

Synthesis and Characterization of a $\text{Bi}_{10}\text{O}_8(\text{OAr})_{16}$ oxo-Cluster Supported by *p*-*tert*-Butylcalix[5]arene ligands

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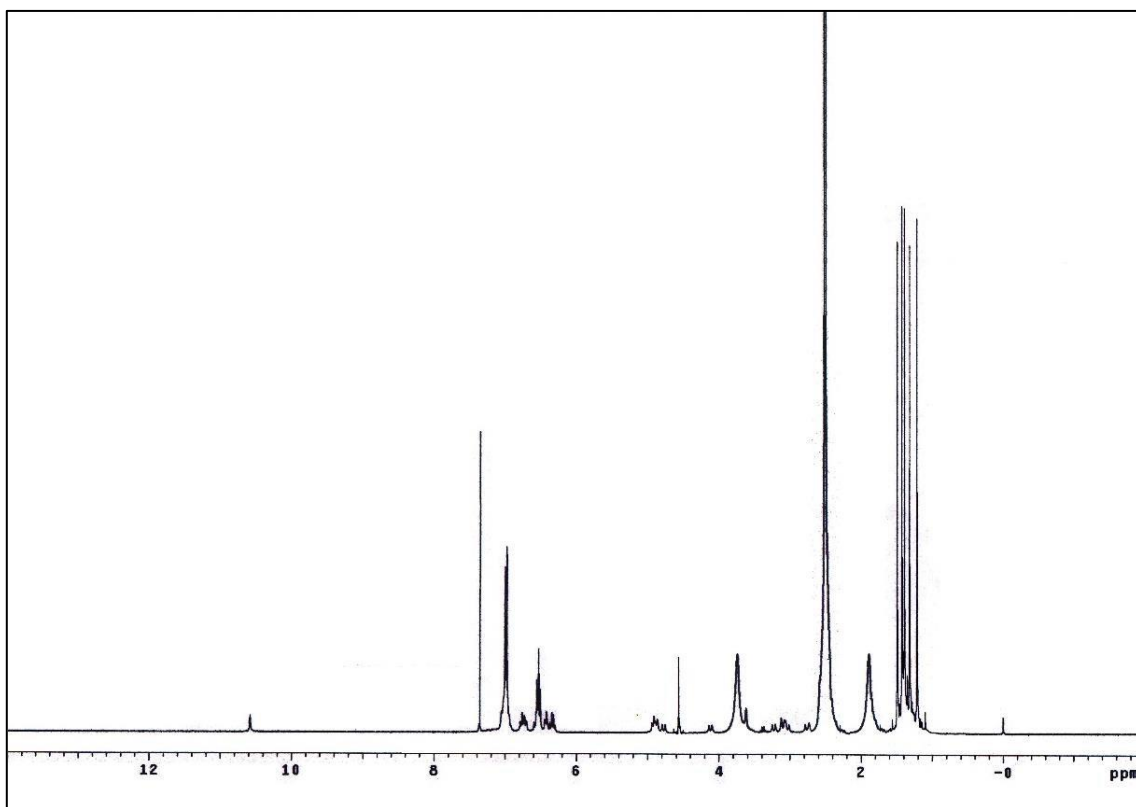


Figure S1. Overnight acquired ^1H NMR spectrum in DMSO-d_6 of cluster **2**.

