

Appendix A. Supplementary material

Direct synthesis of 2-ethylhexanol via *n*-butanal aldol condensation-hydrogenation reaction integration over Ni/Ce-Al₂O₃ bifunctional catalyst

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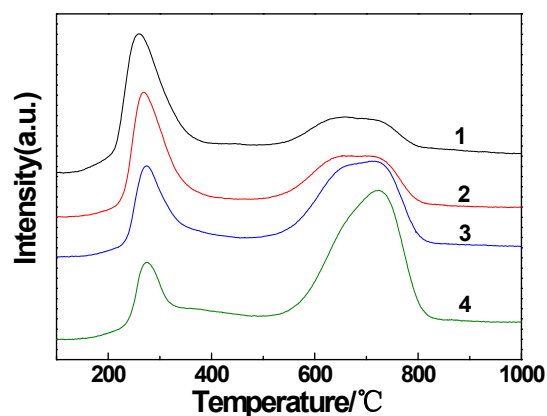


Fig. S1 H₂-TPR profiles of Ni/Ce-Al₂O₃ catalysts prepared at different calcination temperatures

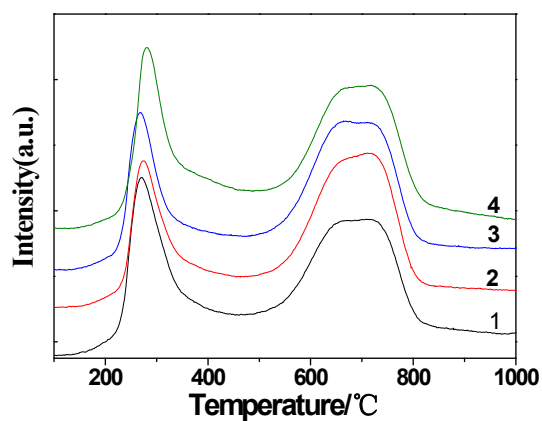


Fig. S2 H₂-TPR profiles of Ni/Ce-Al₂O₃ catalysts prepared at different calcination time

1-3 h; 2-4 h; 3-5 h; 4-6 h

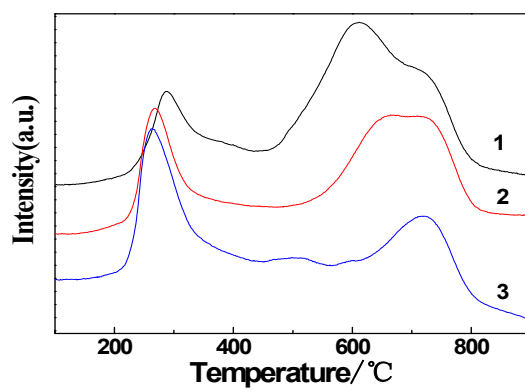


Fig. S3 H₂-TPR profiles of Ni/Ce-Al₂O₃ catalysts prepared at different reduction temperature

1-520 °C; 2-570 °C; 3-620 °C

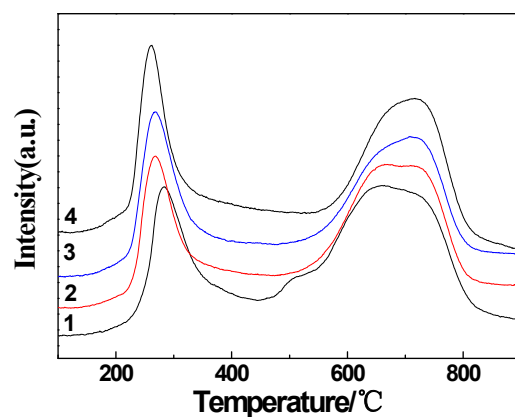


Fig. S4 H₂-TPR profiles of Ni/Ce-Al₂O₃ catalysts prepared at different reduction time

1-3 h; 2-4 h; 3-5 h; 4-6 h

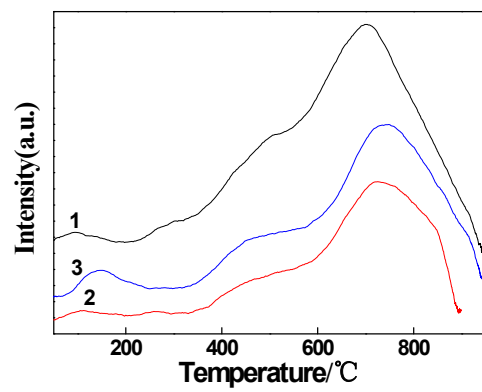


Fig. S5 H₂-TPD profiles of the fresh and the recovered Ni/Ce-Al₂O₃ catalysts

1: fresh 2: recovered① 3: recovered②