

## **Electronic Supplementary Information**

### **Syntheses, structures and catalytic properties of organic–inorganic hybrid materials constructed from Evans–Showell-type polyoxometalates and zinc-organic coordination units**

**Fei Fei, Haiyan An,\* Tieqi Xu, Changgong Meng\***

College of Chemistry, Dalian University of Technology, Dalian 116023, P. R. China

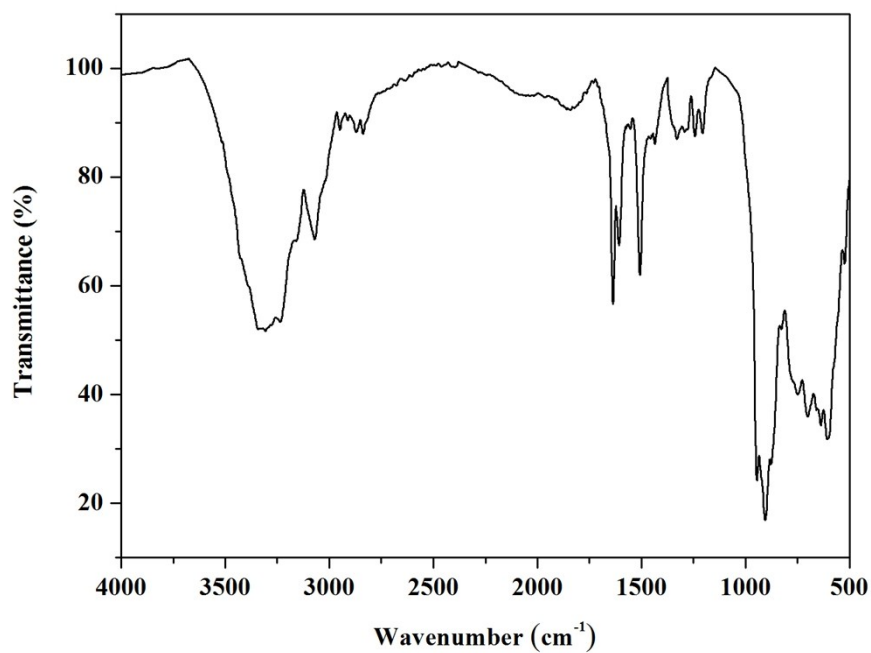
#### **CONTENTS:**

**I. Supplementary Physical Characterizations**

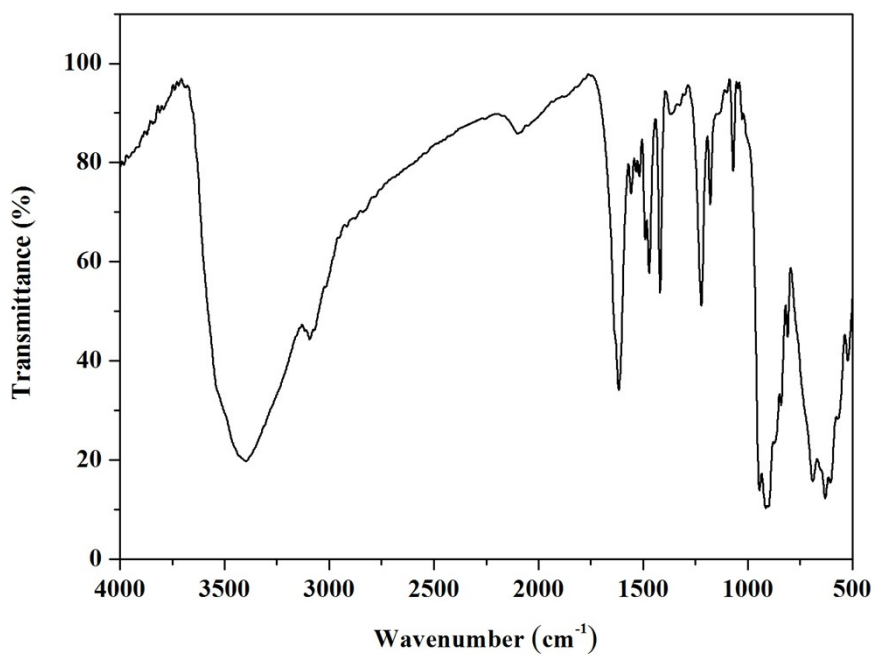
**II. Supplementary Catalysis Section**

**III. Supplementary Tables**

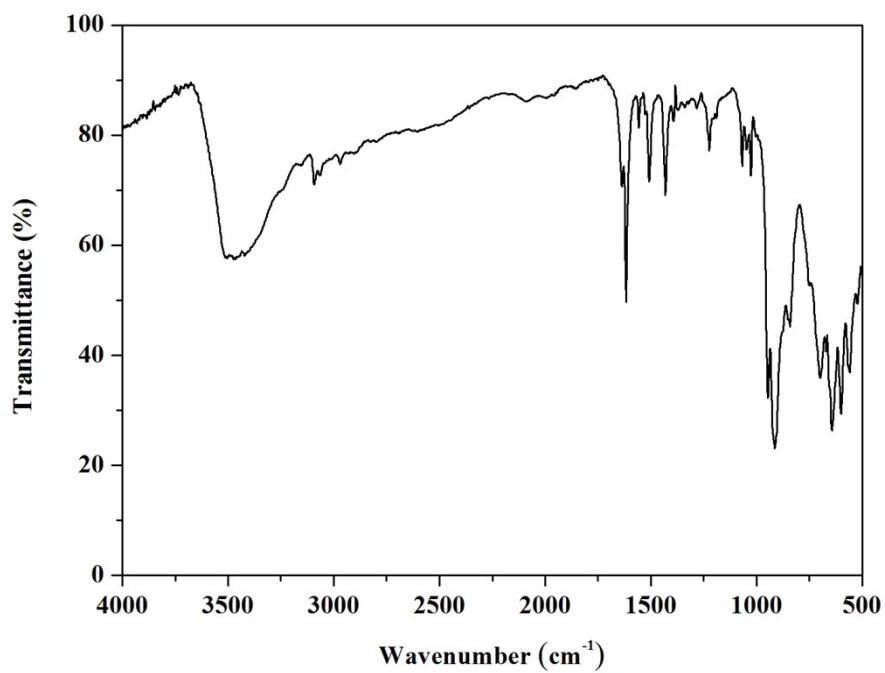
## I. Supplementary Physical Characterizations



