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Reductive coordination replication of V_2O_5 sacrificial macrostructures into vanadium-based porous coordination polymers

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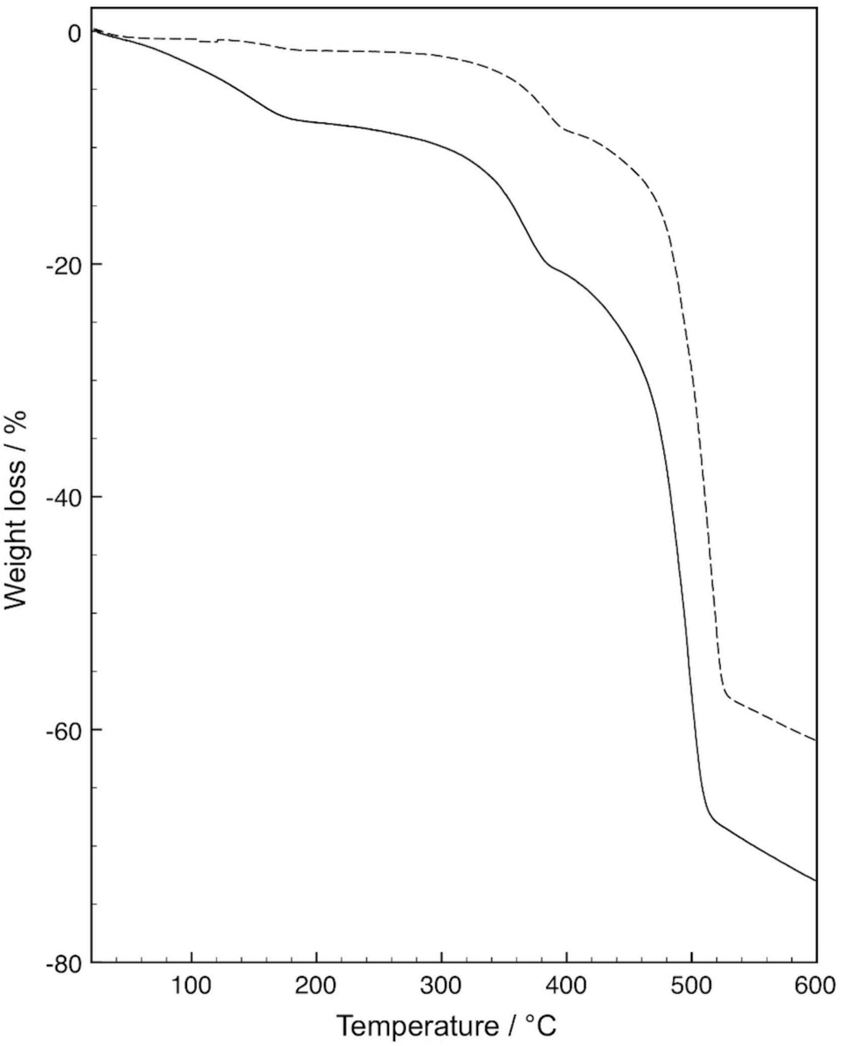

Fig. S1 Thermogravimetric analysis of the as-synthesized $[V(OH)ndc]_n$ synthesized from V_2O_5 powder (solid line) and of the as-synthesized $[V(OH)ndc]_n$ synthesized from VCl_3 (dash line).

