

Controlling vanadium phosphate catalyst precursor morphology by adding alkane solvents in the reduction step of $\text{VOPO}_4 \cdot 2\text{H}_2\text{O}$ to $\text{VOHPO}_4 \cdot 0.5\text{H}_2\text{O}$

Weihaio Weng^a, Raja Al Otaibi^b, Mosaed Alhumaimess^b, Marco Conte^b, Jonathan K. Bartley^b,
Nicholas F. Dummer^b, Graham J. Hutchings^b and Christopher J. Kiely^{a*}

^a Department of Materials Science and Engineering, Lehigh University, Bethlehem, PA 18015-3195, USA

^b Cardiff Catalysis Institute, School of Chemistry, Cardiff University, Cardiff, CF10 3AT UK

Supplemental Information

Figure S1. Laser Raman spectra of catalyst precursors.

Figure S2. Laser Raman spectra of sample VPD-O.

Figure S3. Laser Raman spectra of activated catalysts.

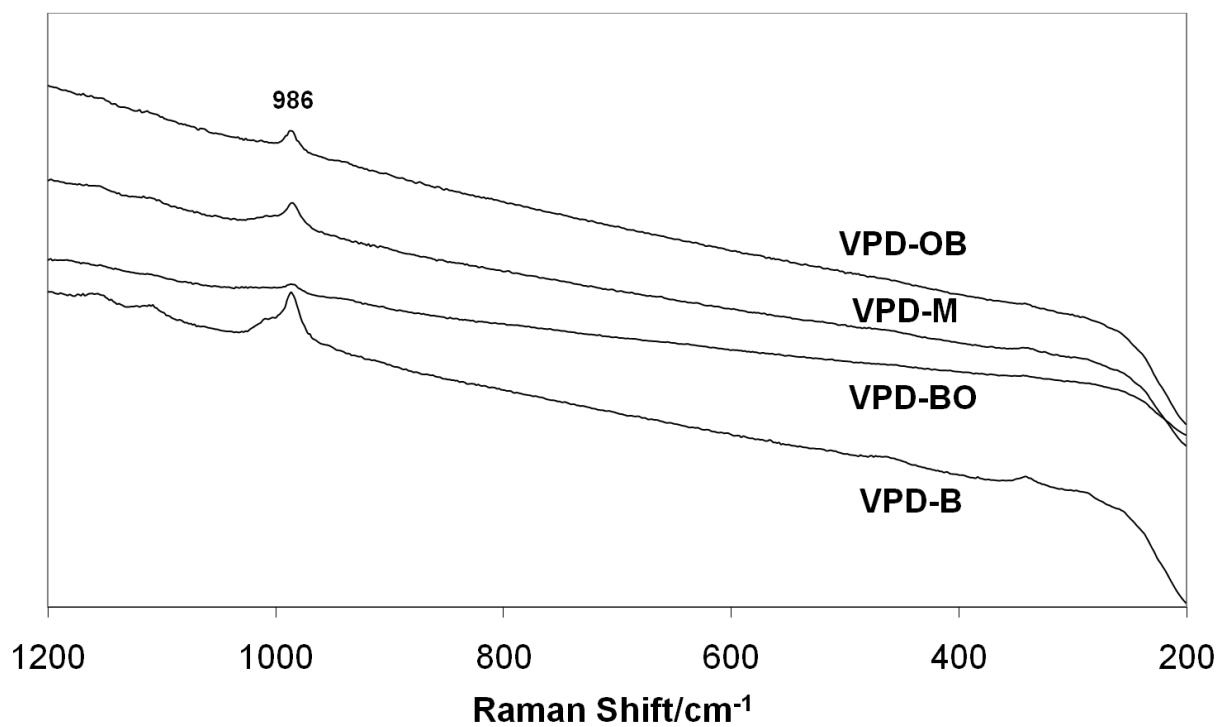


Figure S1. Laser Raman spectra of catalyst precursors VPD-B, VPD-BO, VPD-M and VPD-OB showing a main band at 986 cm⁻¹ corresponding to the VOHPO₄·0.5H₂O phase.

