

## Supplementary information

### The promotional effect of surface defects on the catalytic performance of supported nickel-based catalysts

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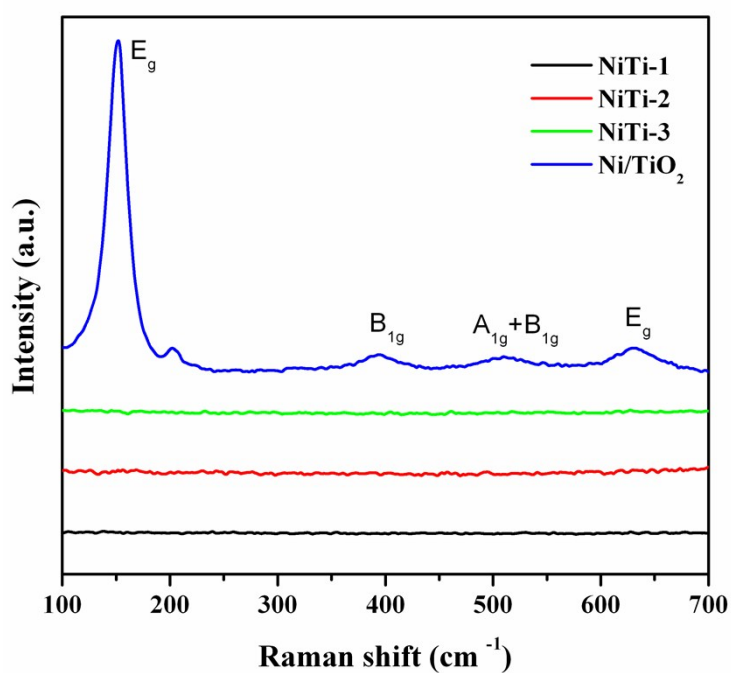
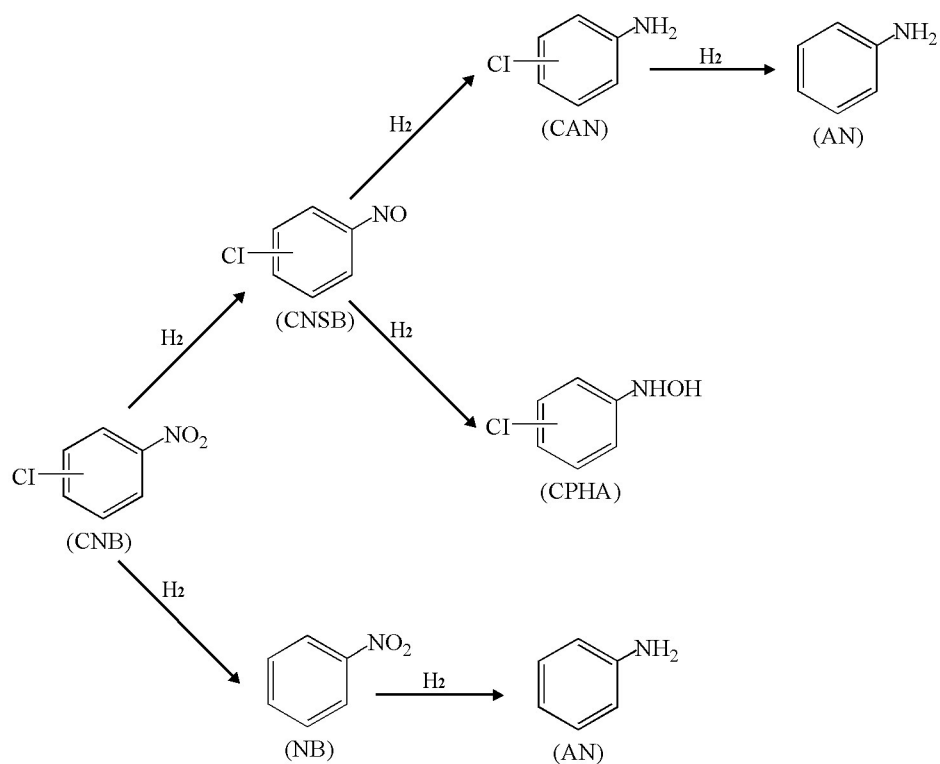
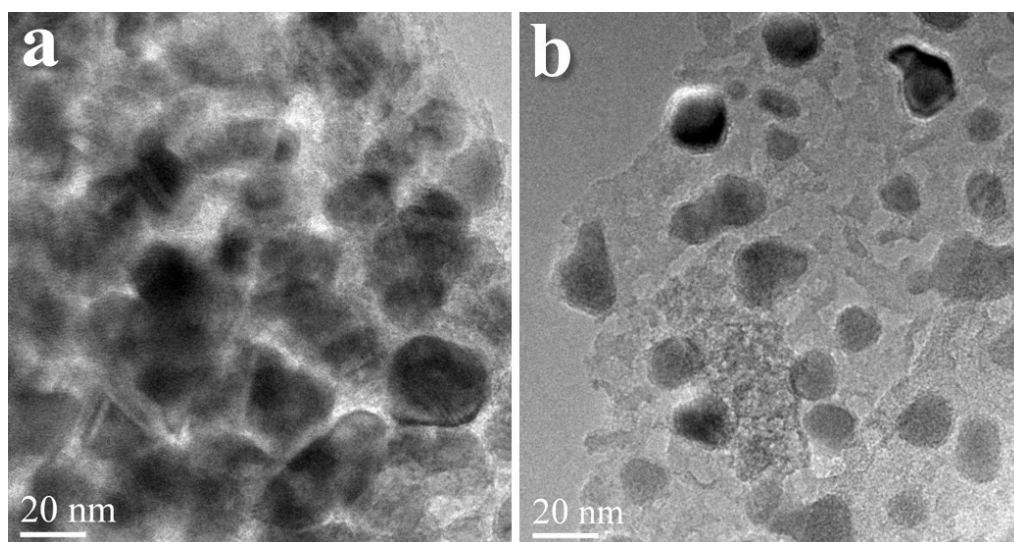