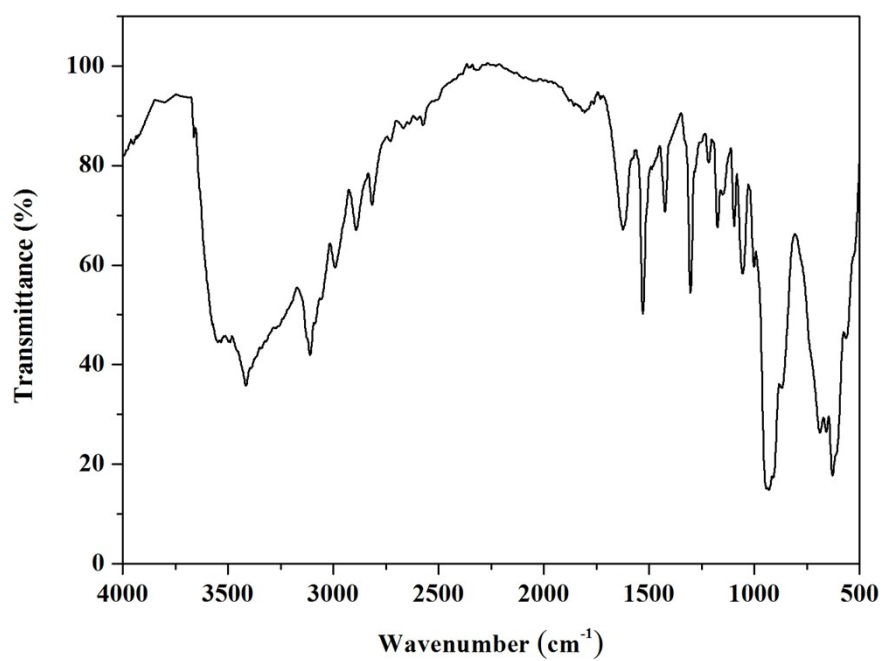
**Fig. S1a** IR spectrum for compound 1.



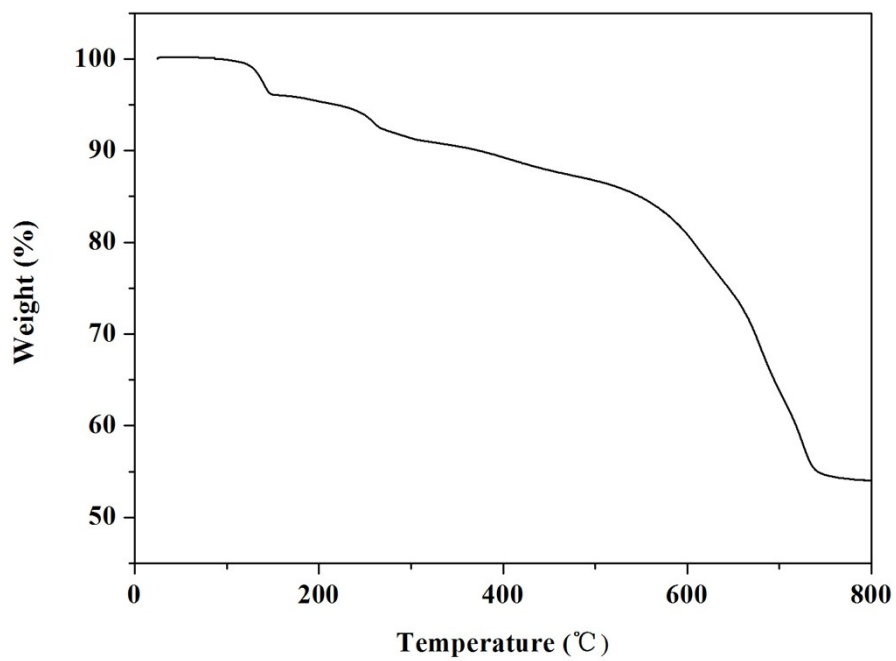
**Fig. S1b** IR spectrum for compound 2.