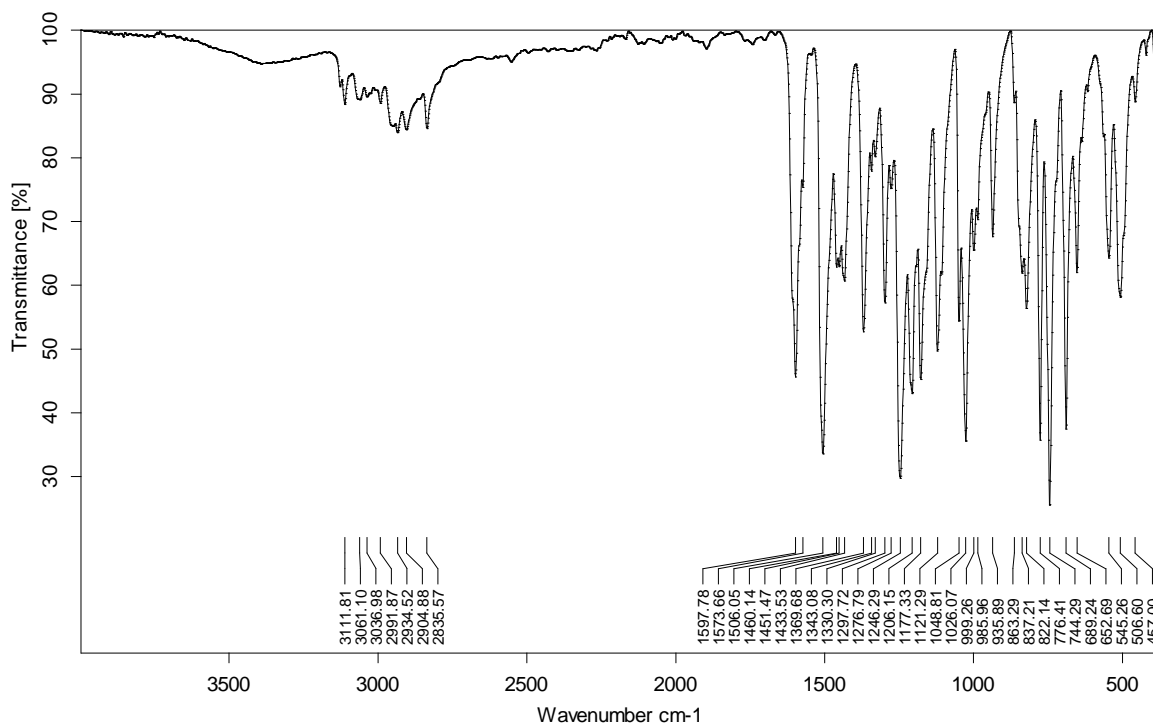


Figure S2. FT-IR in KBr of cluster **2**

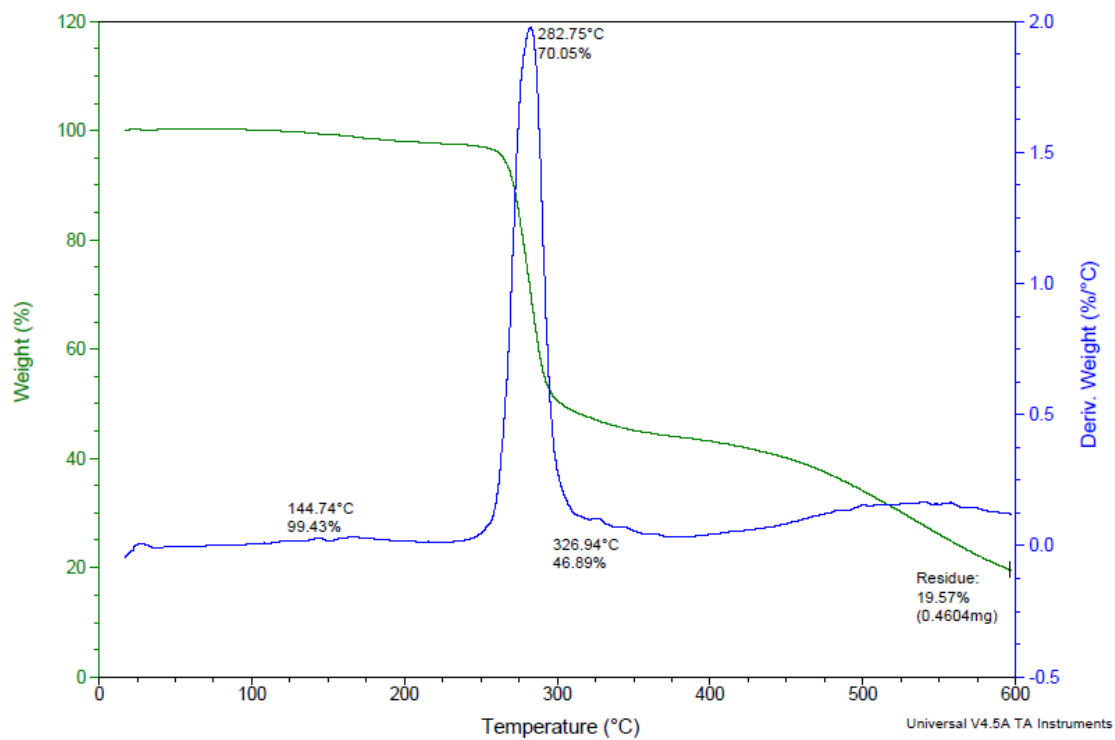


Figure S3. TGA data for bismuth cluster 2

