## **Supporting Information Available:**

## Facile assembly of hierarchical core@shell Fe $_3O_4$ @CuMgAl-LDH (layered double hydroxide) magnetic nanocatalyst for the hydroxylation of phenol

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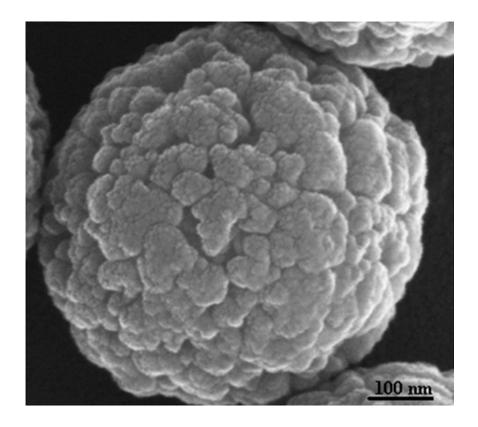


Figure S1 Magnified SEM image of the Fe<sub>3</sub>O<sub>4</sub> spherical particles.

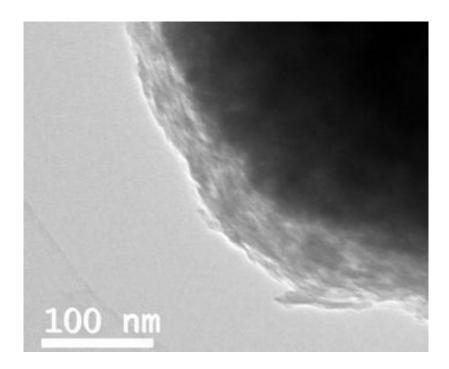


Figure S2 Enlarged TEM image of left below inset in Fig. 2d for Fe<sub>3</sub>O<sub>4</sub>@CuMgAl-1.

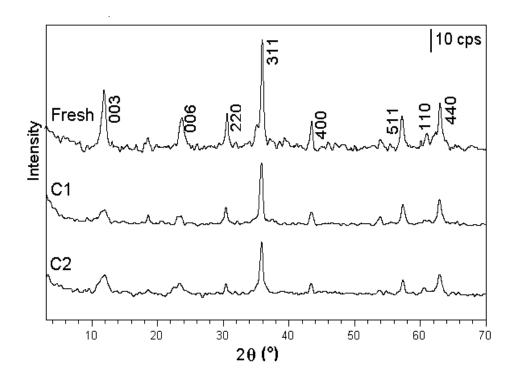


Figure S3 XRD patterns of the fresh and reclaimed catalysts  $Fe_3O_4$ @CuMgAl-1c1 and  $Fe_3O_4$ @CuMgAl-1c2.

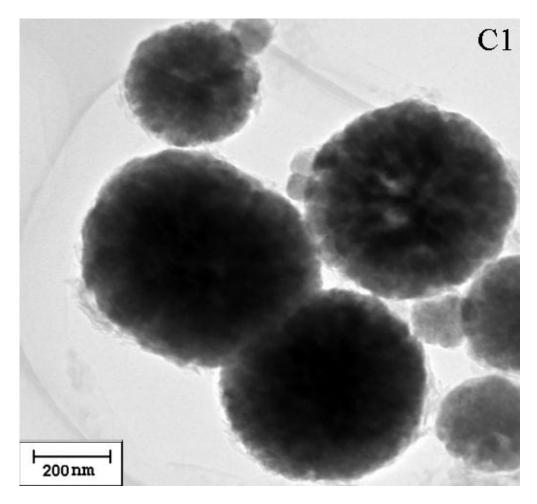


Figure S4 TEM image of the reclaimed catalyst Fe<sub>3</sub>O<sub>4</sub>@CuMgAl-1c1.