

From a bulk solid to thin films of a hybrid material derived from the $[\text{Ti}_{10}\text{O}_{12}(\text{cat})_8(\text{py})_8]$ oxo-cluster and poly(4-vinylpyridine).

Bianca Patrahau, Clément Chaumont, Laurent Barloy, Petra Hellwig, Marc Henry, Frédéric Melin, Pierre Mobian,* Matthias Pauly

Supporting information

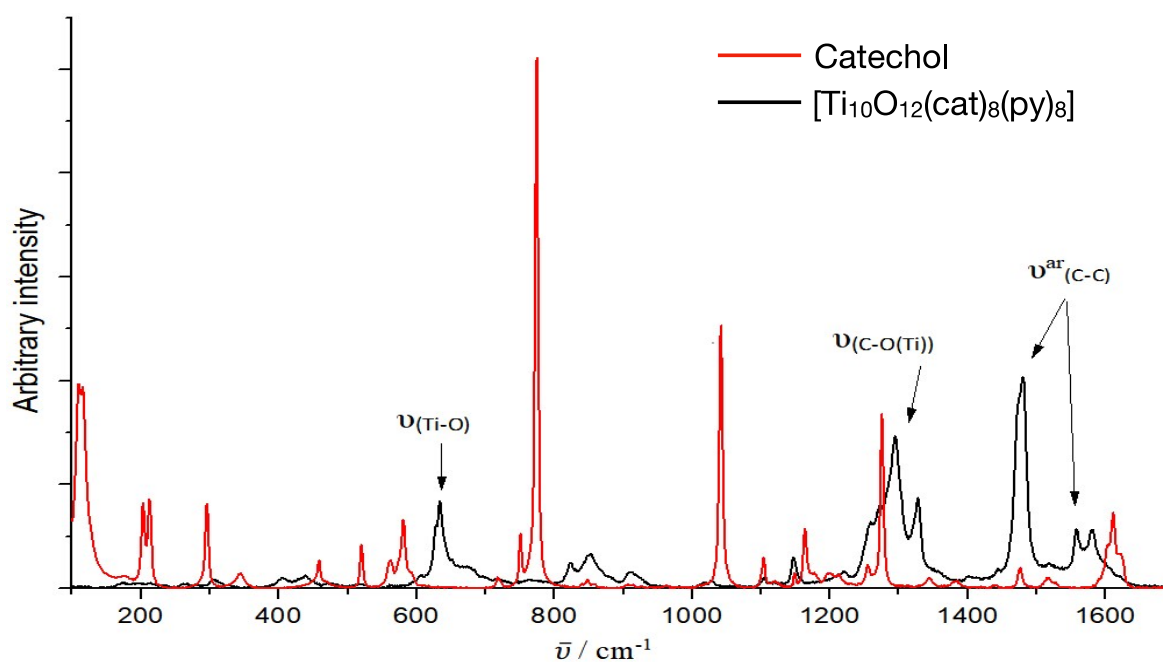


Figure 1: Superimposed Raman spectra of the oxo-cluster (red) and catechol ligand (black).

