

Supporting Information for

Aerobic Oxidation of Primary Aliphatic Alcohols over Bismuth Oxide Supported Platinum Catalysts in Water

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Additional Results

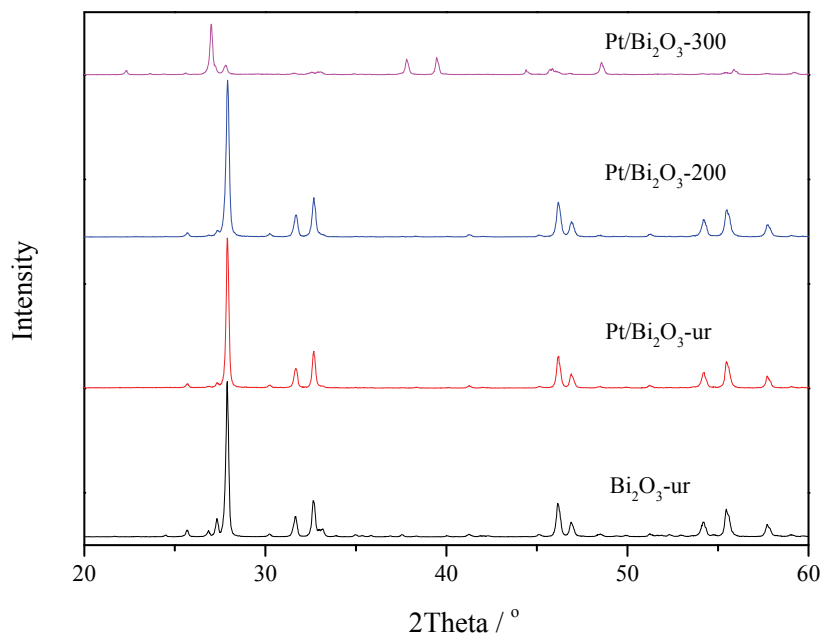


Fig. S1 XRD patterns of Bi₂O₃-ur, Pt/Bi₂O₃-ur, Pt/Bi₂O₃-200 and Pt/Bi₂O₃-300.

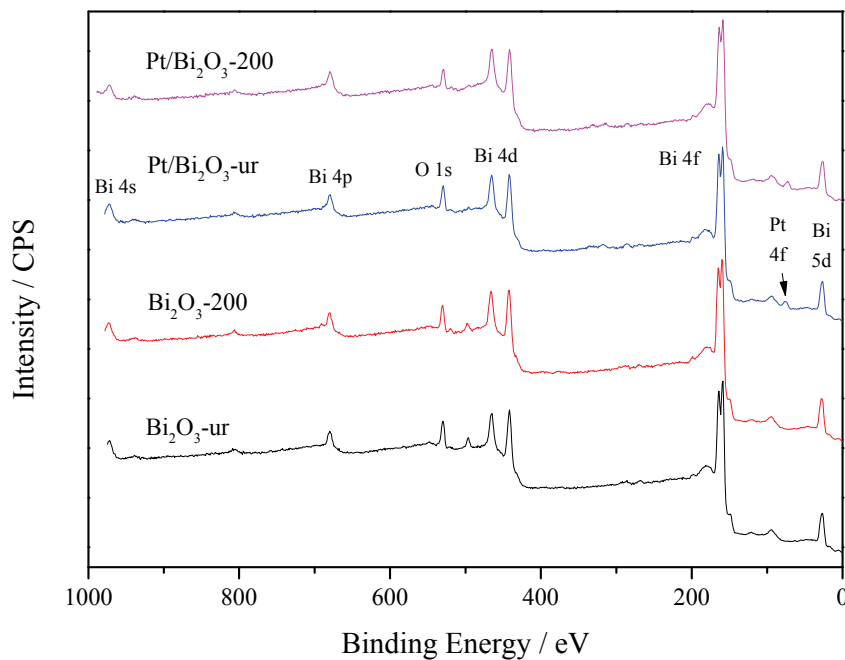


Fig. S2 X-ray photoelectron survey spectrum of Bi₂O₃-ur, Bi₂O₃-200, Pt/Bi₂O₃-ur and Pt/Bi₂O₃-200.

