

Supporting Information

Effects of Oxide Platforms on the Dynamics and Reduction Characteristics of Hydrogen Spillover

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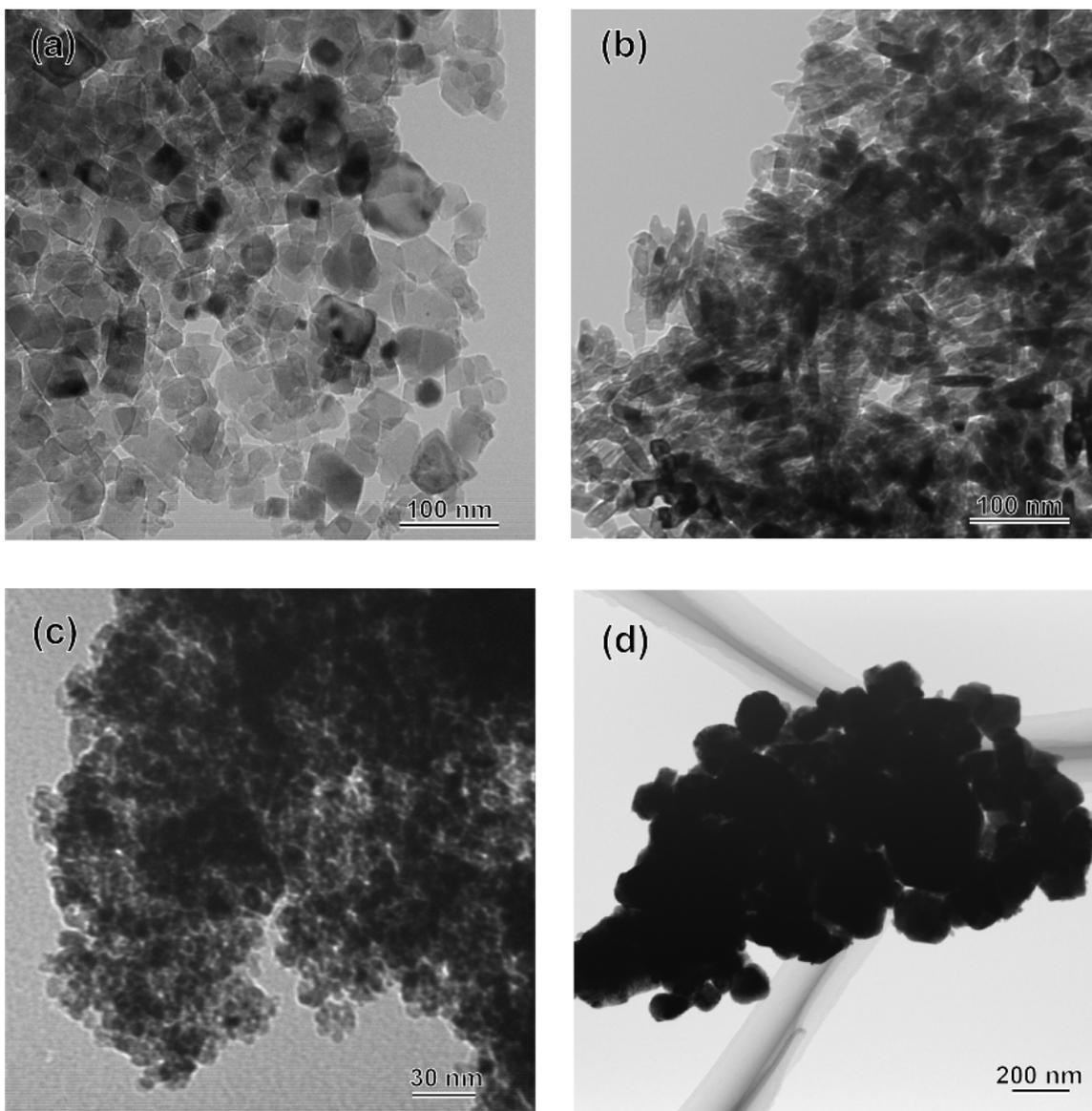


Figure S1. TEM image of (Pt + Zn)/MO_x employing (a) MgO, (b) TiO₂, (c) CeO₂, and (d) WO₃ as supports.