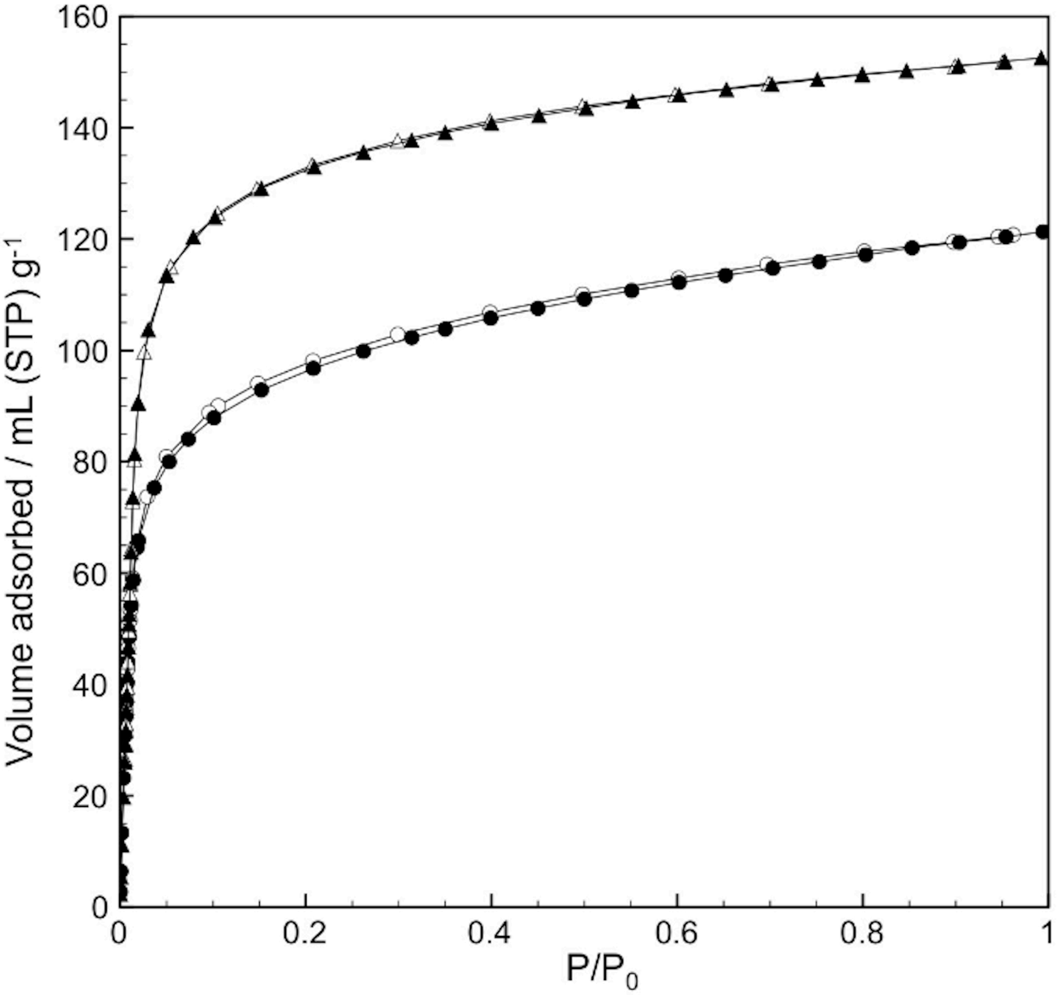

Fig. S2 CO_2 adsorption and desorption isotherms of $[V(O)ndc]_n$ synthesized from the V_2O_5 powder (circles) and of $[V(O)ndc]_n$ synthesized from VCl_3 (triangles). Filled circles correspond to adsorption data and open circles correspond to desorption data.

