

Supporting Information

Enhanced catalytic activity over palladium supported on ZrO₂@C with NaOH-assisted reduction for decomposition of formic acid

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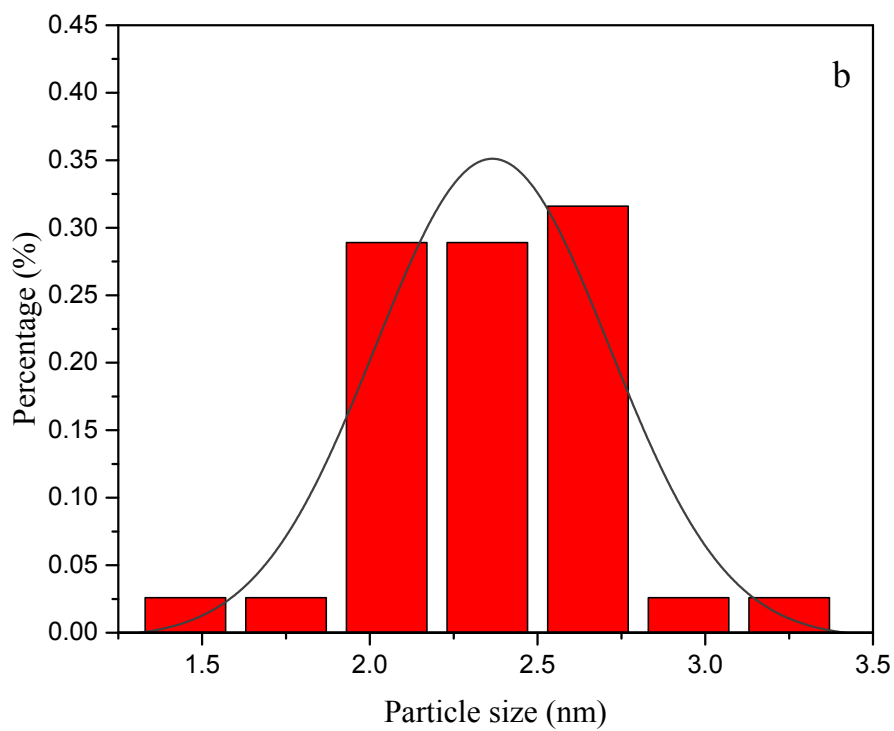
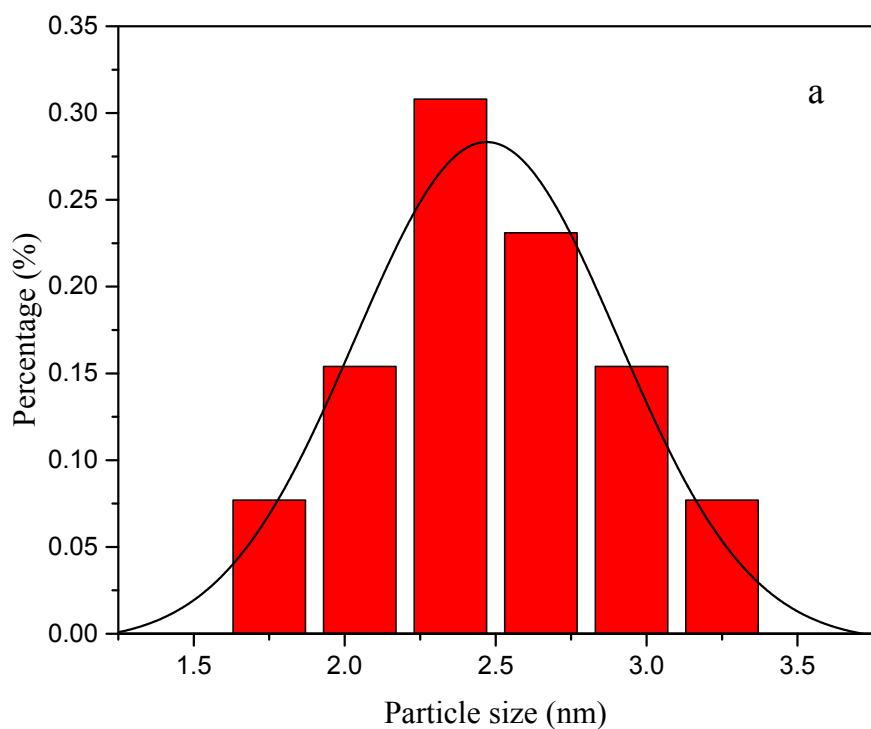