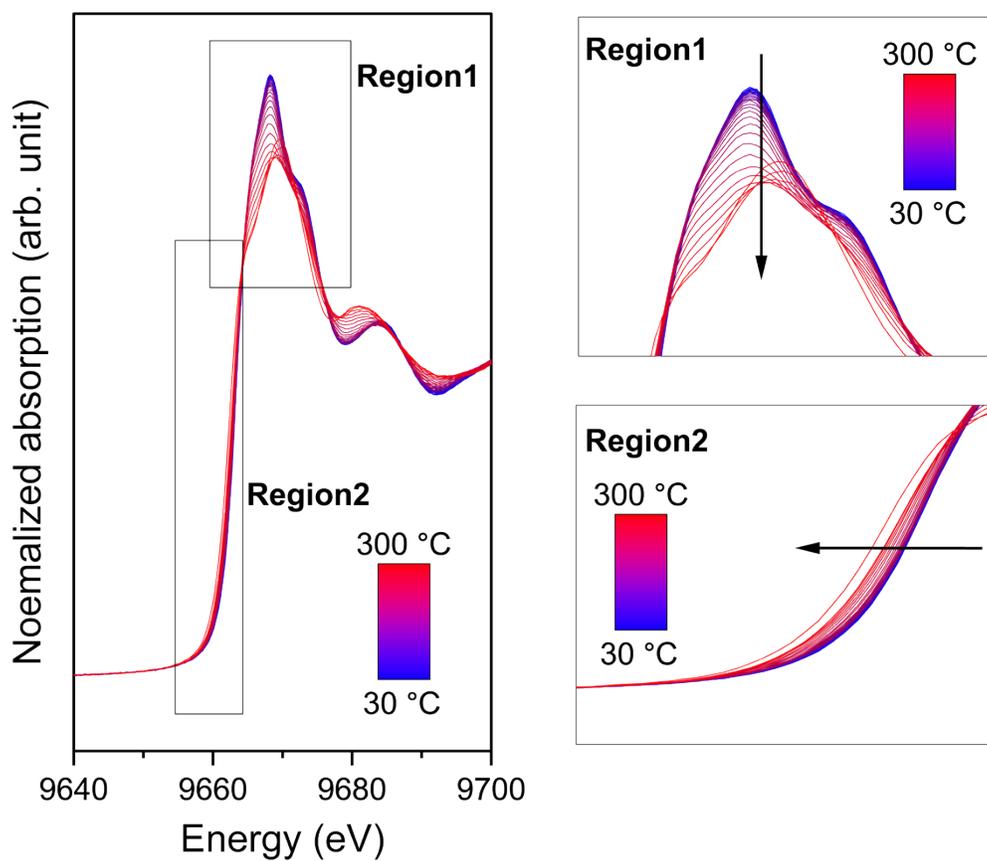


Figure S2. TEM image of (Pt + Zn)/MO_x employing (a) MgO, (b) TiO₂, (c) CeO₂, and (d) WO₃ as supports.