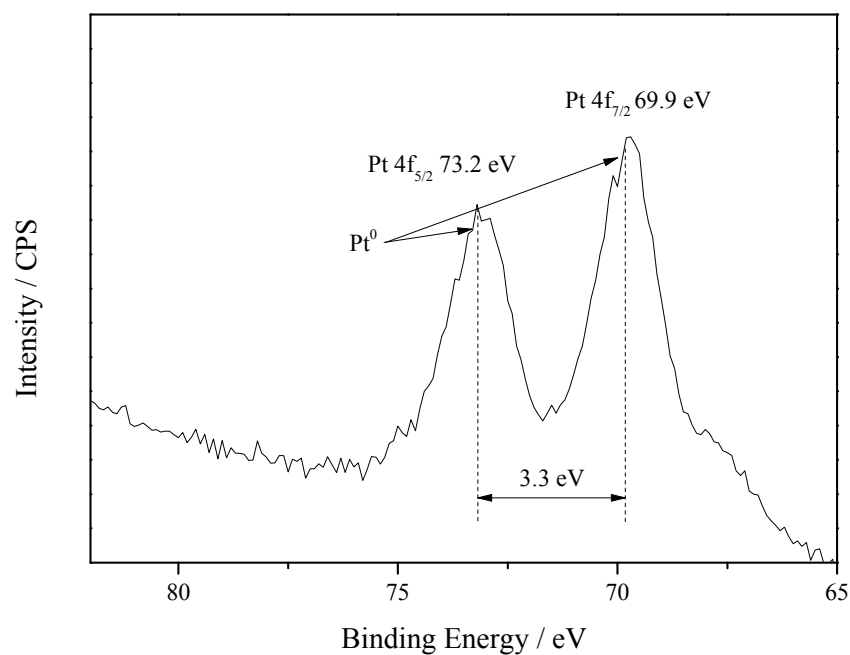


Fig. S3 XPS spectra of Pt 4f in Pt/Bi₂O₃-150.

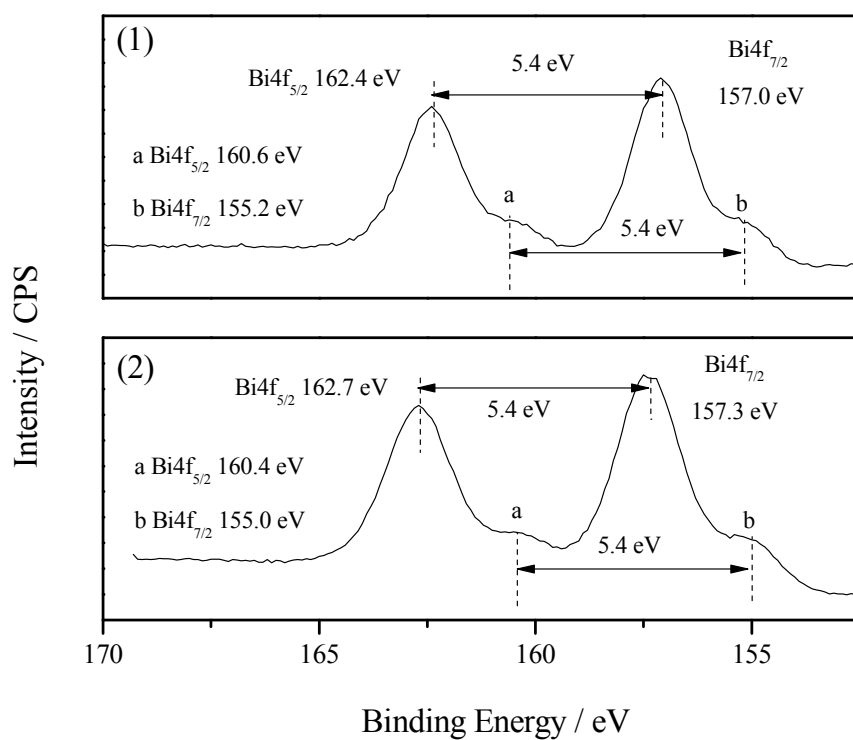


Fig. S4 XPS spectra of Bi 4f in (1) Pt/Bi₂O₃-200 and (2) Pt/Bi₂O₃-200 (after reaction).