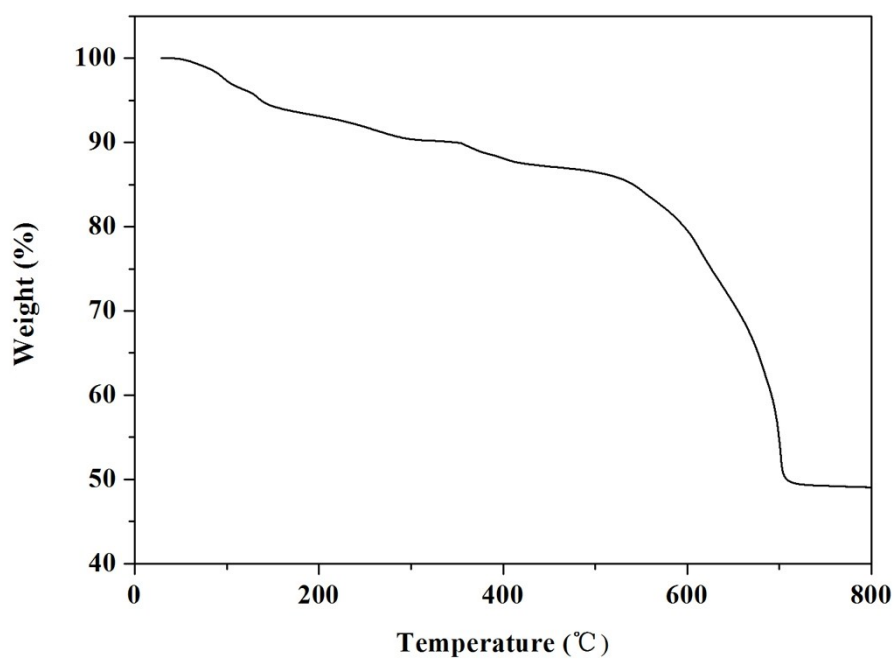
**Fig. S1c** IR spectrum for compound 3.



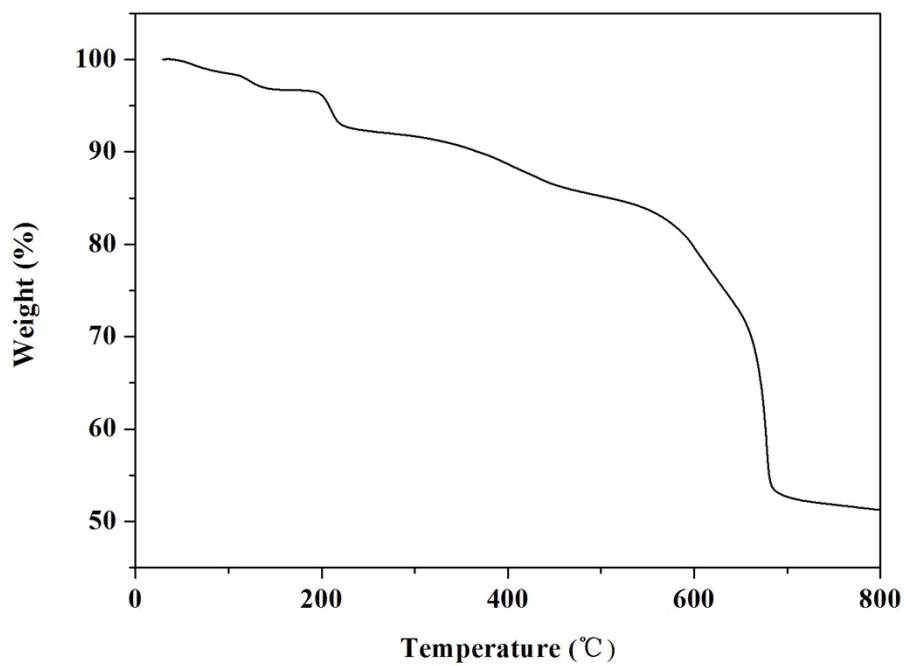
**Fig. S1d** IR spectrum for compound 4.



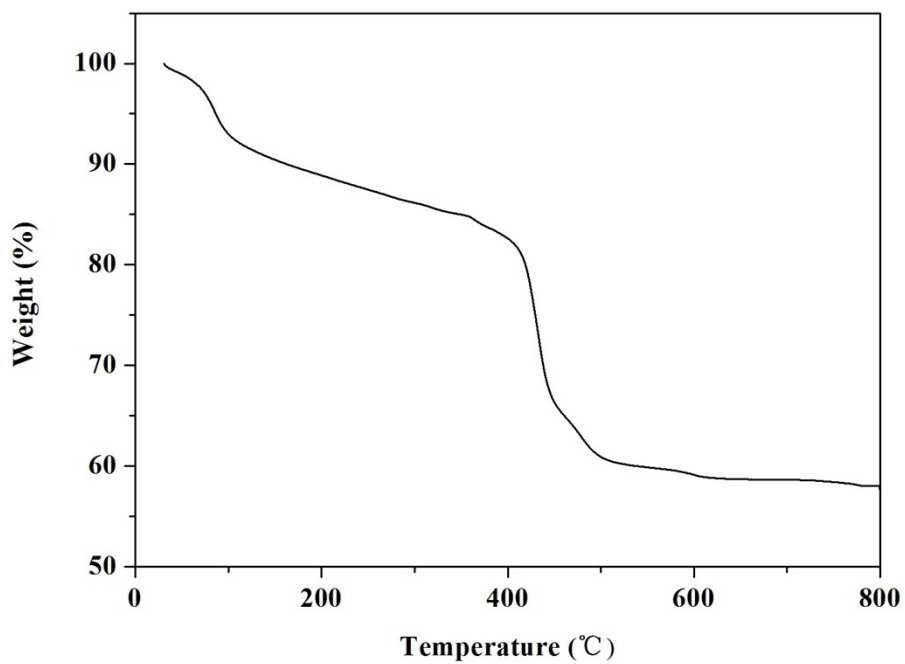
**Fig. S2a** TG curve for compound 1.