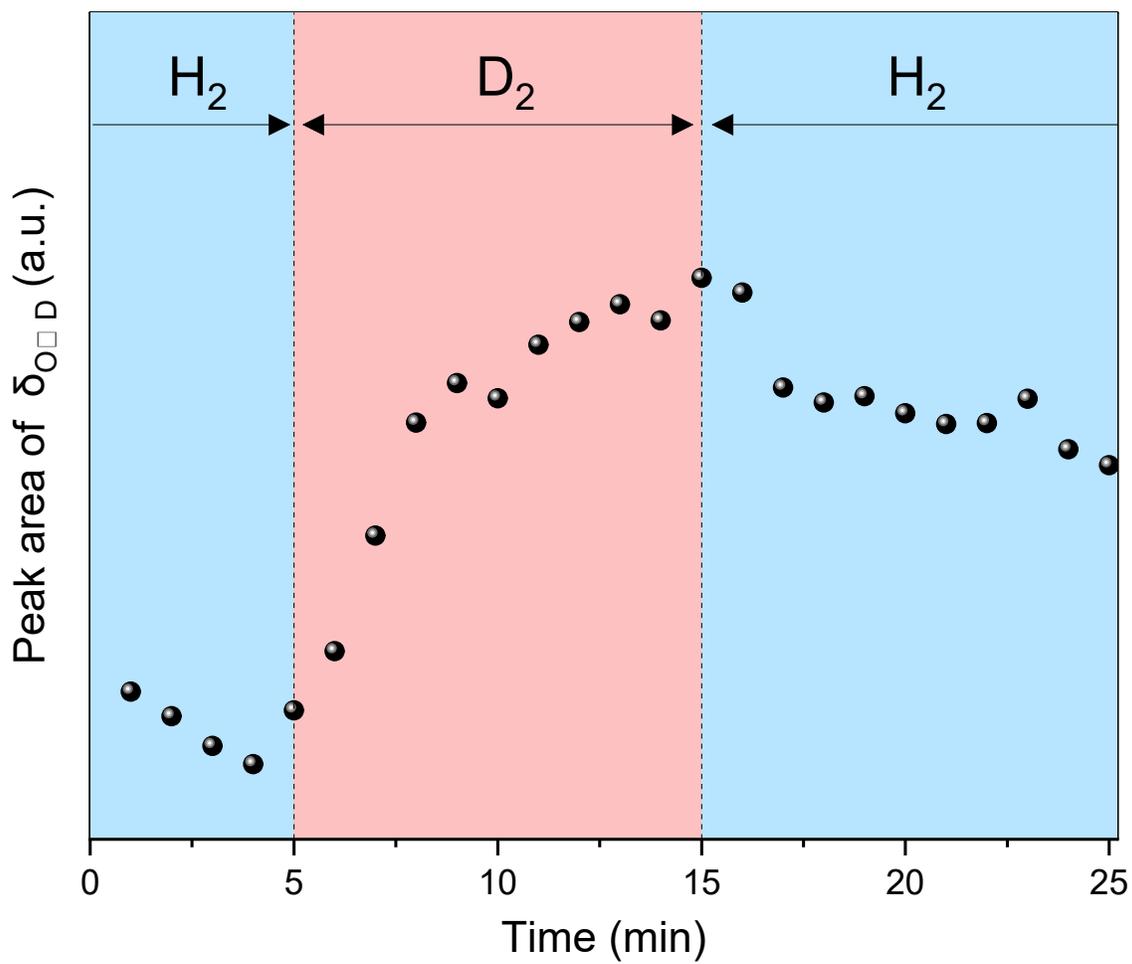


Figure S3. The transition of peak area assigned to the δ_{O-D} for (Pt + Zn)/MgO during H₂ and D₂ switching atmosphere.