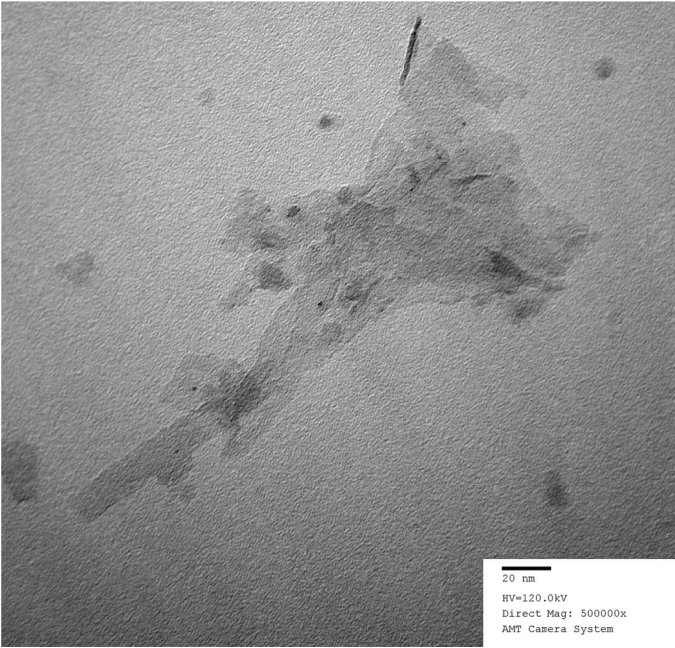


Fig. S5 TEM image of Pt/γ-Al₂O₃-200.

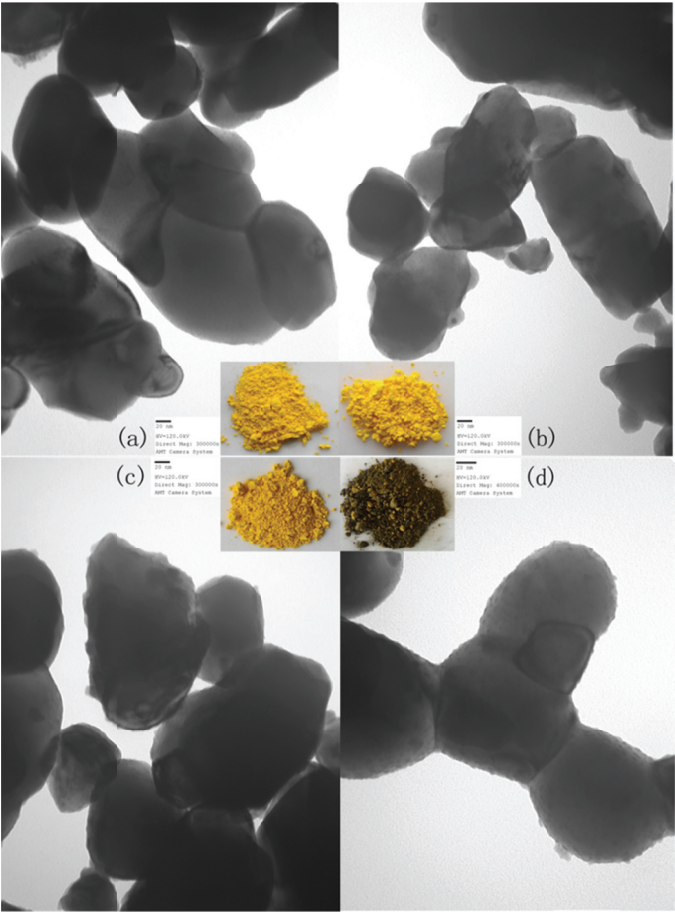


Fig. S6 TEM images and photographs of (a) Bi₂O₃-ur, (b) Bi₂O₃-200, (c) Pt/Bi₂O₃-ur and (d) Pt/Bi₂O₃-200.