Fig S1 The corresponding size distribution of Pd NPs of (a) Pd/ZrO₂@C and (b) Pd/AC

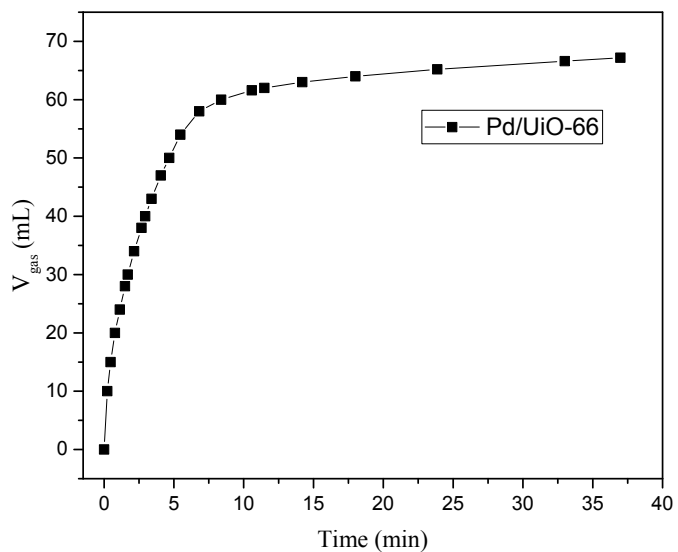


Fig S2 Gas generation of Pd/Uio-66 for the decomposition of FA-SF (1:3) mixture at 50 °C ($n_{\text{FA}} = 1.5 \text{ mmol}$, $n_{\text{metal}}:n_{\text{FA}} = 0.01$)

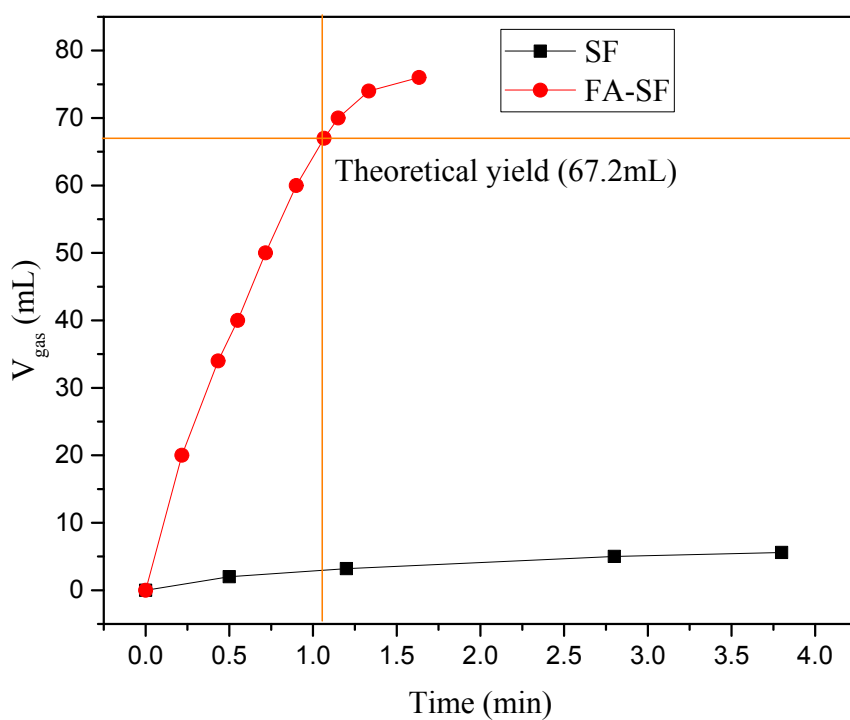


Fig S3 Gas generation of Pd/ZrO₂@C catalyst for decomposition of SF solution and mixture of FA-SF (1:3) at 50° C. ($n_{\text{FA}} = 1.5 \text{ mmol}$, $n_{\text{metal}}:n_{\text{FA}} = 0.01$)