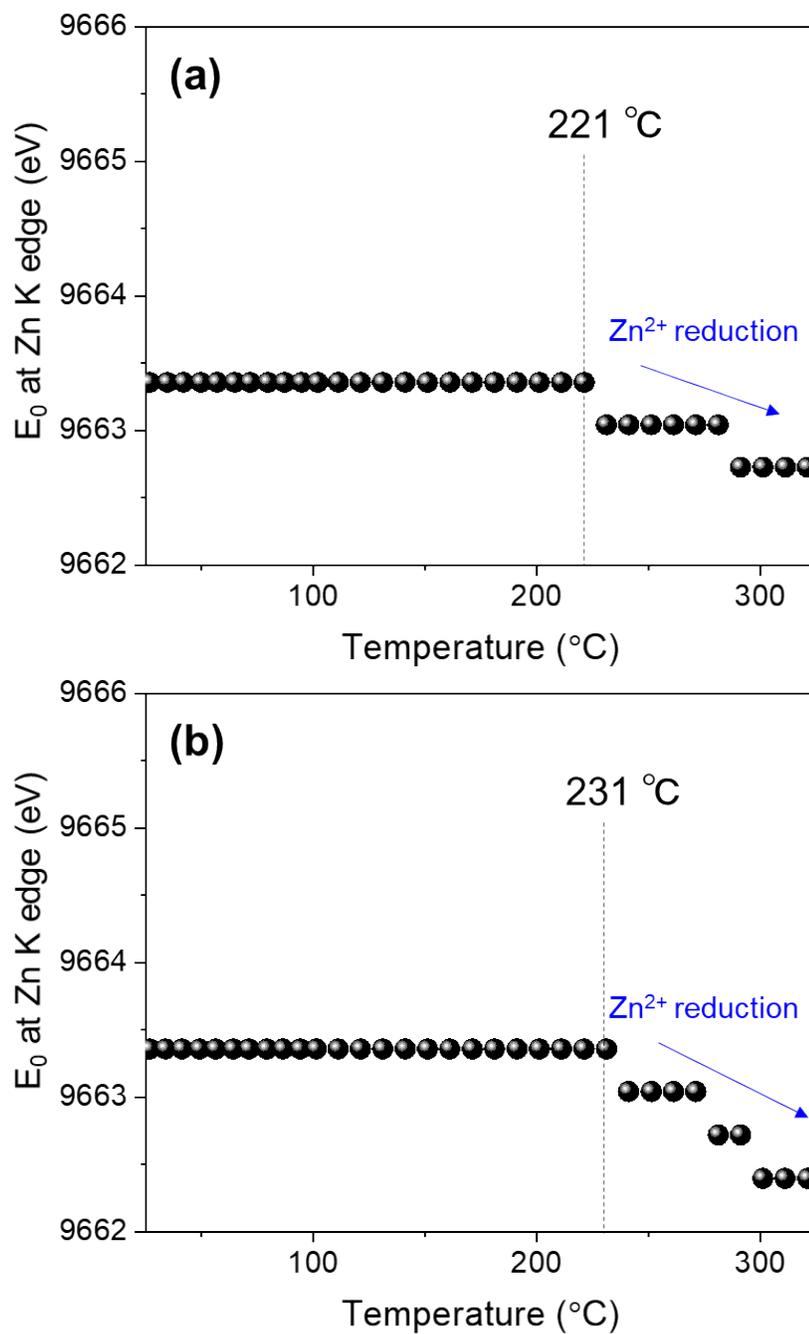


Figure S4. The E_0 transition of the Zn K edge XANES spectra under a D_2 atmosphere in trials with (a) Zn/MgO and (b) (Pt + Zn)/MgO.

