

Figure S1. UV-vis spectra of the impregnation solutions. Molar ratio Ni:PhN as shown in the inset.

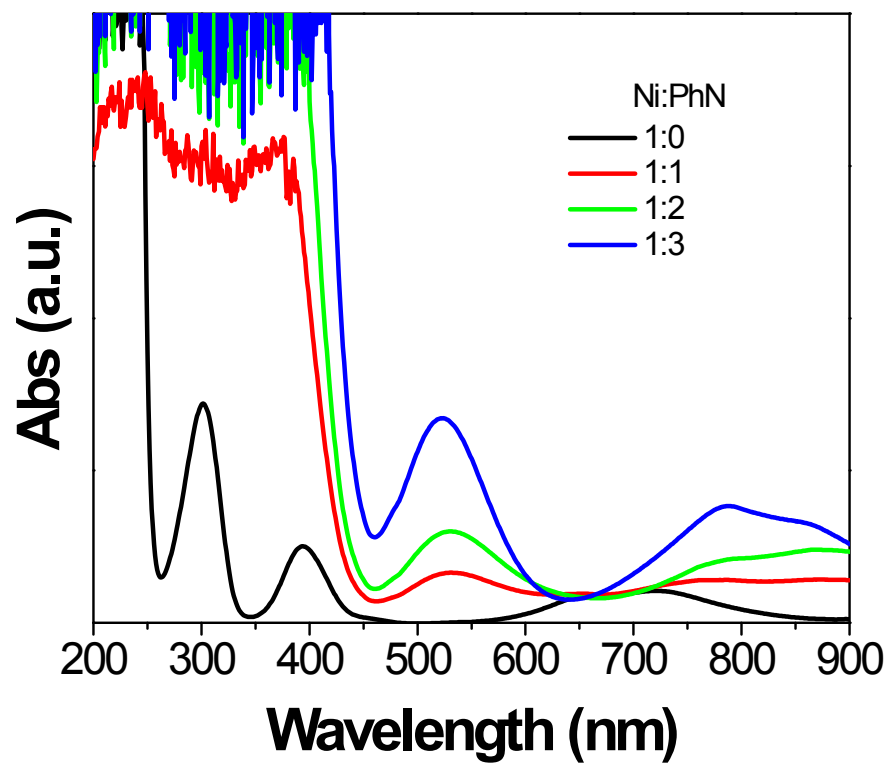


Figure S2. UV-Vis DRS for the Ni²⁺ species impregnated to KIT-5. Molar ratio Ni:PhN indicated in the inset.

