Electronic Supplementary Material (ESI) for Catalysis Science & Technology. This journal is © The Royal Society of Chemistry 2019

## **Supporting Information**

## Enhanced Electrocatalytic Dechlorination of 2,4-Dichlorophenoxyacetic Acid on In-situ Prepared Pd-anchored Ni(OH)<sub>2</sub> Bifunctional Electrode: Synergistic Effect between H\* Formation on Ni(OH)<sub>2</sub> and Dechlorination Steps on Pd

Shuang Song<sup>1,2</sup>, Qiuxiang Liu<sup>1,2</sup>, Jinhui Fang<sup>1</sup>, Weiting Yu<sup>1,\*</sup>

<sup>1</sup>College of Environment, Zhejiang University of Technology, Hangzhou 310032, People's Republic of China
<sup>2</sup>Collaborative Innovation Center of Yangtze River Delta Region Green
Pharmaceuticals, Zhejiang University of Technology, Hangzhou 310032, People's Republic of China

\*Corresponding author: Weiting Yu

E-mail:weitingyu@zjut.edu.cn



Figure S1. Time dependence of 2,4-D concentration at the applied potential of -0.40 V, -0.65 V, -0.75 V, -1.00 V and -1.25 V on Pd<sub>1</sub>Cl<sub>32.</sub>



Figure S2. TEM images of  $Pd_1HCl_{32}$  (a) TEM (b) HRTEM and (c) Mapping of

element.



Figure S3. TEM images of  $Pd_1Cl_5$  (a) TEM, (b) HRTEM of Pd, (c) HRTEM of Ni and (d) Mapping of element.



Figure S4. TEM images of  $Pd_1Cl_{302}$  (a) TEM, (b) HRTEM of Pd, (c) HRTEM of Ni and (d) Mapping of element.



Figure S5. The trend of current efficiency with dechlorination time on  $Pd_1Cl_{32}$  at the applied potential of -0.65 V.



Figure S6. FE-SEM image of  $Pd_1Cl_{32}$  after 5 cycles of 2,4-D dechlorination.