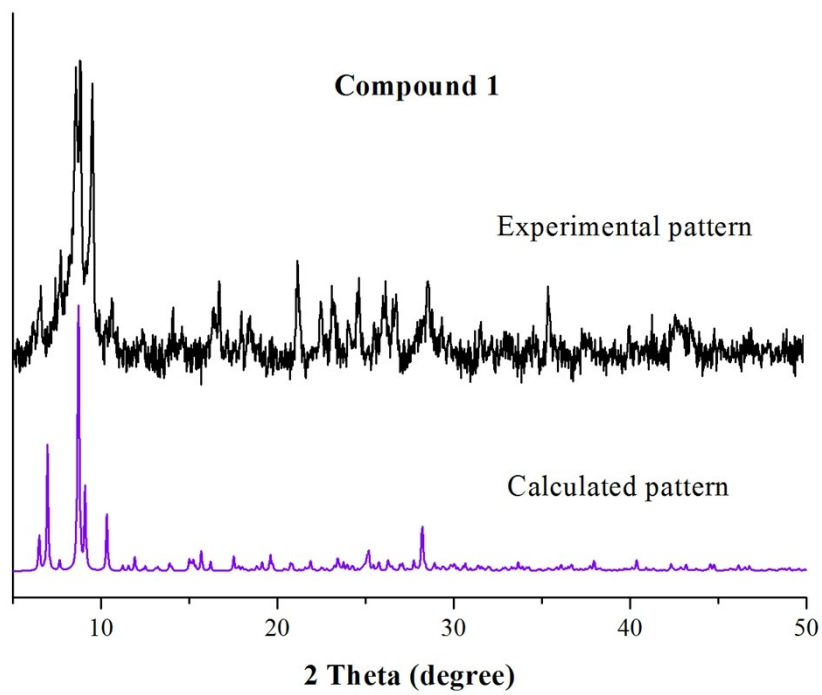
**Fig. S2b** TG curve for compound 2.



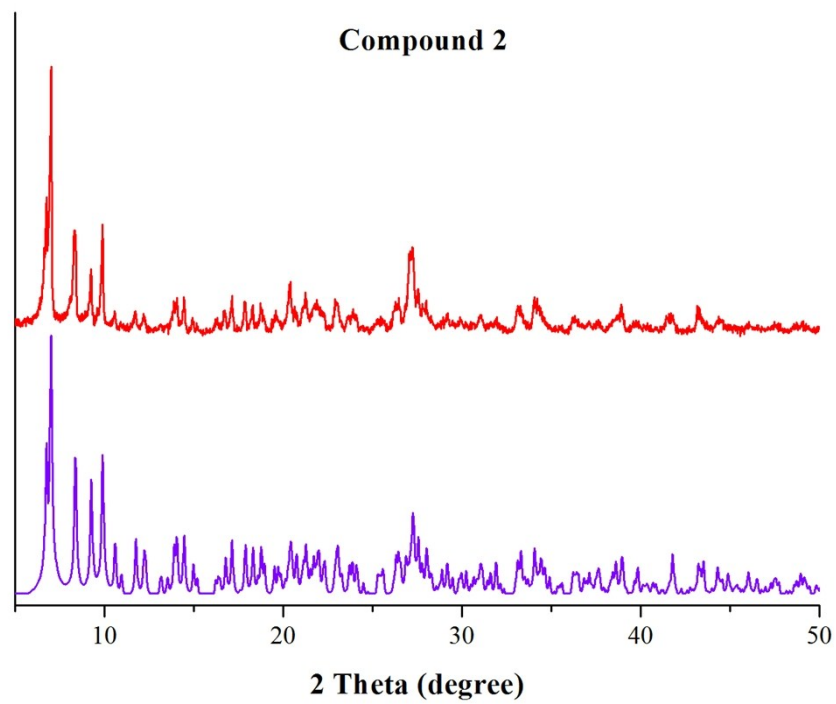
**Fig. S2c** TG curve for compound 3.



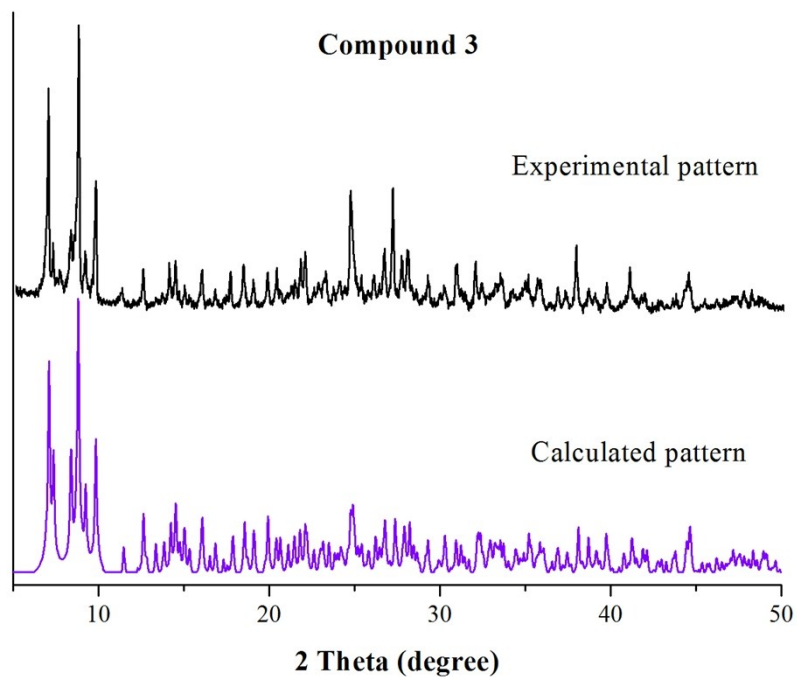
**Fig. S2d** TG curve for compound 4.



