catalysts

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Supplementary Materials

A polypyrrole-modified Pd-Ag bimetallic electrode for the electrocatalytic reduction of 4-chlorophenol

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1. EDS analysis of electrode

The energy-dispersive spectrometer (EDS) was employed to investigate the elemental composition of prepared Pd-Ag/PPy/Ti electrode (shown in Figure S1), which confirmed palladium and silver were successfully deposited on the titanium substrate.

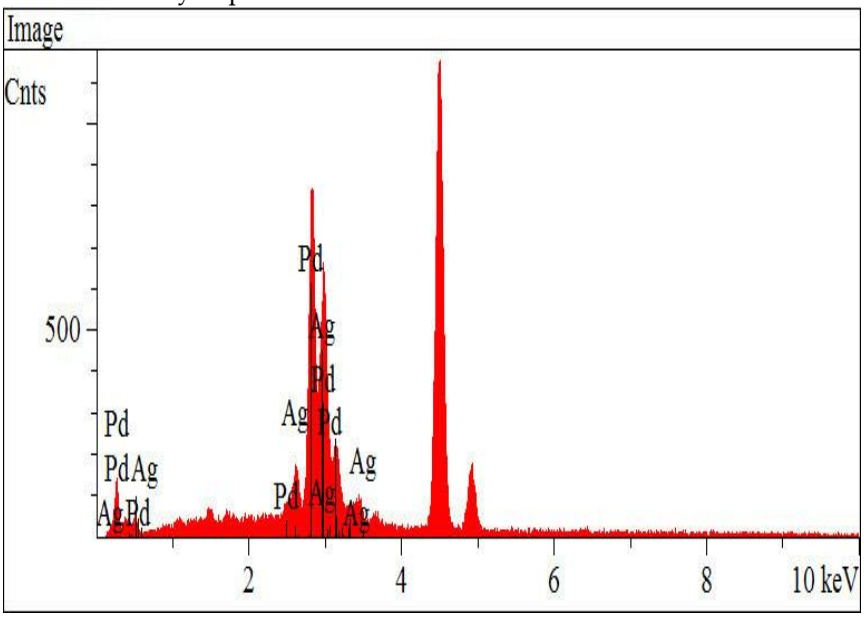

Figure S1. EDS spectra of Pd-Ag/PPy/Ti electrode.

2. The Arrhenius plot of lnk and 1/T of 4-CP dechlorination

The effect of temperature on the ECH of 4-CP could be expressed by the Arrhenius mequation: $k=Aexp(-Ea/RT)$. The apparent reaction rate constant k and $1/T$ are related by the following formula: $lnk=15.93157–5972.96/T$ ($R^2=0.9334$). The corresponding fitted line is shown in Figure S2.

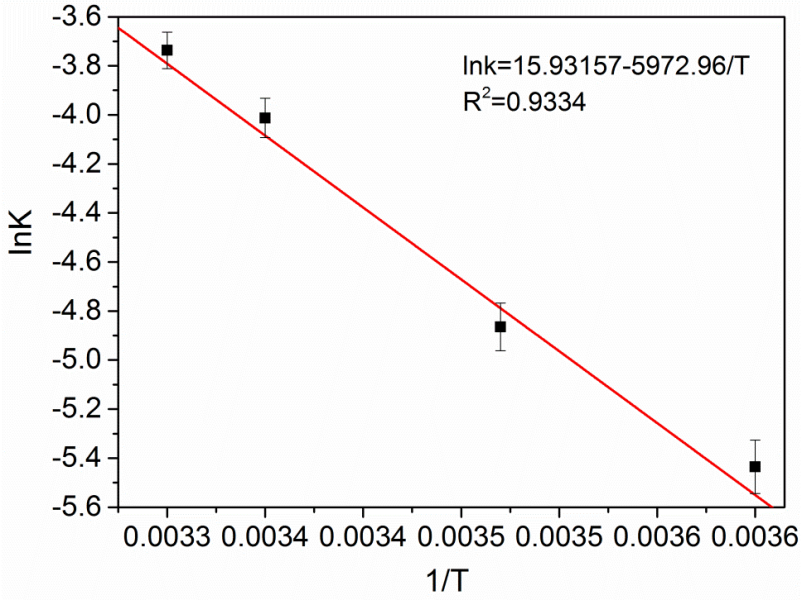

Figure S2. The Arrhenius plot of lnk and 1/T of 4-CP dechlorination.

3. The experimental equipment of dechlorination

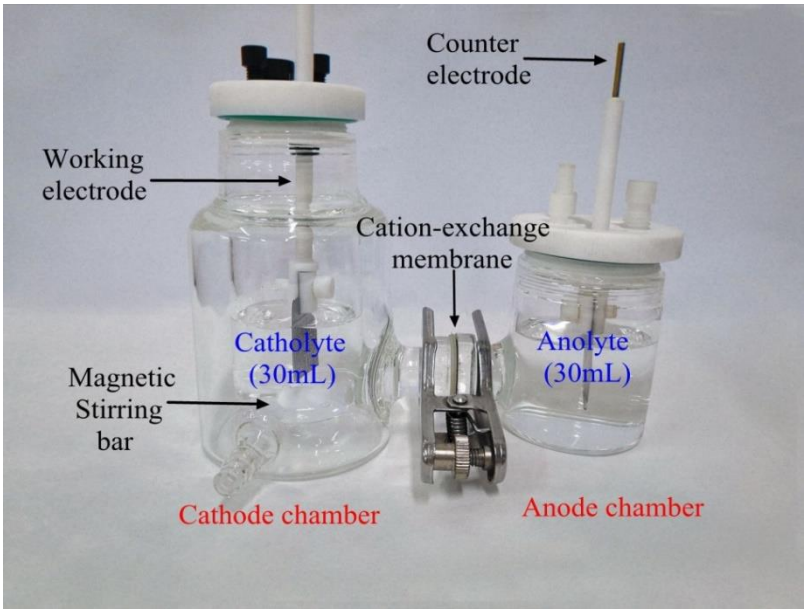

Figure S3. Schematic digram of electrocatalytic hydrodechlorination equipment.

4. Comparison of catholyte before and after dechlorination process

The process of electrocatalytic hydrogenation dechlorination consumes H^+, and the pH values vary obviously before and after dechlorination, which was shown in Table S1.

Table S1. The pH value of catholyte before and after dechlorination process.I = 6 mA, t = 90min, C_0 = 100 mg/L, $C_{Na_2SO_4}$ = 0. 05 mol/L.

	pH value			
Initial	2.05	2.30	2.40	6.48

Terminal	2.93	8.40	11.10	12.72

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