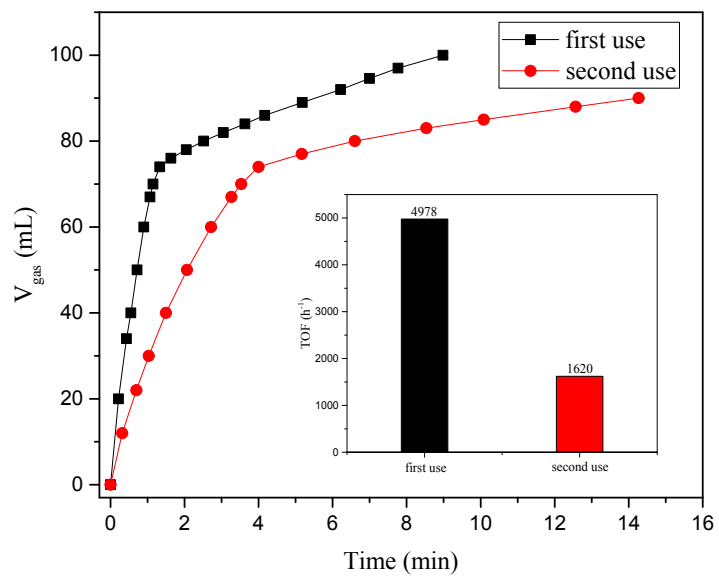


Fig S4 Recycle test of Pd/ZrO₂@C catalyst toward H₂ generation from FA/SF solution at 50° C. ($n_{\text{FA}} = 1.5 \text{ mmol}$, $n_{\text{FA}} : n_{\text{SF}} = 1 : 3$, $n_{\text{Pd}} : n_{\text{FA}} = 0.01$)

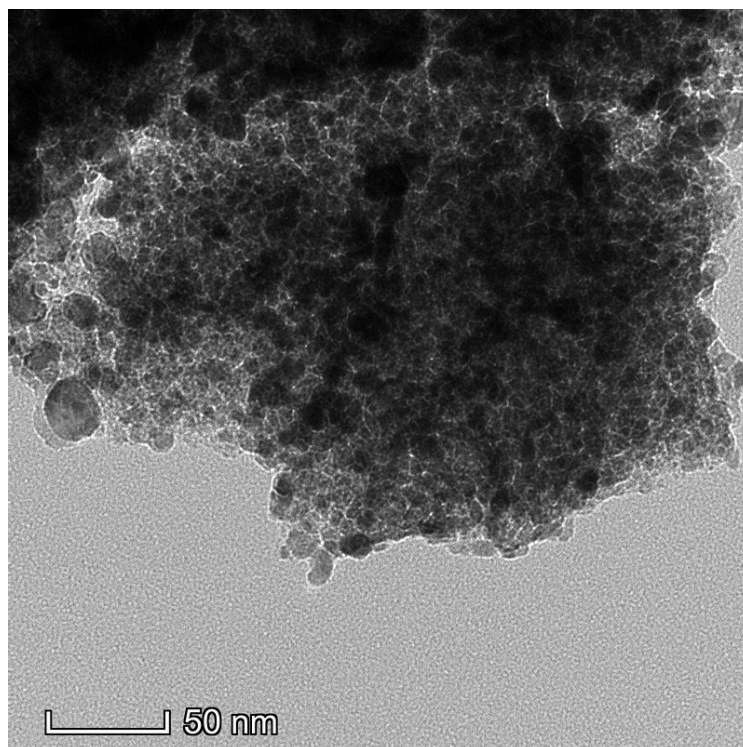


Fig S5 TEM images of Pd/ZrO₂@C catalyst after catalysis