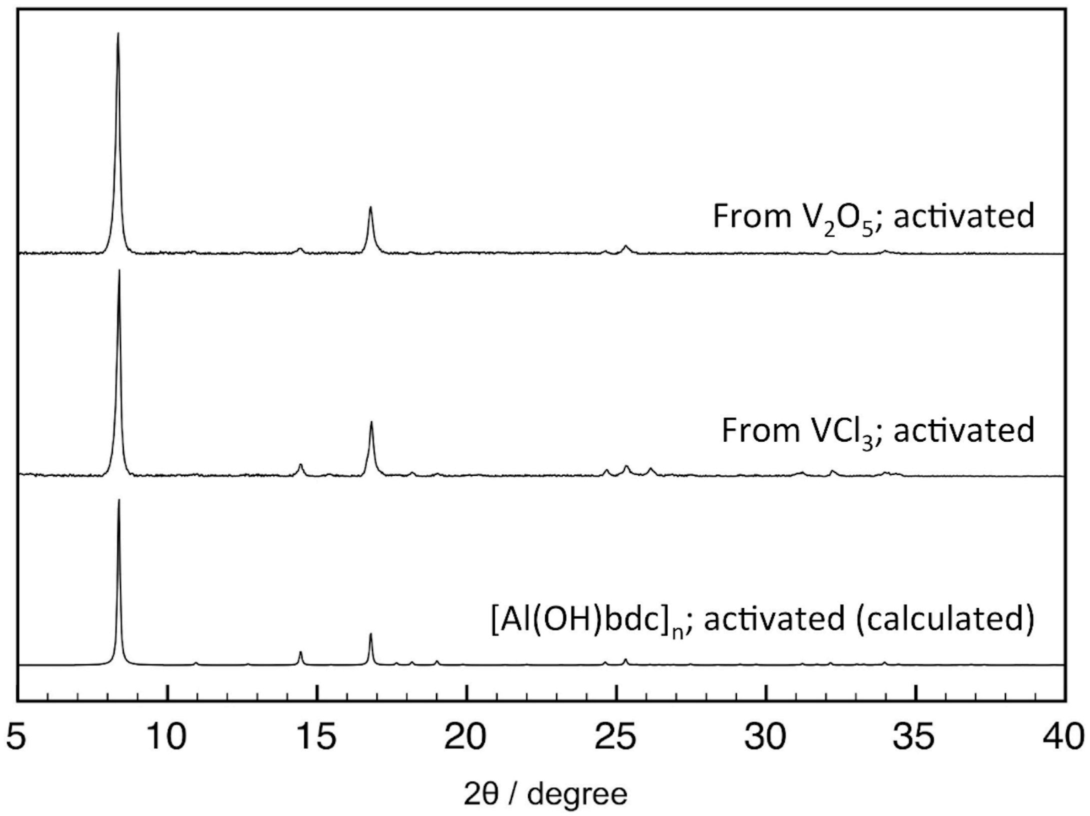

Fig. S3 Calculated XRD patterns of the activated $[V(O)bdc]_n$ obtained from VCl_3 and from V_2O_5 and calculated XRD pattern of the activated $[Al(OH)bdc]_n$.