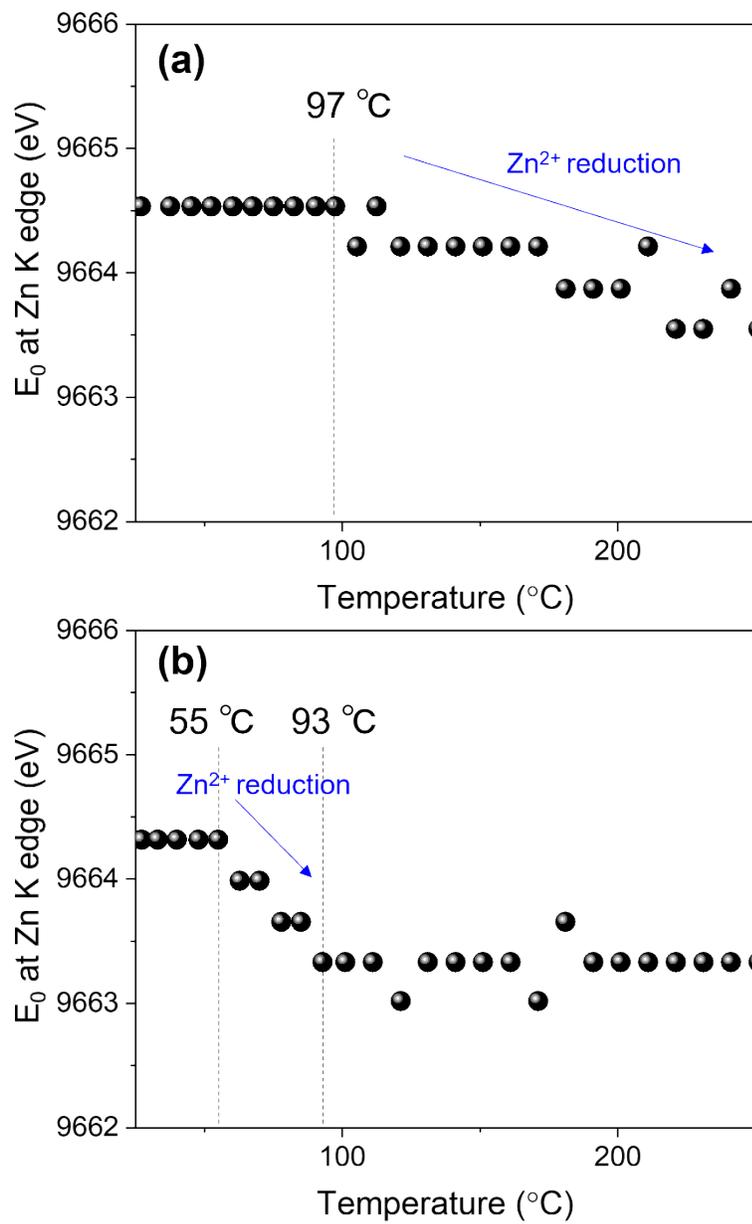


Figure S5. The E_0 transition of the Zn K edge XANES spectra under a D_2 atmosphere in trials with (a) Zn/TiO_2 and (b) $(Pt + Zn)/TiO_2$.

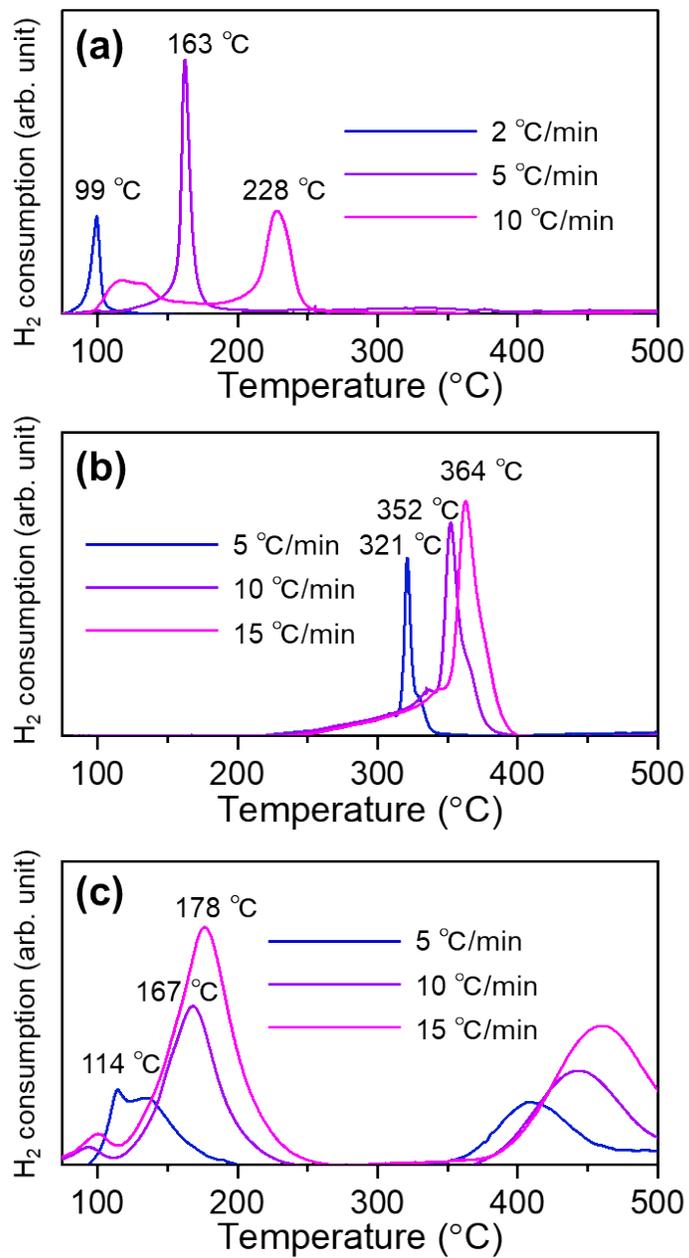


Figure S6. H₂-TPR data acquired at various heating rates with (a) (Pt + Zn)/TiO₂, (b) (Pt + Zn)/CeO₂, and (c) (Pt + Zn)/WO₃.