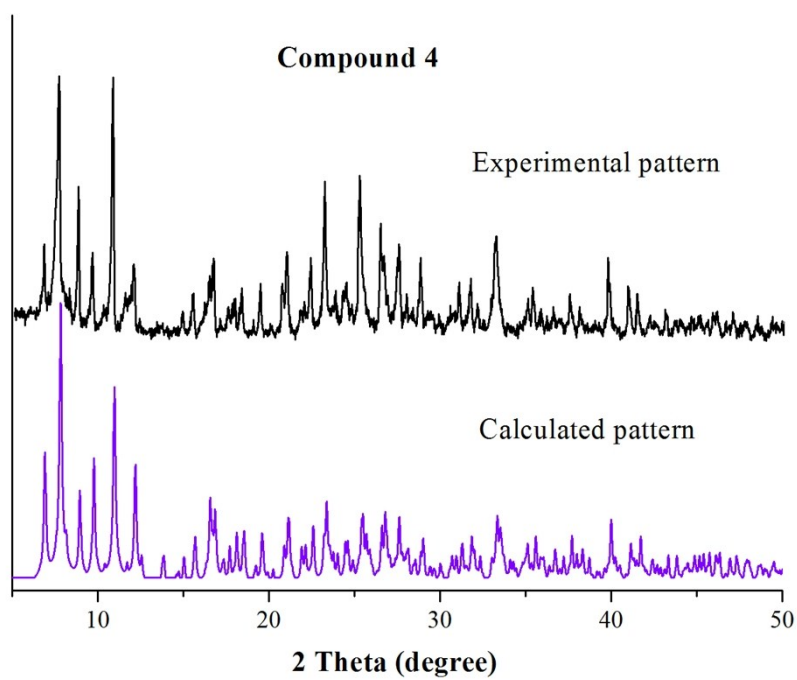
**Fig. S3a** The calculated and experimental PXRD patterns for compound 1.