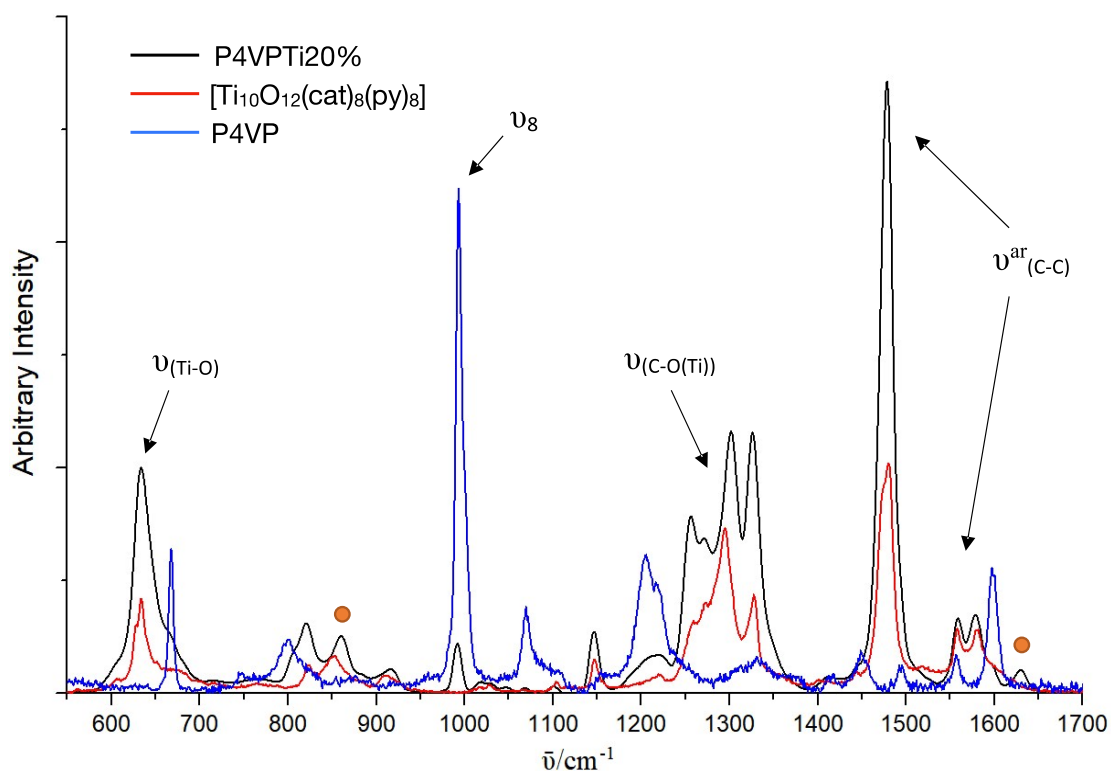


Figure 2: Superimposed Raman spectra of P4VP (blue), the oxo-cluster (red) and the hybrid material (black). The new emerging vibrations bands of the hybrid material are indicated with the orange spots.

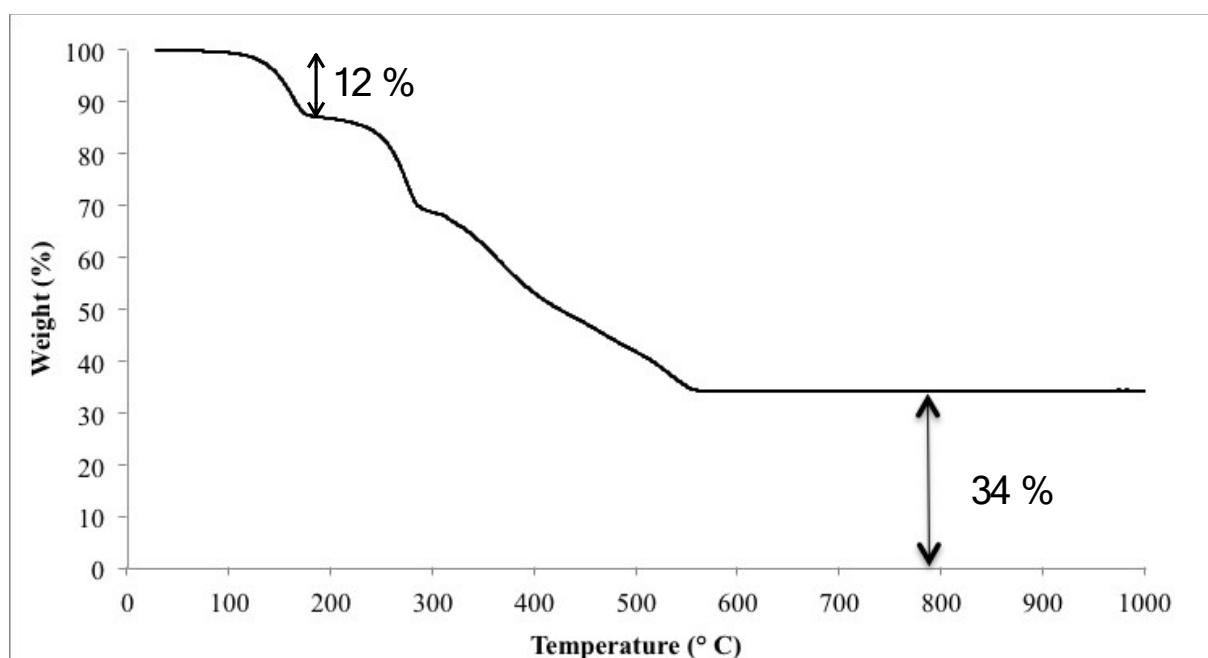


Figure 3: Thermogravimetric analysis of $[\text{Ti}_{10}\text{O}_{12}(\text{cat})_8(\text{py})_8]$: The analysis was performed under air at a scan rate of $5\text{ }^{\circ}\text{C}\cdot\text{min}^{-1}$. The 34 % weight obtained at $600\text{ }^{\circ}\text{C}$ corresponds to the residual TiO_2 formed during the thermolysis process. The weight losses obtained are compatible with partially desolvated crystals displaying the $[\text{Ti}_{10}\text{O}_{12}(\text{cat})_8(\text{py})_8]\cdot(\text{py})_4$

formula. In this case the weight loss corresponding to the free pyridine molecules is evaluated as 12.7 % and the theoretical percentage of residual TiO_2 is 32.2 %.