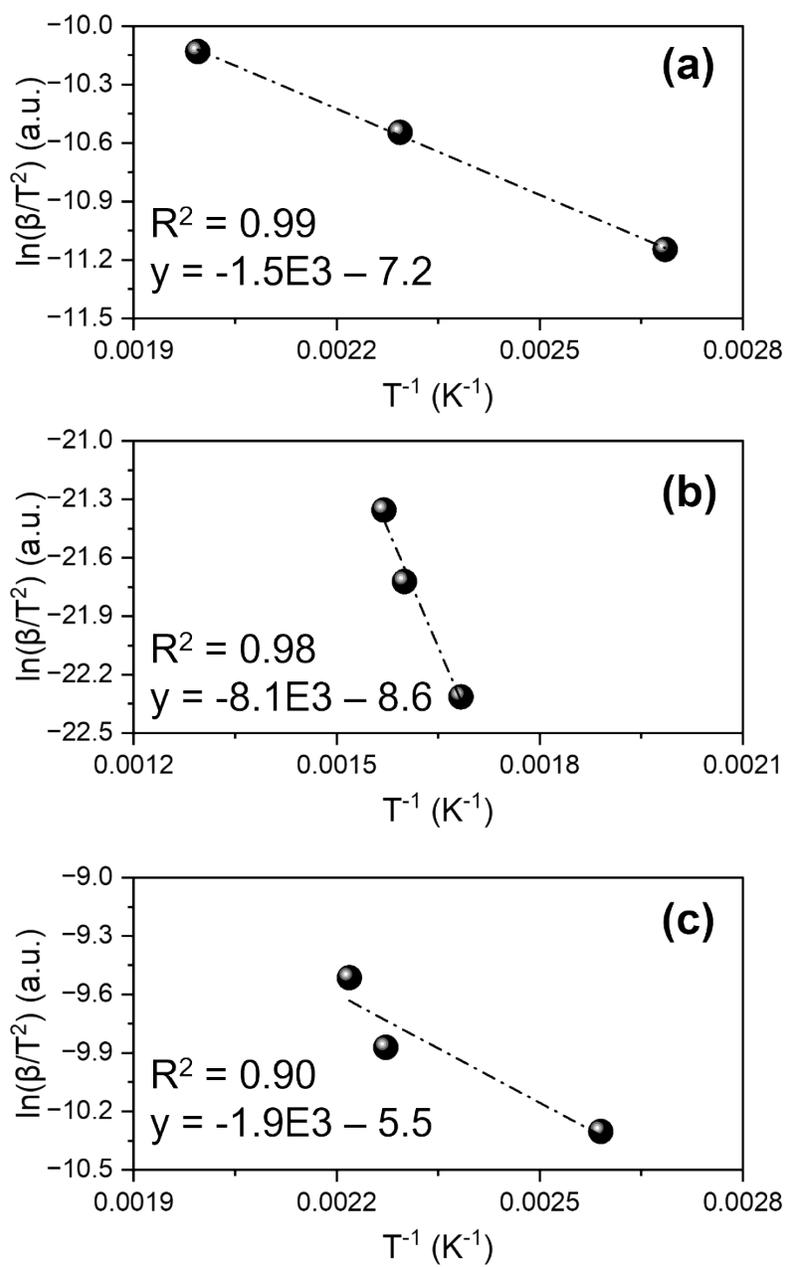


Figure S7. Kissinger plots and their regressions based on H_2 -TPR profiles calculated for (a) (Pt + Zn)/ TiO_2 , (b) (Pt + Zn)/ CeO_2 , and (c) (Pt + Zn)/ WO_3 .

