.51	3.128(2)	122
C5–H67B...O50A	1+x, y, z	2.42	3.393(2)	146
C6–H73C...O32	1-x, 1/2+ y, 1/2- z	2.55	3.287(3)	134
C8–H95B...OW1	x, y, z	2.49	3.175(3)	128

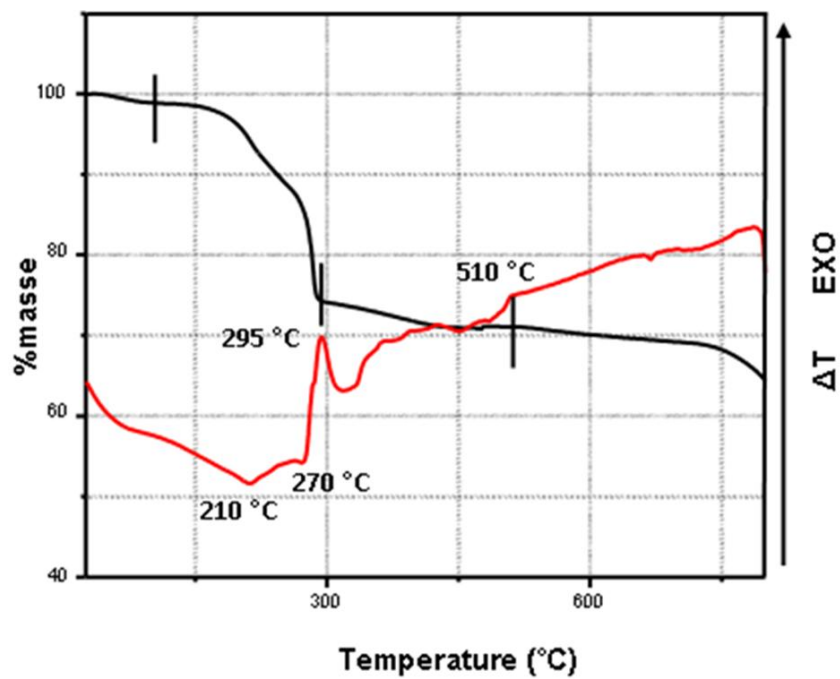


Figure S3. Thermal analyses of compound (1).

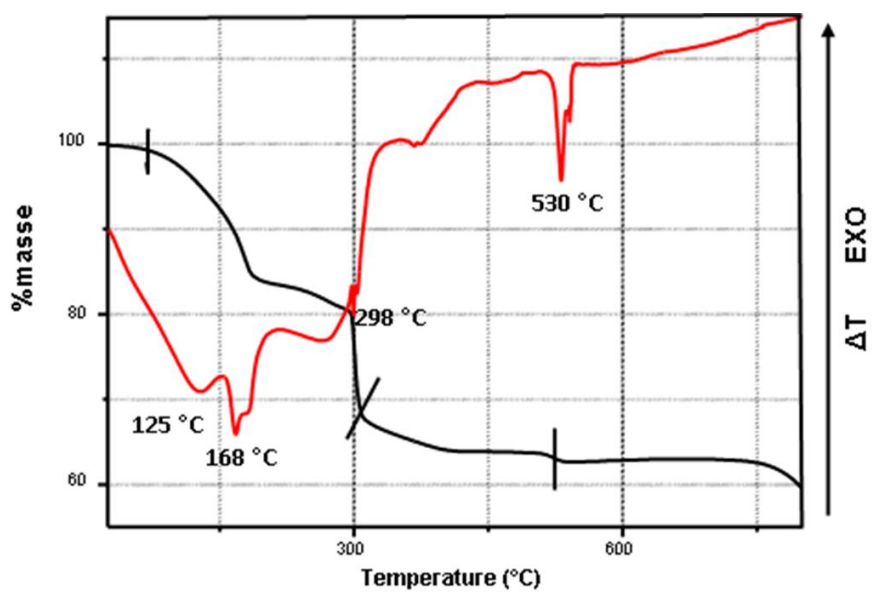


Figure S4. Thermal analyses of compound (2).