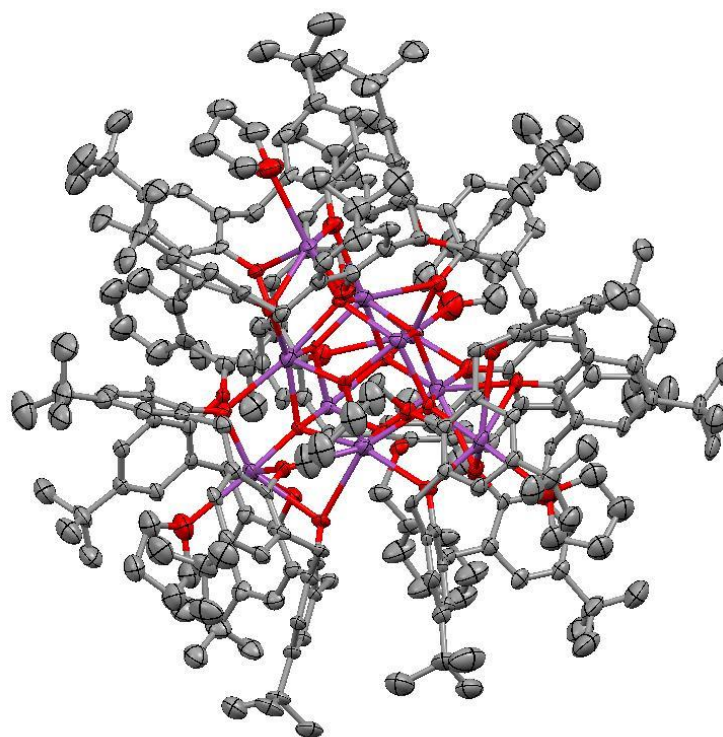


Figure S4. Molecular structure of complex 2 with thermal ellipsoids shown at 50%. Hydrogen atoms have been omitted for clarity.