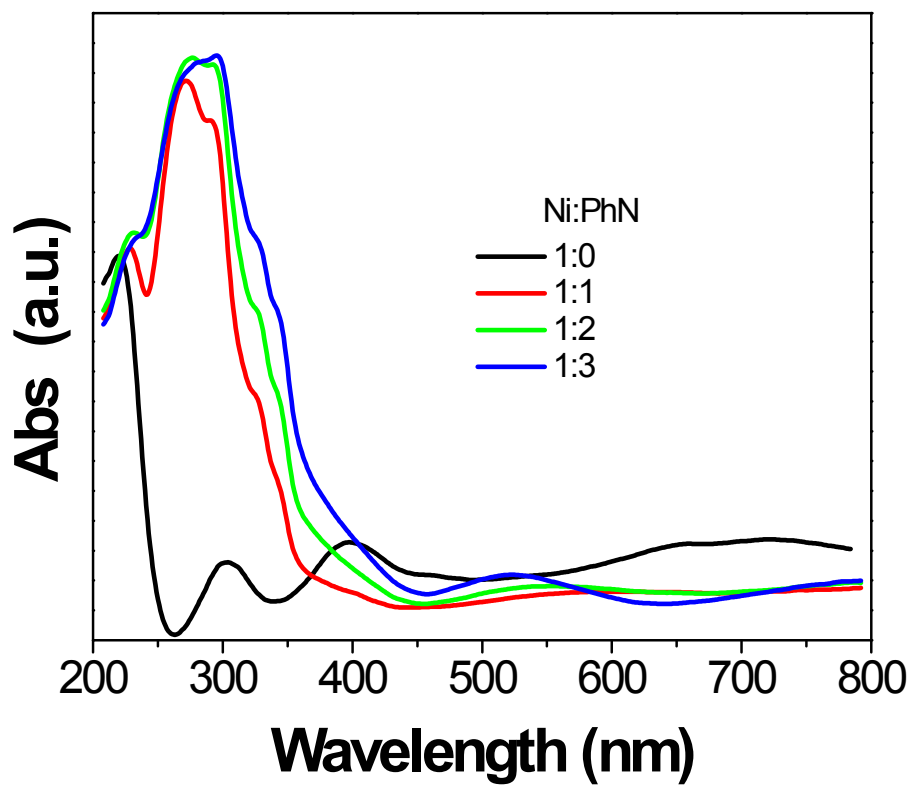


Figure S3. DRIFTS for the Ni supported catalysts before calcination using the complexes (a) $[\text{Ni}(\text{H}_2\text{O})_6]^{2+}$, (b) $[\text{Ni}(\text{H}_2\text{O})_4(\text{PhN})]^{2+}$, (c) $[\text{Ni}(\text{H}_2\text{O})_2(\text{PhN})_2]^{2+}$ and (d) $[\text{Ni}(\text{PhN})_3]^{2+}$.

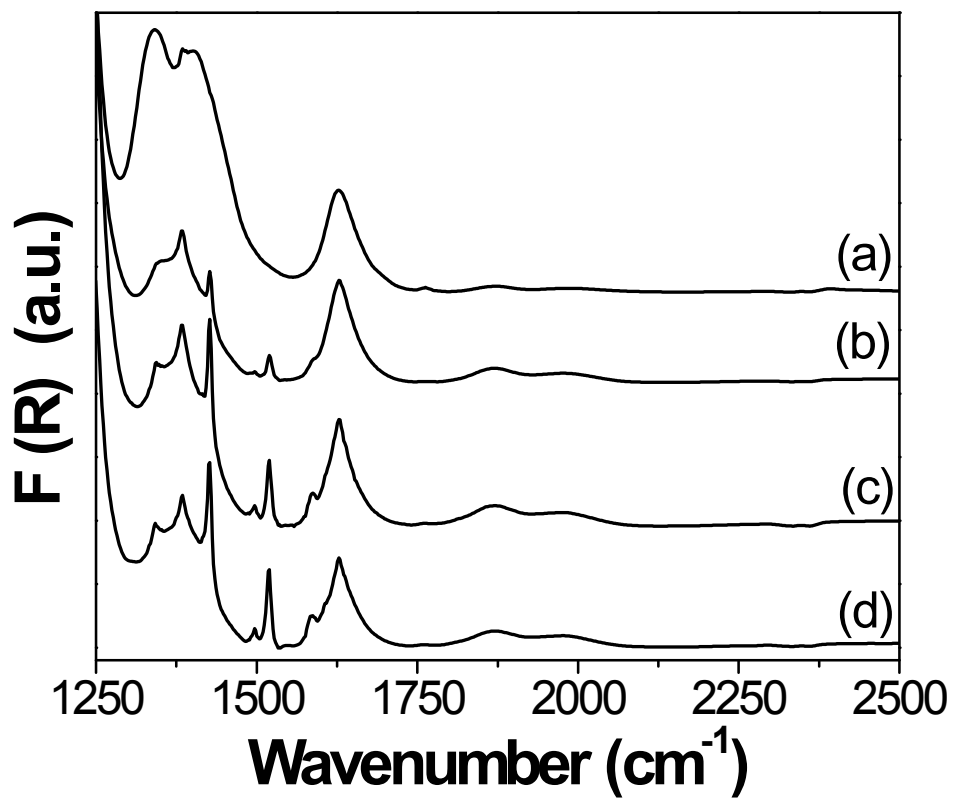


Figure S4. Adsorption-desorption isotherms for (○) KIT-5, (■) NiPhN0, (●) NiPhN1, (▲) NiPhN2 and (□) NiPhN3 materials.