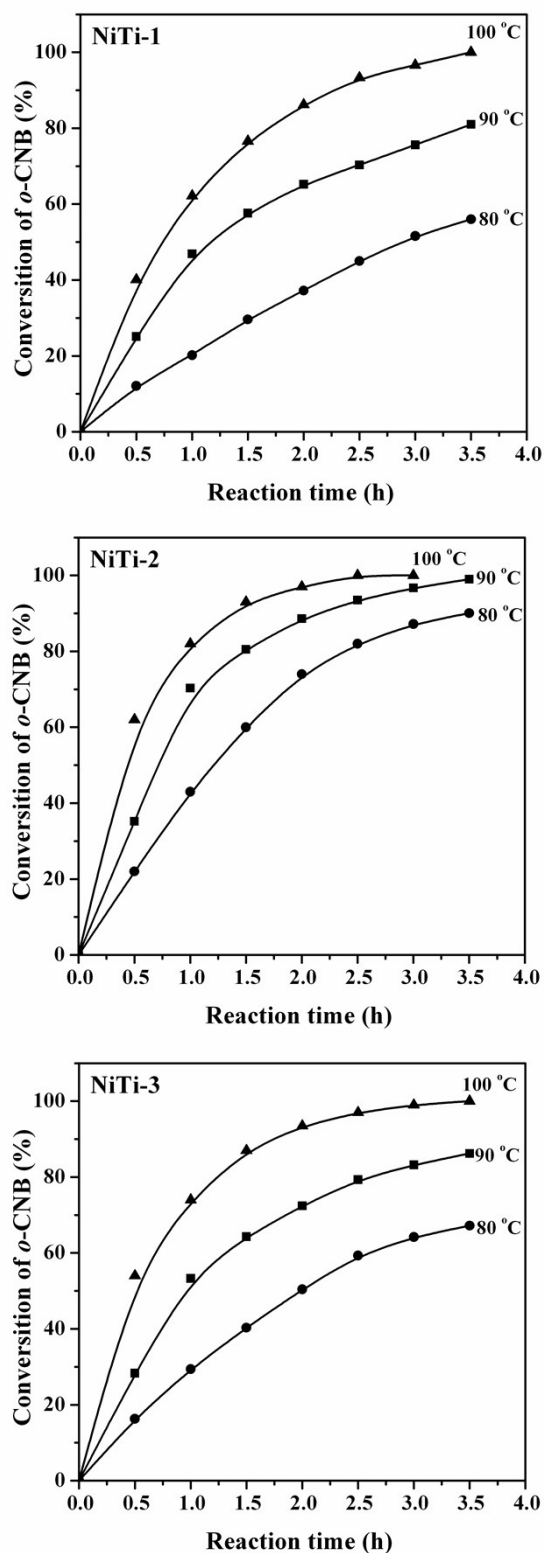
Fig. S1 Raman spectra of samples.