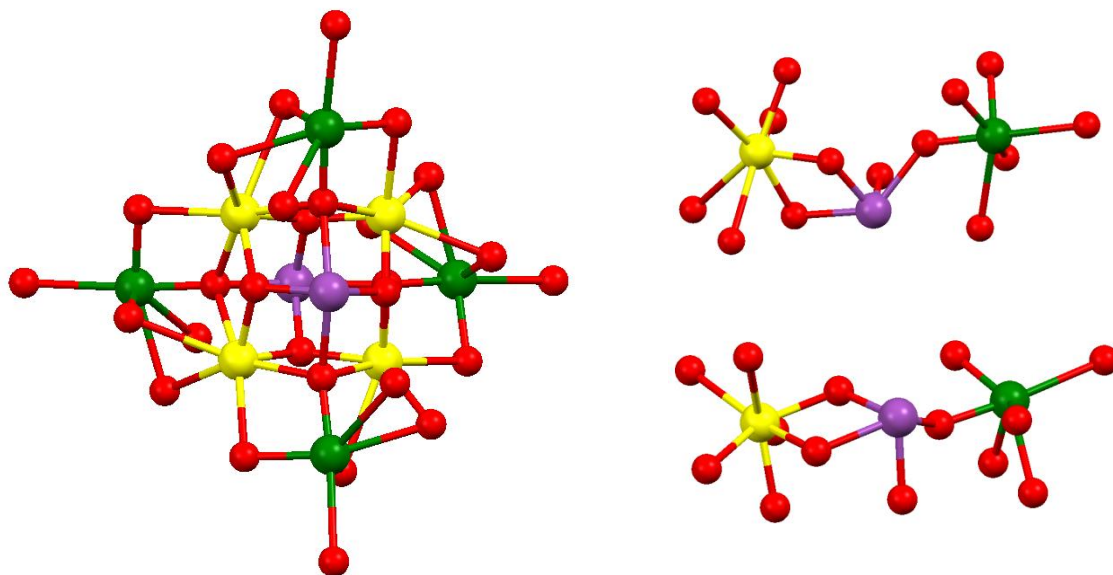


Figure S5. Ball and stick representation of the $\text{Bi}_{10}\text{O}_8(\text{OAr})_{16}$ central cluster in complex **2**. Coordination number (CN) around the bismuth centers is highlighted by color label. Yellow: CN = 7, green: CN = 6 and purple: CN = 4.

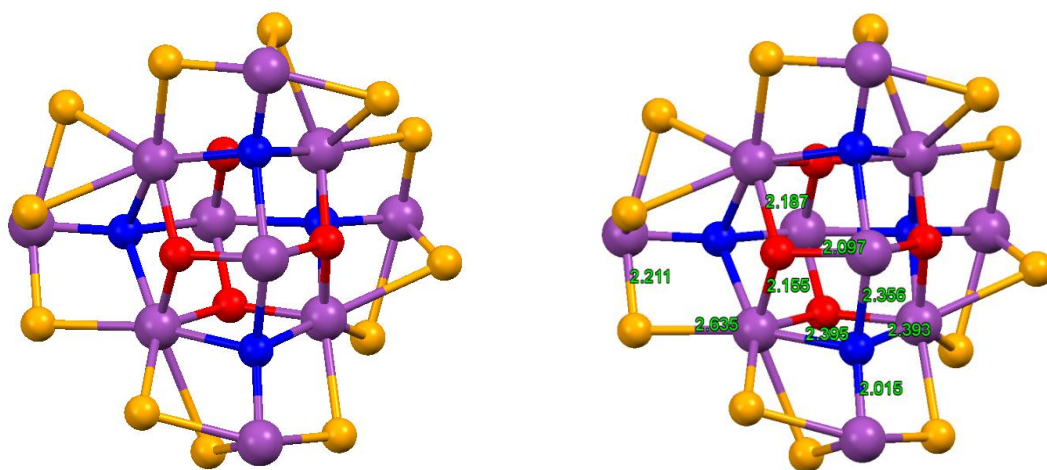


Figure S6. Ball and stick representation of the $\text{Bi}_{10}\text{O}_8(\text{OAr})_{16}$ cluster in complex **2**. Oxygen atoms bridging type (μ) is highlighted by color label. Yellow: $\mu = 2$, red: $\mu = 3$, blue: $\mu = 4$. Selected Bi-O bond distances of are displayed in green.

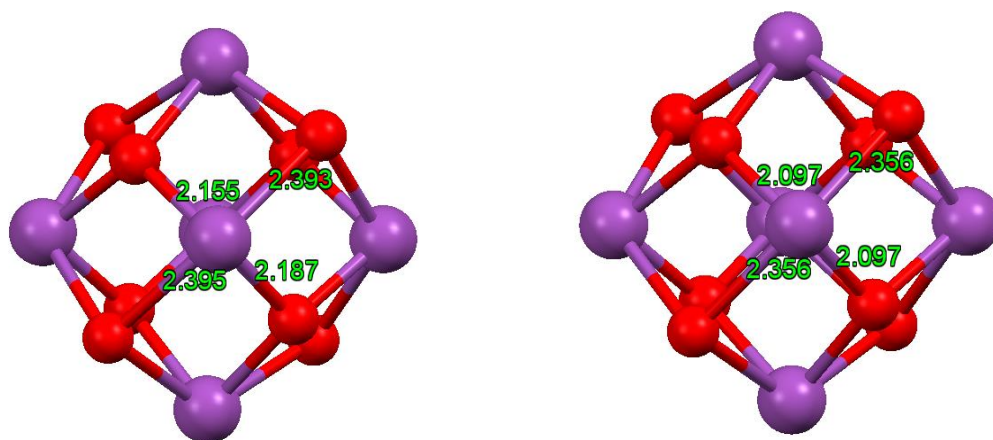


Figure S7. Ball and stick representation of the Bi_6O_8 core cluster in complex **2**. Selected Bi-O bond distances of are displayed in green.