**Fig. S3b** The calculated and experimental PXRD patterns for compound 2.

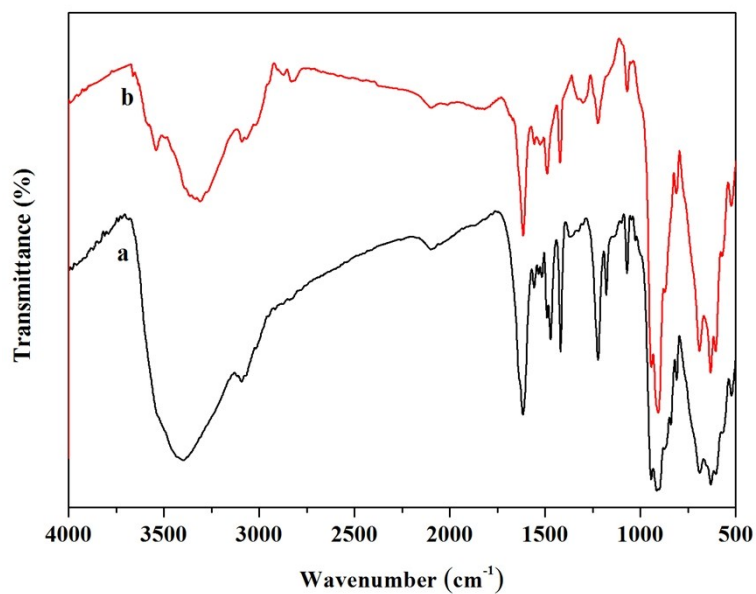


**Fig. S3c** The calculated and experimental PXRD patterns for compound 3.

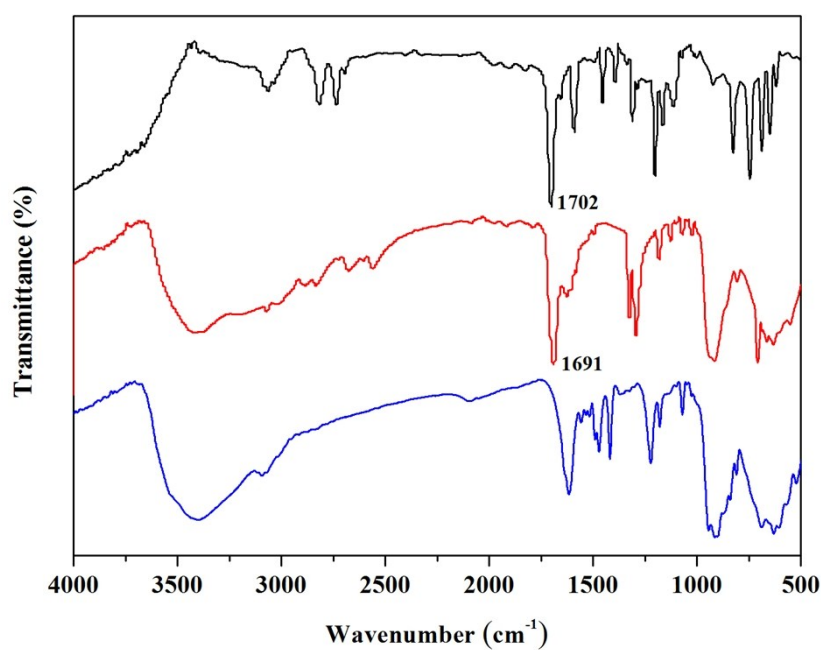


**Fig. S3d** The calculated and experimental PXRD patterns for compound 4.

## II. Supplementary Catalysis Section

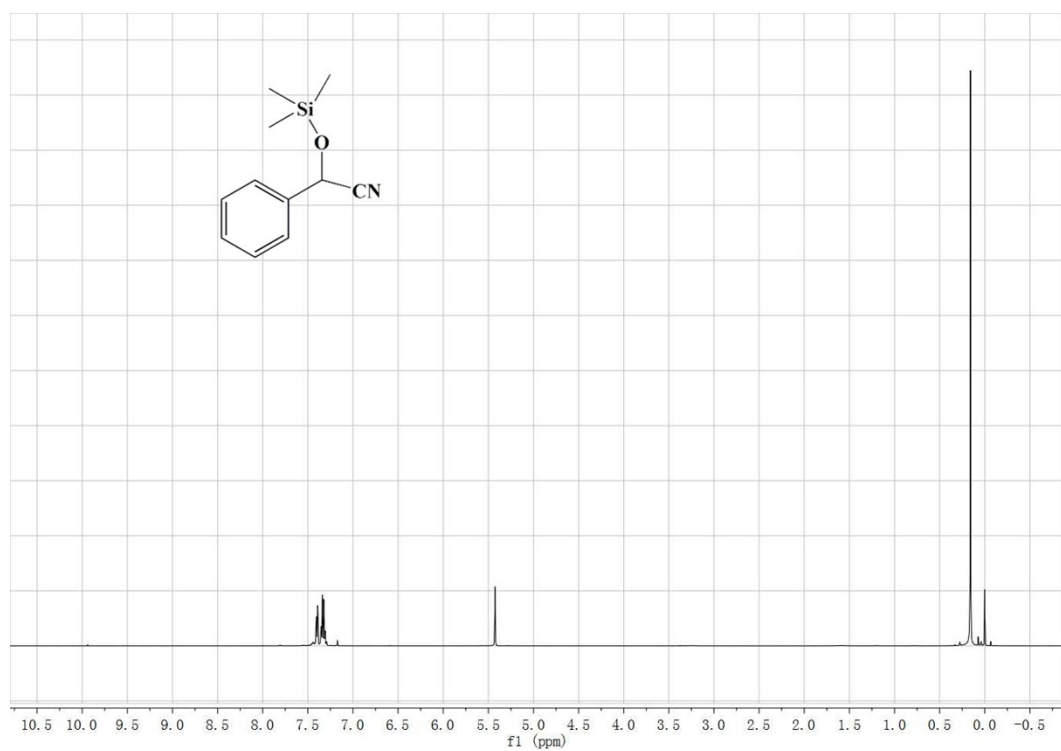


**Fig. S4** IR spectrum for (a) as-synthesized compound **2** and (b) recovered catalyst after catalysis reaction.

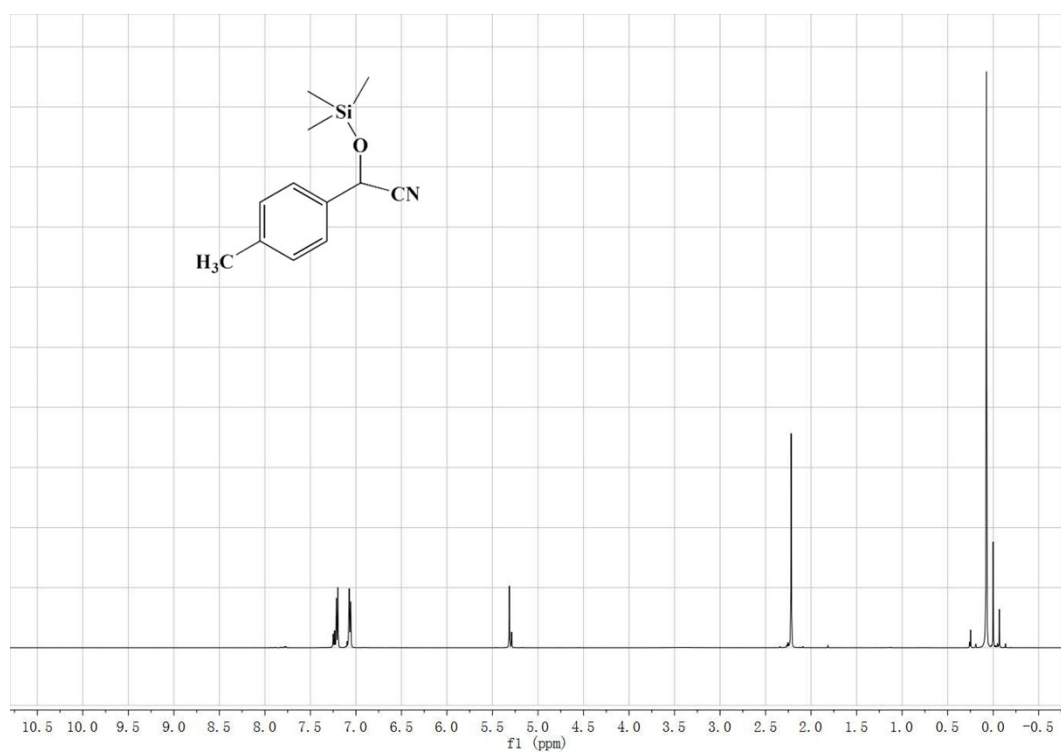


**Fig. S5** IR spectra of **2** (bottom) benzaldehyde (top), and **2** obtained after the absorption of benzaldehyde (middle).