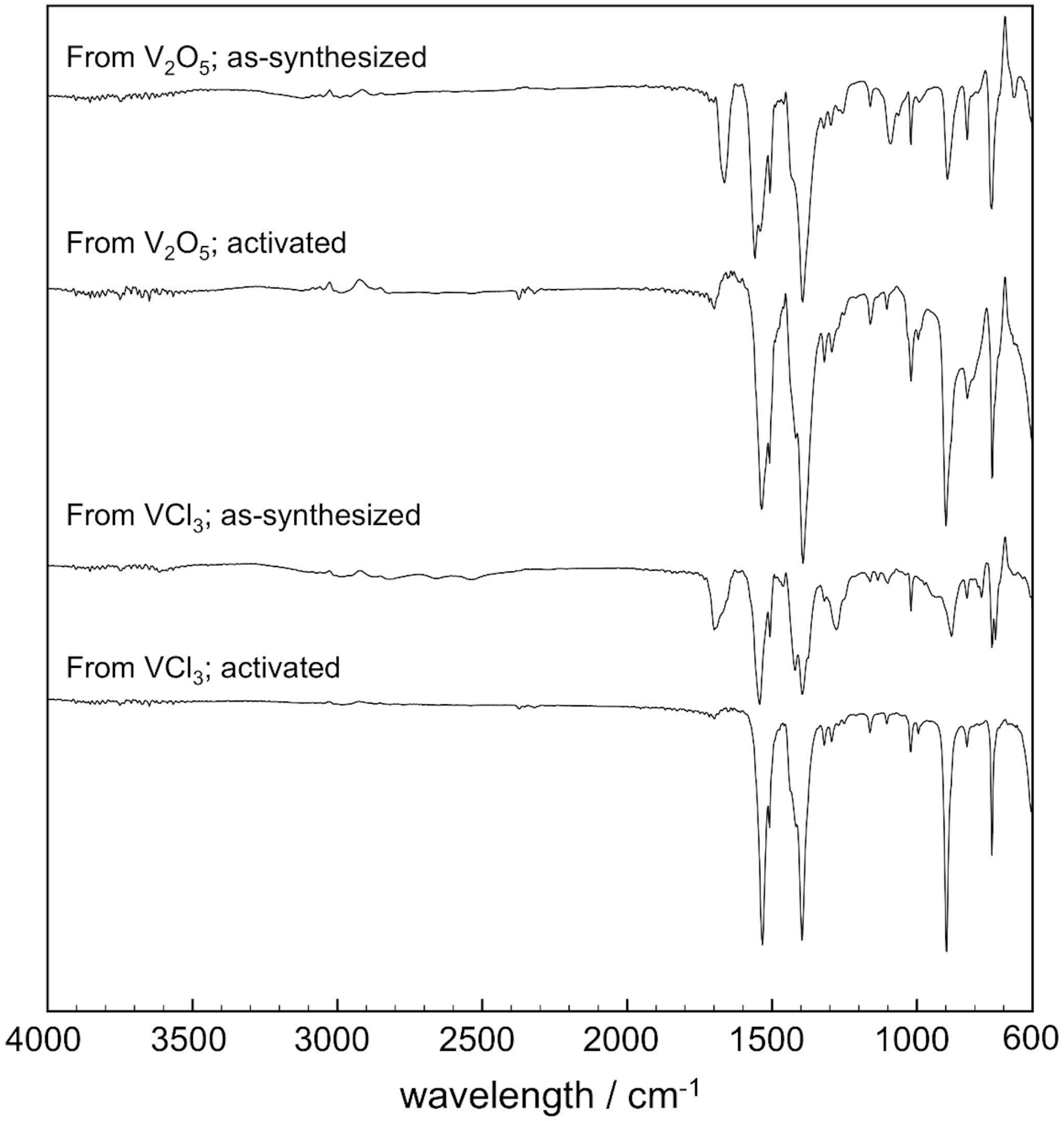

Fig. S4 FTIR spectra of the as-synthesized and activated $[V(OH)bdc]_n$ synthesized from V_2O_5 and from VCl_3.