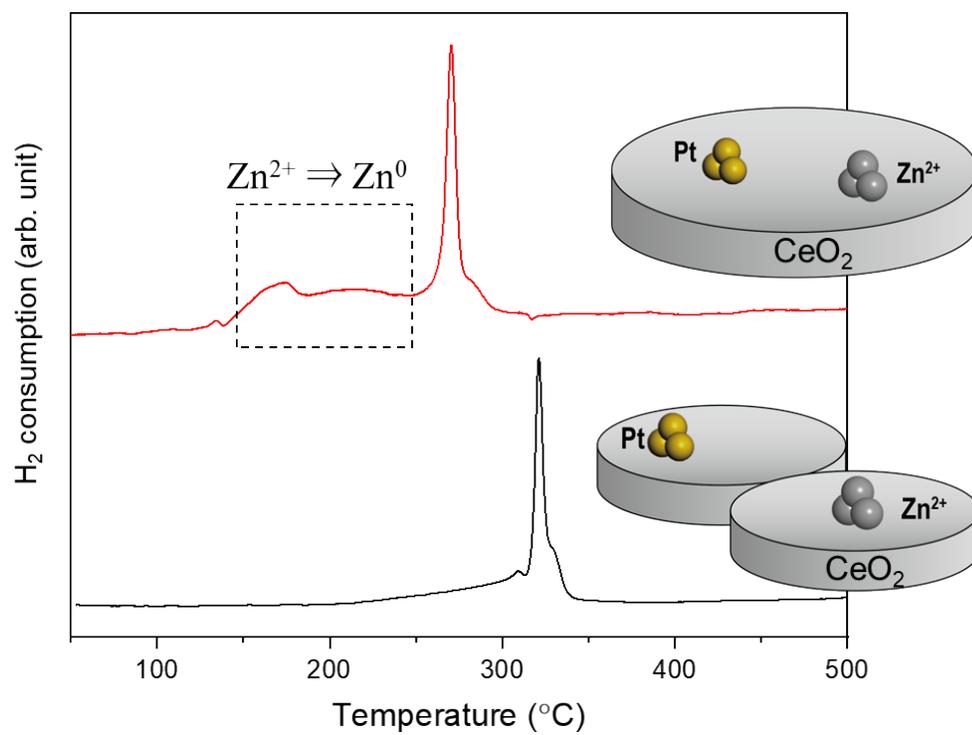


Figure S8. H₂-TPR profiles for specimens comprising Pt and Zn supported on CeO₂ (red) or (Pt + Zn)/CeO₂ (black) at a heating rate of 5 °C/min.

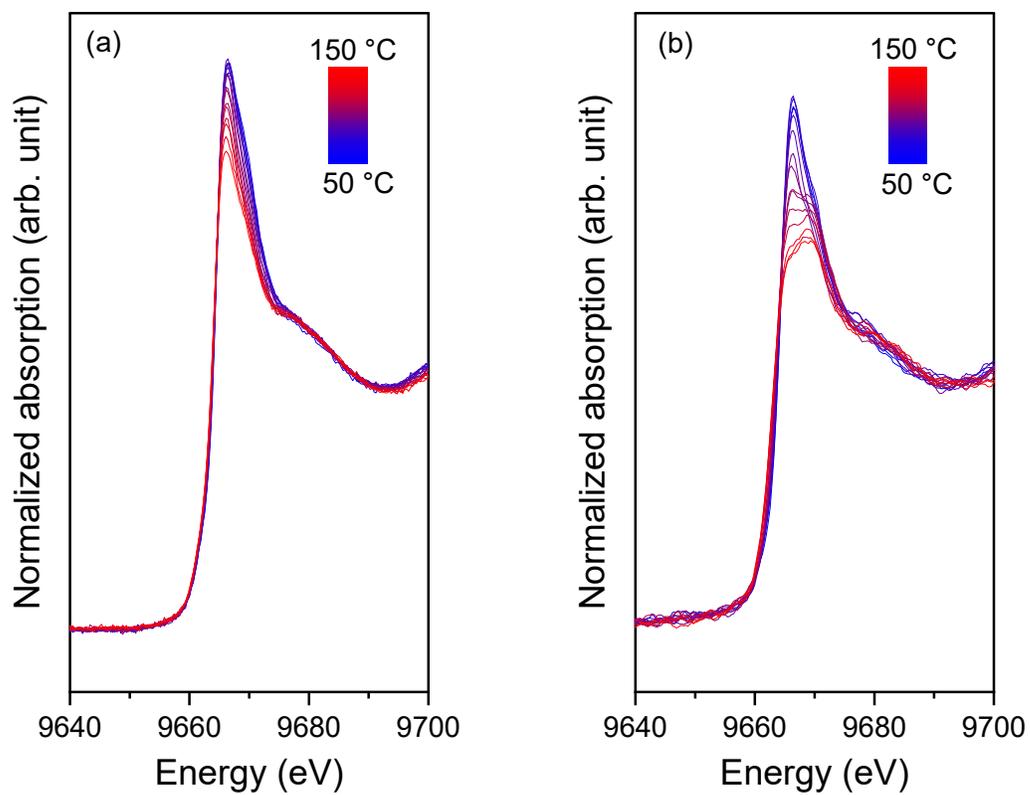


Figure S9. Zn K edge *in situ* XANES spectra of (a) Zn/WO₃ and (b) (Pt + Zn)/WO₃ obtained under D₂ at various temperatures.