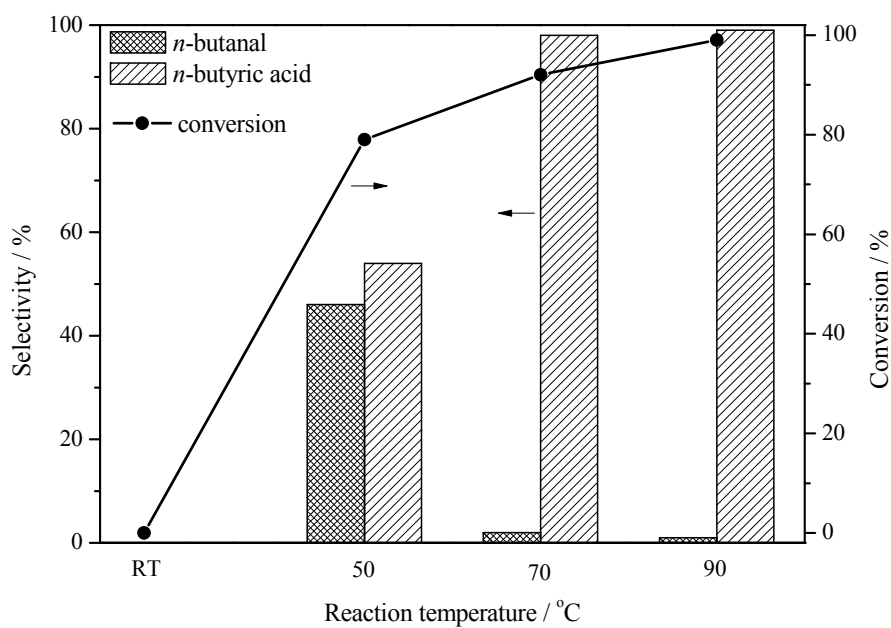


Fig. S7 Effect of reaction temperature on the oxidation of *n*-butanol. Reaction conditions: 2.5 mmol *n*-butanol, 2 mL H₂O, 0.20 g Pt/Bi₂O₃-200, 0.2 MPa O₂, 5 h.

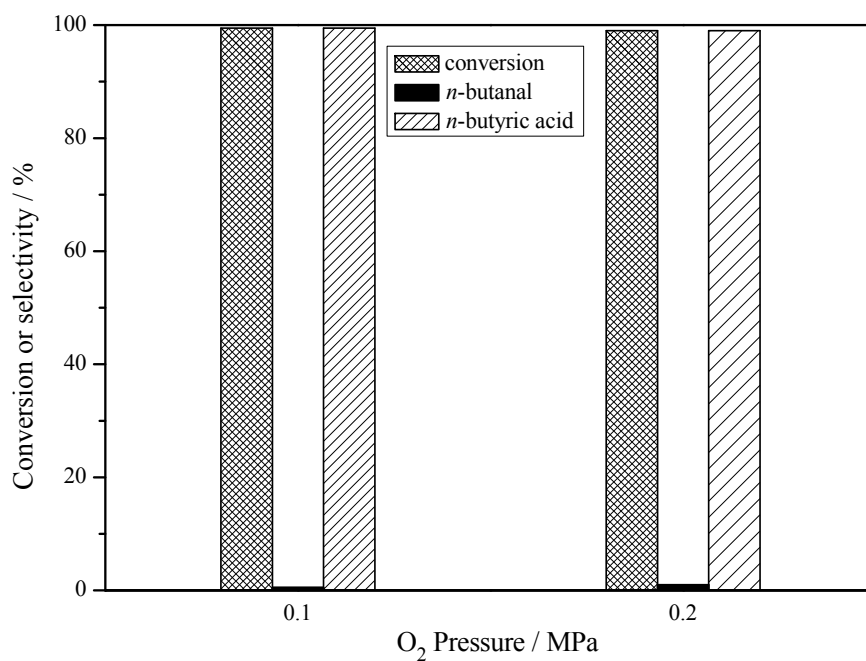


Fig. S8 Effect of O₂ pressure on the oxidation of *n*-butanol. Reaction conditions: 2.5 mmol *n*-butanol, 2 mL H₂O, 0.20 g Pt/Bi₂O₃, 90 °C, 5 h.