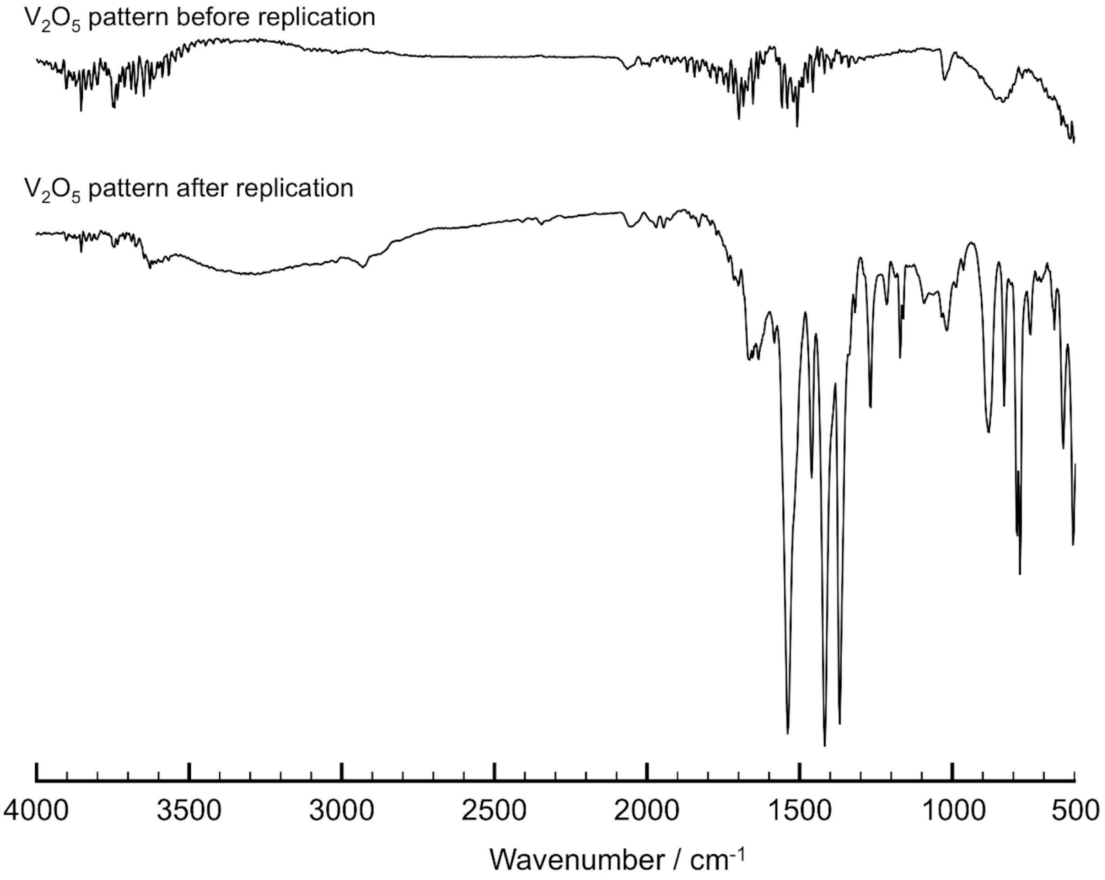

Fig. S5 FTIR spectra of the V_2O_5 pattern before and after replication into $[V(OH)ndc]_n$ polycrystalline structure.

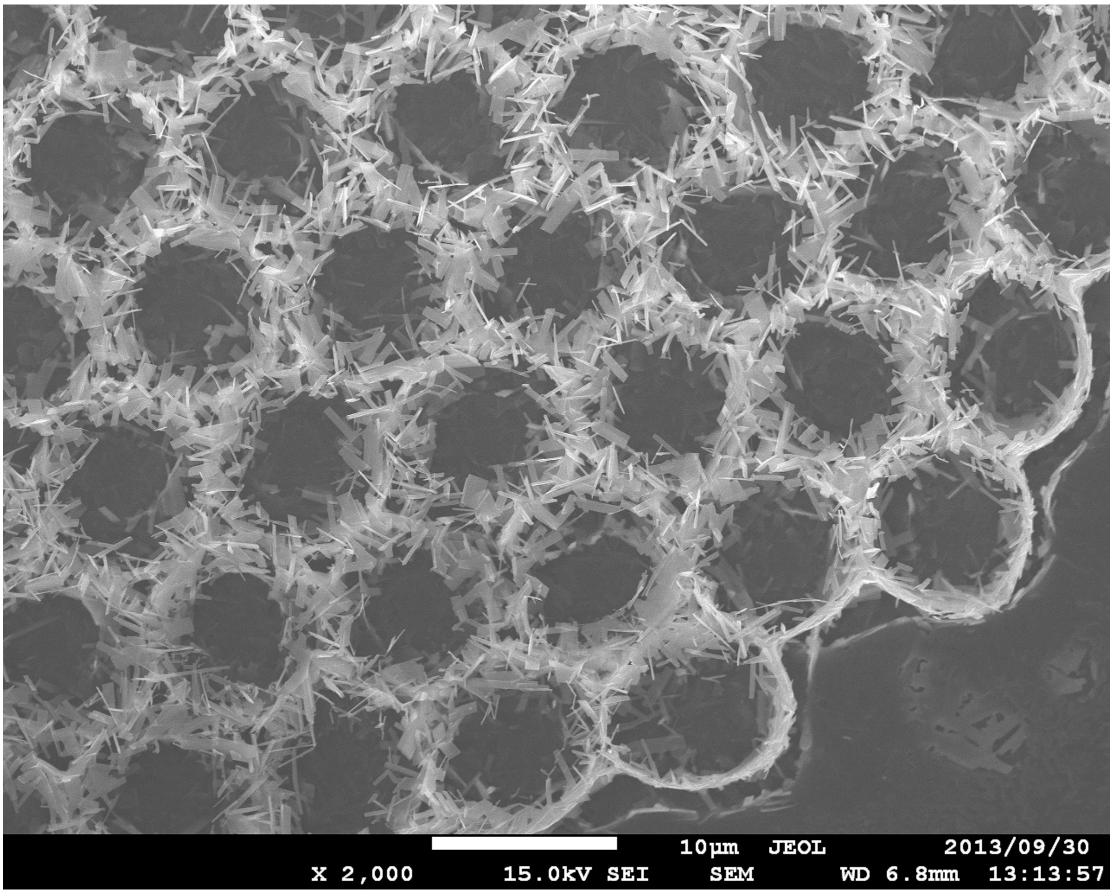

Fig. S6 FESEM image of the crystalline V_2O_5 pattern obtained after a thermal treatment at 320°C for 10h. The pattern was washed off after treatment in the presence of the organic linkers and under microwave conditions. This is presumably due to the lack of sufficient interactions between the substrate and the V_2O_5 crystals and between the V_2O_5 crystals.