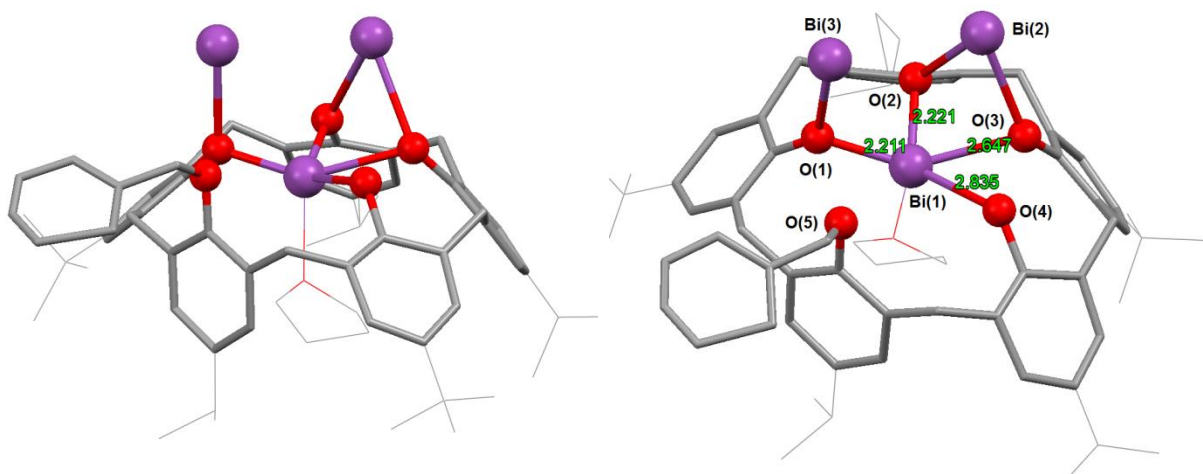


Figure S8. Ball and stick representation of one $[\text{tBuC}_5(\text{Bn})(\text{H})]$ ligand in complex **2** displaying the flattened cone conformation. Selected Bi-OAr bond distances are displayed on green.