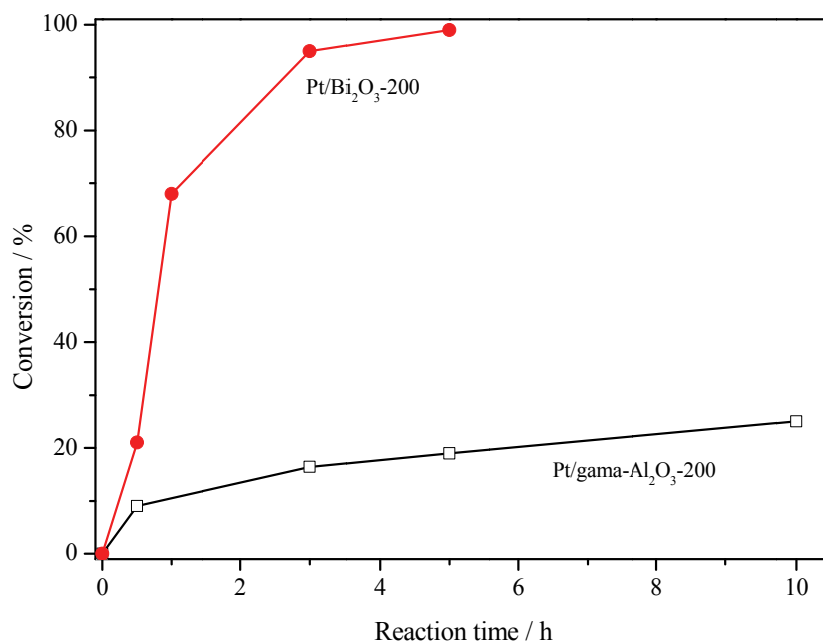


Fig. S9 Time course of *n*-butanol oxidation over Pt/Bi₂O₃-200 and Pt/γ-Al₂O₃-200 catalysts.

Reaction conditions: 2.5 mmol *n*-butanol, 2 mL H₂O, 0.20 g catalyst, 90 °C, 0.1 MPa O₂.

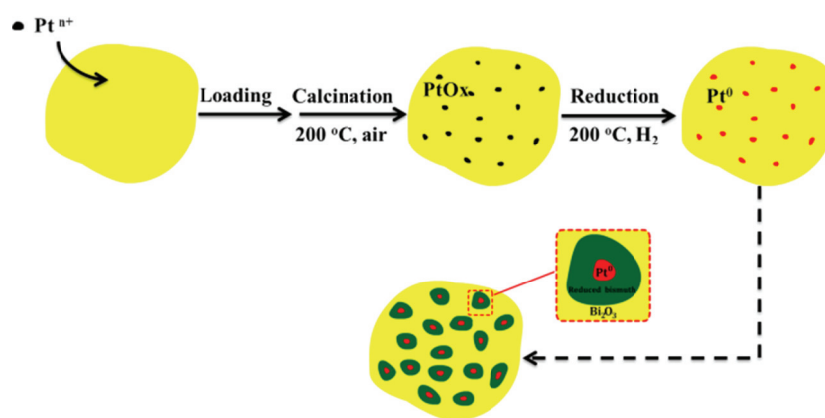
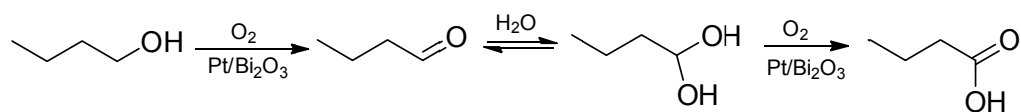


Fig. S10 Proposed sketch for the preparation of Pt/Bi₂O₃ catalyst.



Scheme S1: Proposed reaction pathway for Pt/Bi₂O₃ catalyzed oxidation of *n*-butanol using water as solvent.