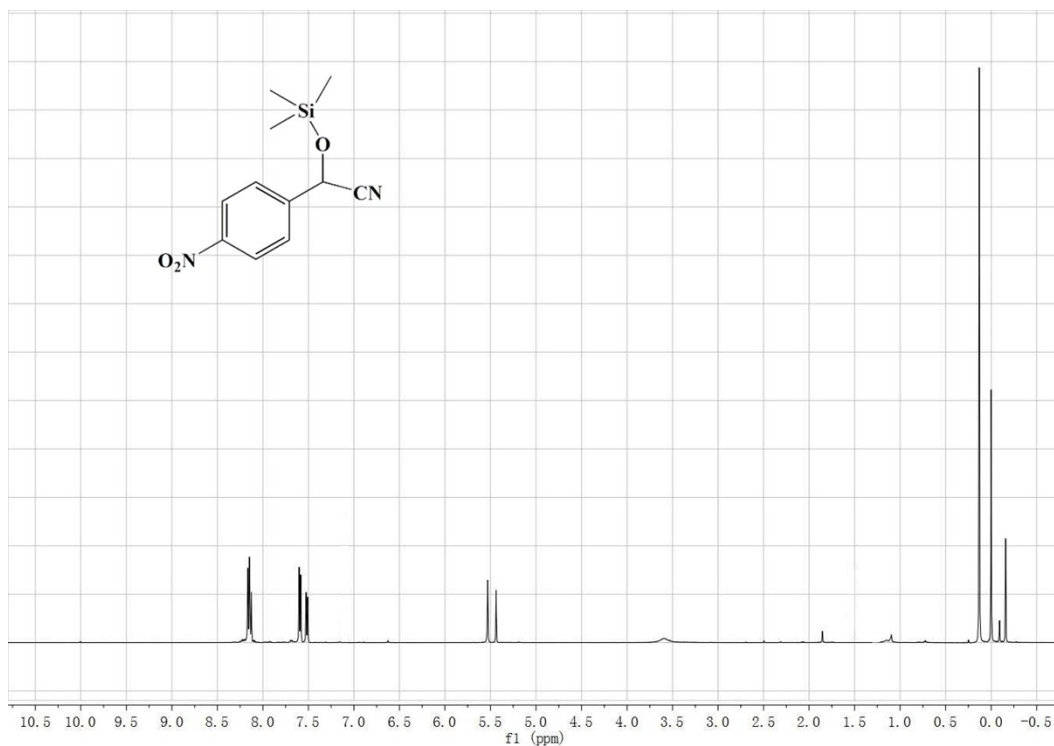




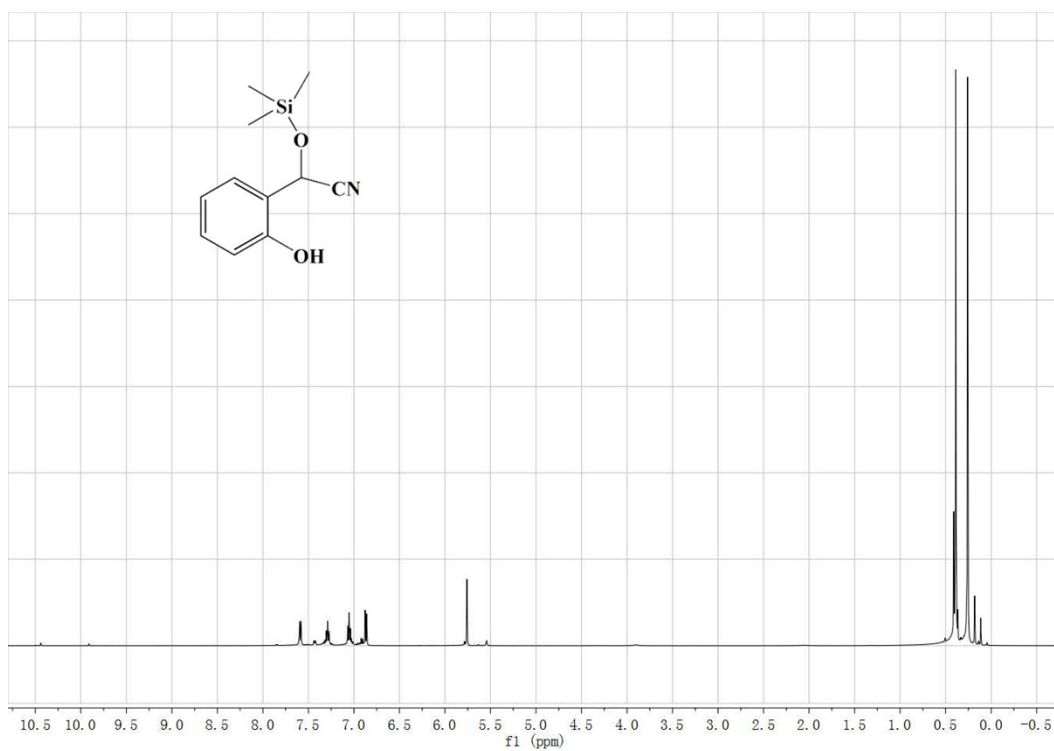
**Fig. S6a** The NMR spectrums of product **1** in CDCl<sub>3</sub>