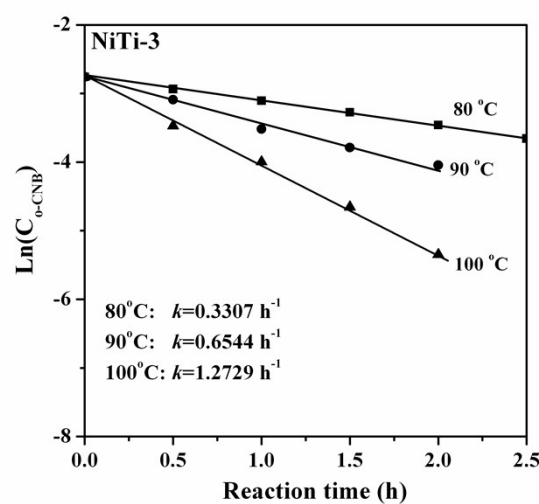
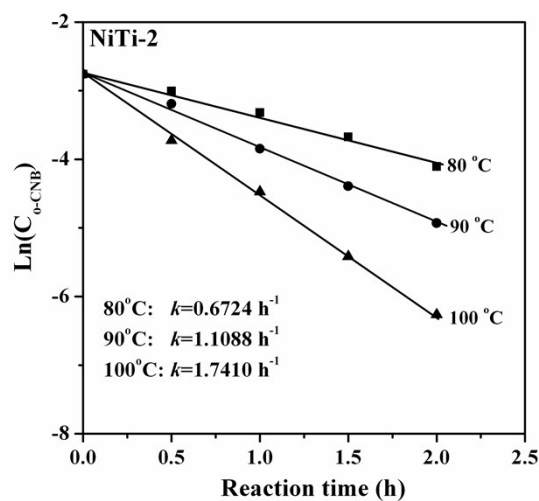
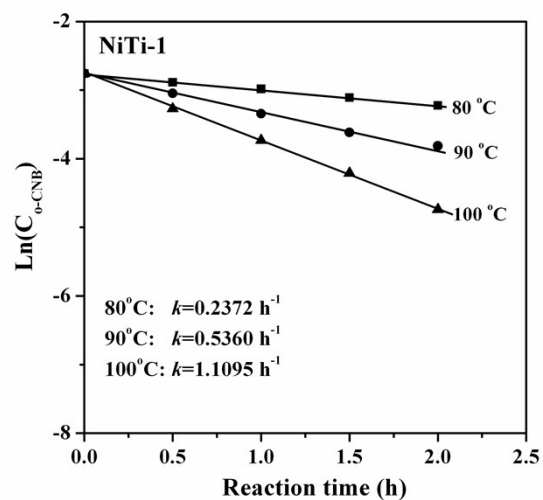
**Fig.S2** Main reaction pathways in the hydrogenation of *o*-CNB.



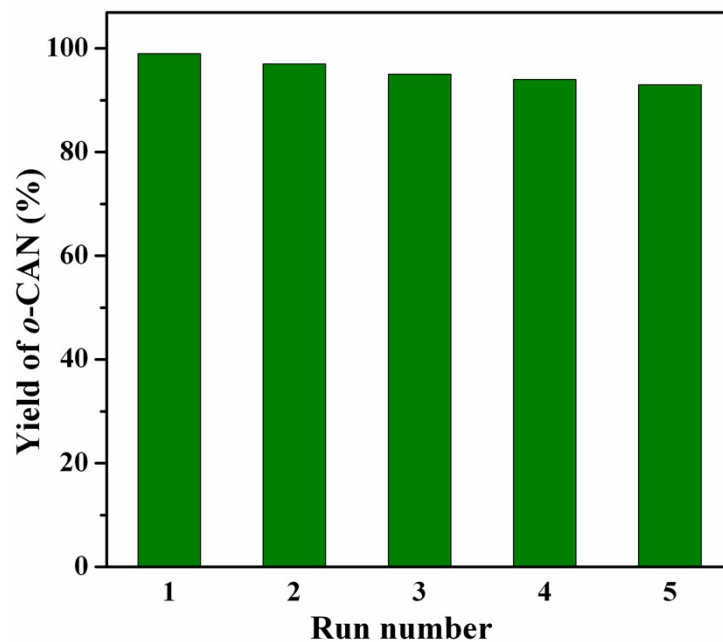
**Fig. S3** TEM images of NiAl-2 and Ni/TiO<sub>2</sub> comparison catalysts.



**Fig. S4** Time courses of *o*-CNB hydrogenation over different NiTi-*x* catalysts at 80 °C, 90 °C and 100 °C under a hydrogen pressure of 0.2 MPa.



**Fig. S5** Concentration-time curves for *o*-CNB hydrogenation over different NiTi-*x* catalysts at 80 °C, 90 °C and 100 °C under a hydrogen pressure of 0.2 MPa.



**Fig. S6** Recycling test of the NiTi-2 catalyst in hydrogenation of *o*-CNB. Reaction conditions: 3.17 mmol *o*-CNB; catalyst, 0.1 g; hydrogen partial pressure, 0.2 MPa; reaction temperature, 90 °C; reaction time, 210 min.