Electronic Supplementary Information

High-Valent Cationic Metal-Organic Macrocycle as Novel Support for Immobilization and Enhancing Activity of Polyoxometalate Catalysts

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Figure S1. FT-IR spectra of various composite material $PW_{11}M$ -Cd-MOM (M = Ni, Co, Cu, Zn).



Figure S2. TG curves of PW₁₁Ni, Cd-MOM and PW₁₁Ni-Cd-MOM.



Figure S3. TEM images of PW₁₁Ni-Cd-MOM composite material.



Figure S4. TEM images of **PW**₁₁**Ni-Cd-MOM** and the corresponding elemental mapping images of metal (Cd, Ni and W) and heteroatom P by EDX spectroscopy.



Figure S5. PXRD pattern of (a) PW₁₁Ni; (b) PW₁₁M-Cd-MOM; (c) Cd-MOM.



Figure S6. The FT-IR spectra of the $PW_{11}Ni$ -Cd-MOM catalyst after catalysis for first to fourth cycles.

NMR Spectra



Figure S7. The NMR spectra of ligand EH-btpy.



Figure S8. The NMR spectra of the Cd-MOMC.



Figure S9. The NMR spectra of 4'-Phenyl-2,2':4',2"-terpyridine (ptpy).



Figure S10. The NMR spectra of [Cd·2ptpy](NO₃)₂.