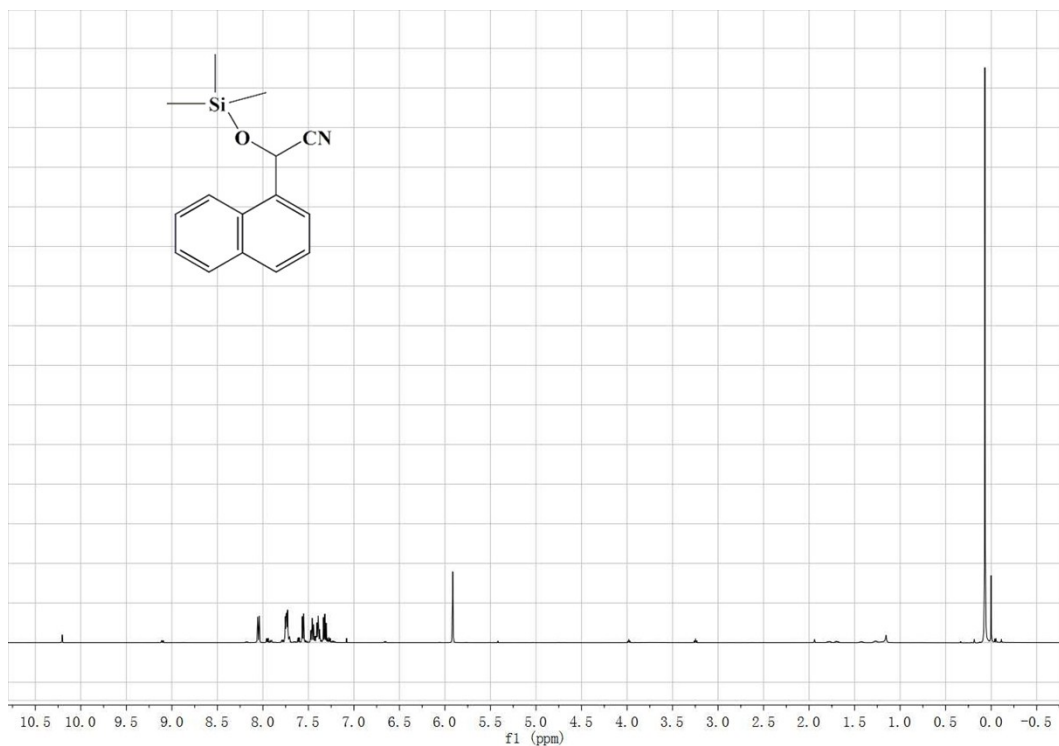
**Fig. S6b** The NMR spectrums of product **2** in CDCl<sub>3</sub>



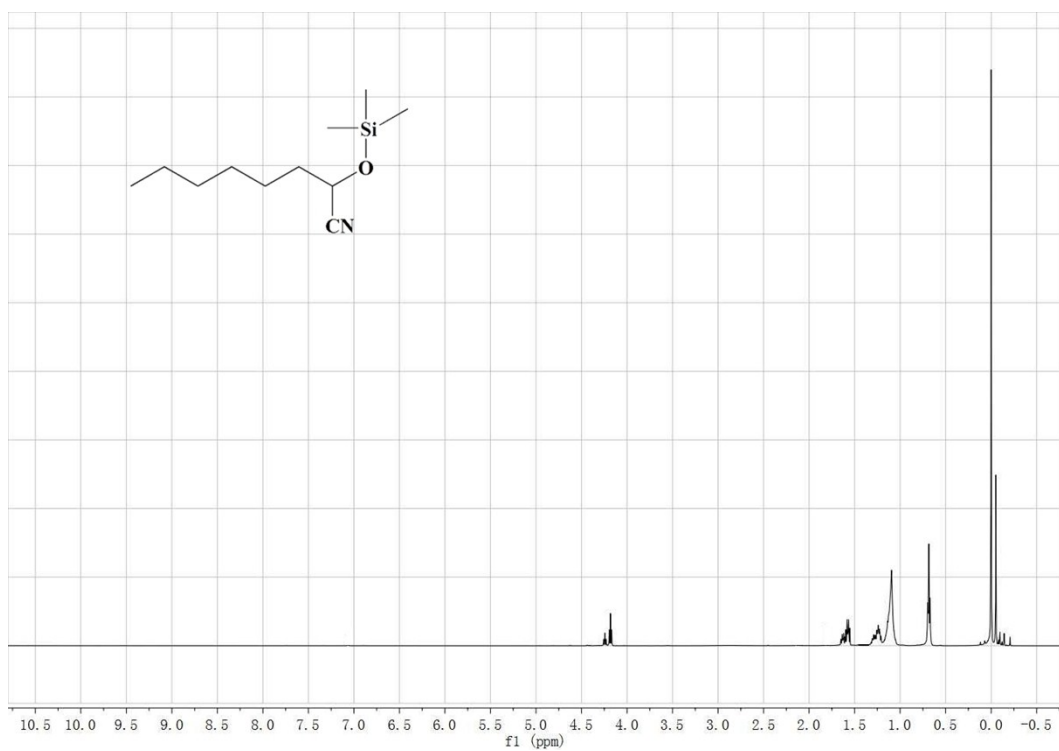
**Fig. S6c** The NMR spectrums of product **3** in CDCl<sub>3</sub>



**Fig. S6d** The NMR spectrums of product **4** in CDCl<sub>3</sub>



**Fig. S6e** The NMR spectrums of product **5** in CDCl<sub>3</sub>



**Fig. S6f** The NMR spectrums of product **6** in CDCl<sub>3</sub>

### III. Supplementary Tables

**Table S1.** Study on recycling of catalyst **2** for the heterogeneous cyanosilylation of benzaldehyde in the similar condition.

<b>Entry</b>	<b>Efficiency(%)</b>
Round 1	99
Round 2	96
Round 3	93