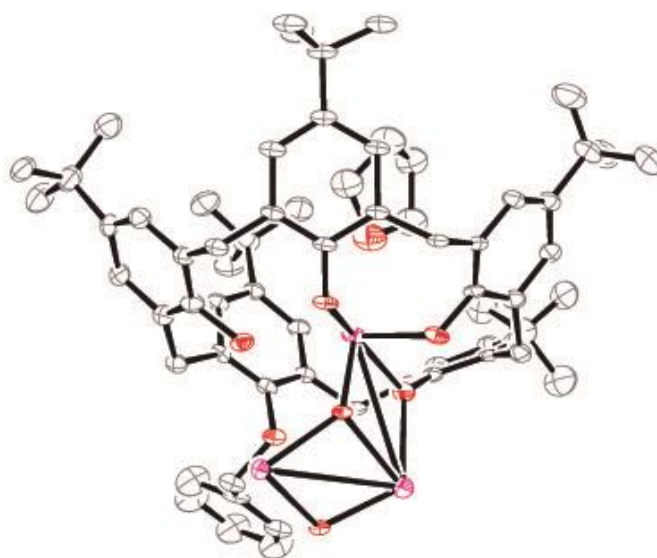


Figure S9. ORTEP representation of the asymmetric unit of **2** displaying ADPs

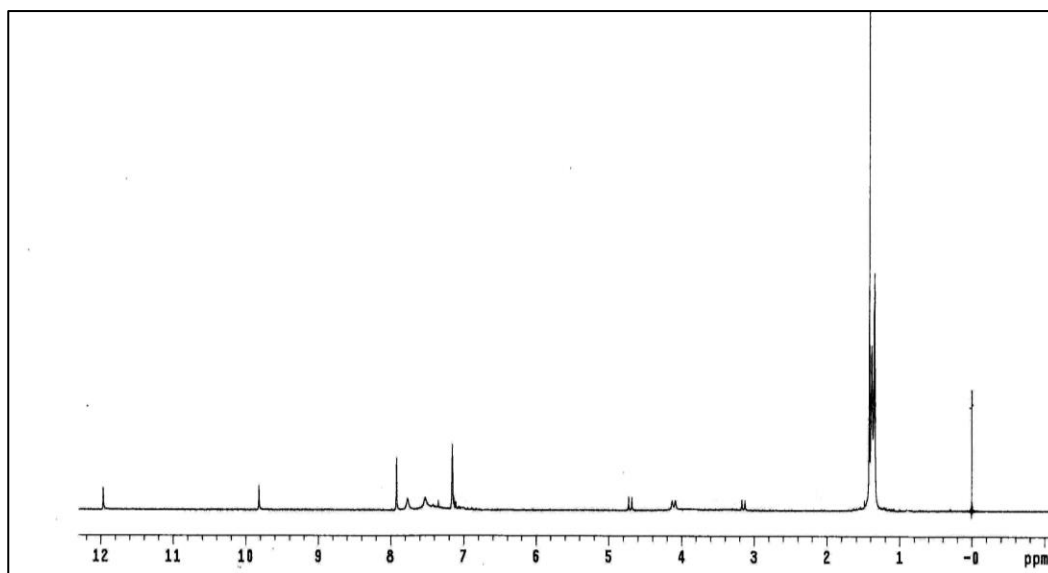


Figure S10. ^1H NMR in C_6D_6 of complex $\text{Bi}\{\text{tBuC}_5(\text{OH})_2\}$

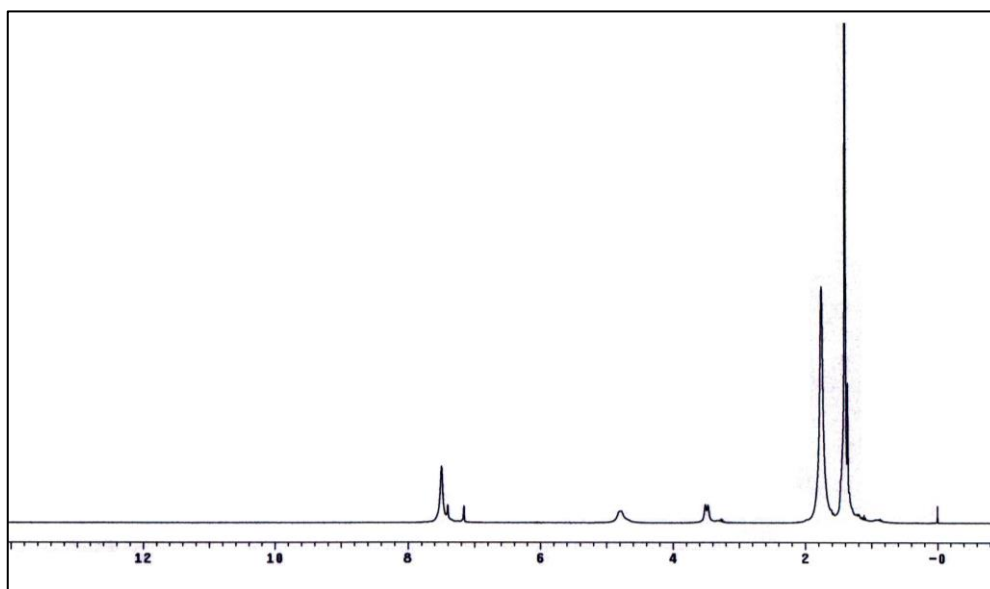


Figure S11. ^1H NMR in C_6D_6 of complex $\text{Bi}_4\text{O}_2\{\text{tBuC}_5(\text{OH})\}$