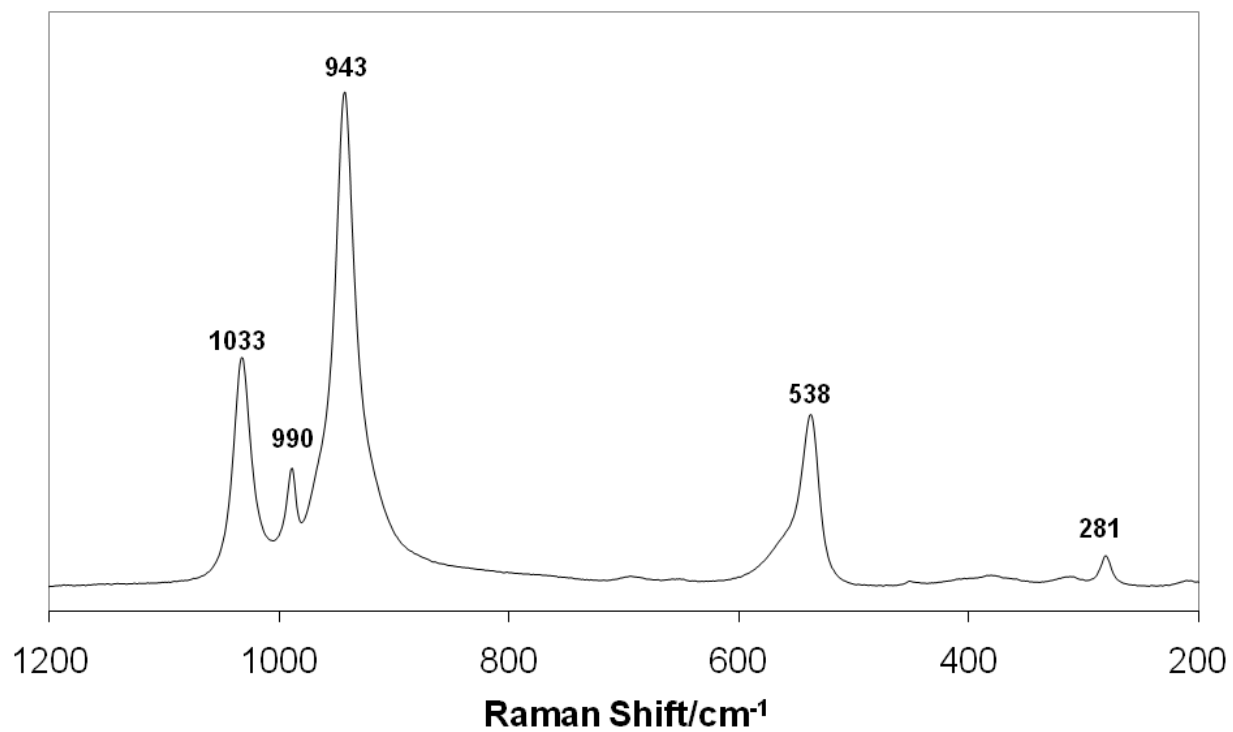


Figure S2. Laser Raman spectra of sample VPD-O showing main bands of $\text{VOPO}_4 \cdot 2\text{H}_2\text{O}$ at 990, 943 and 538 cm^{-1} corresponding to the $\text{VOPO}_4 \cdot 2\text{H}_2\text{O}$ phase.

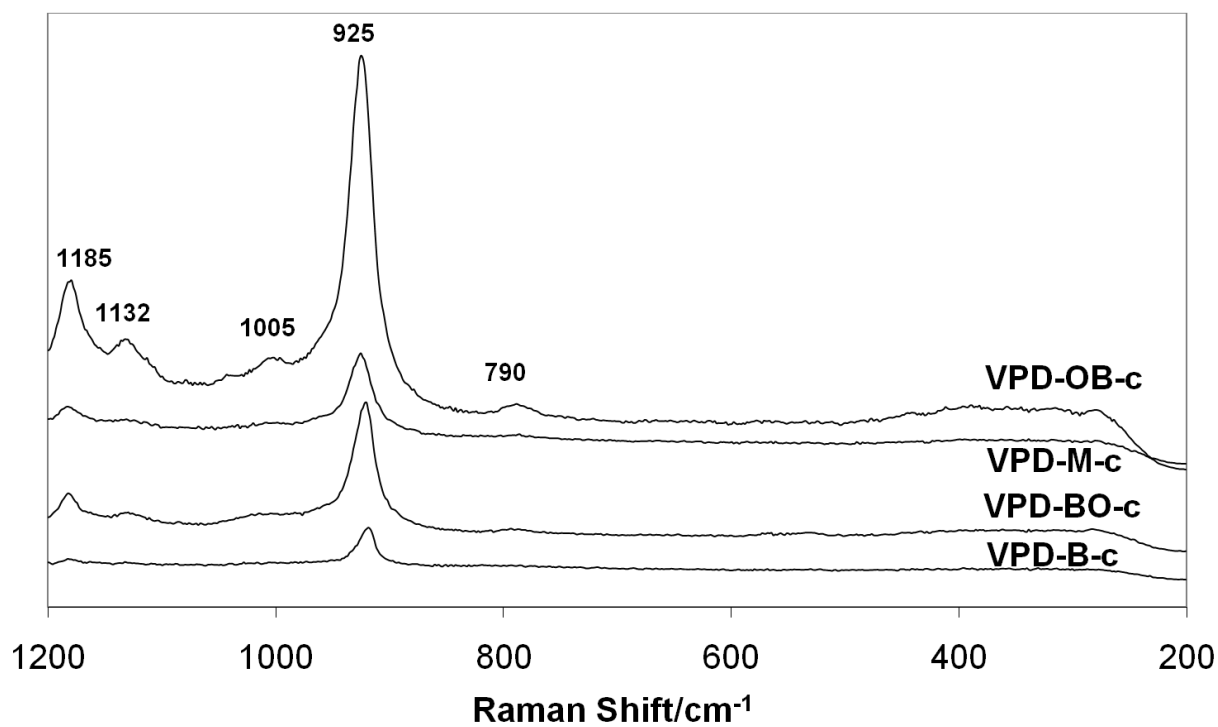


Figure S3. Laser Raman spectra of activated catalysts VPD-B-c, VPD-BO-c, VPD-M-c and VPD-OB-c showing main bands at 925, 1132 and 1185 cm^{-1} corresponding to the $(\text{VO})_2\text{P}_2\text{O}_7$ phase.