

Supporting Information

Synthesis of SiO₂ nanofibre confined Ni catalyst by electrospinning for CO₂ reforming of methane

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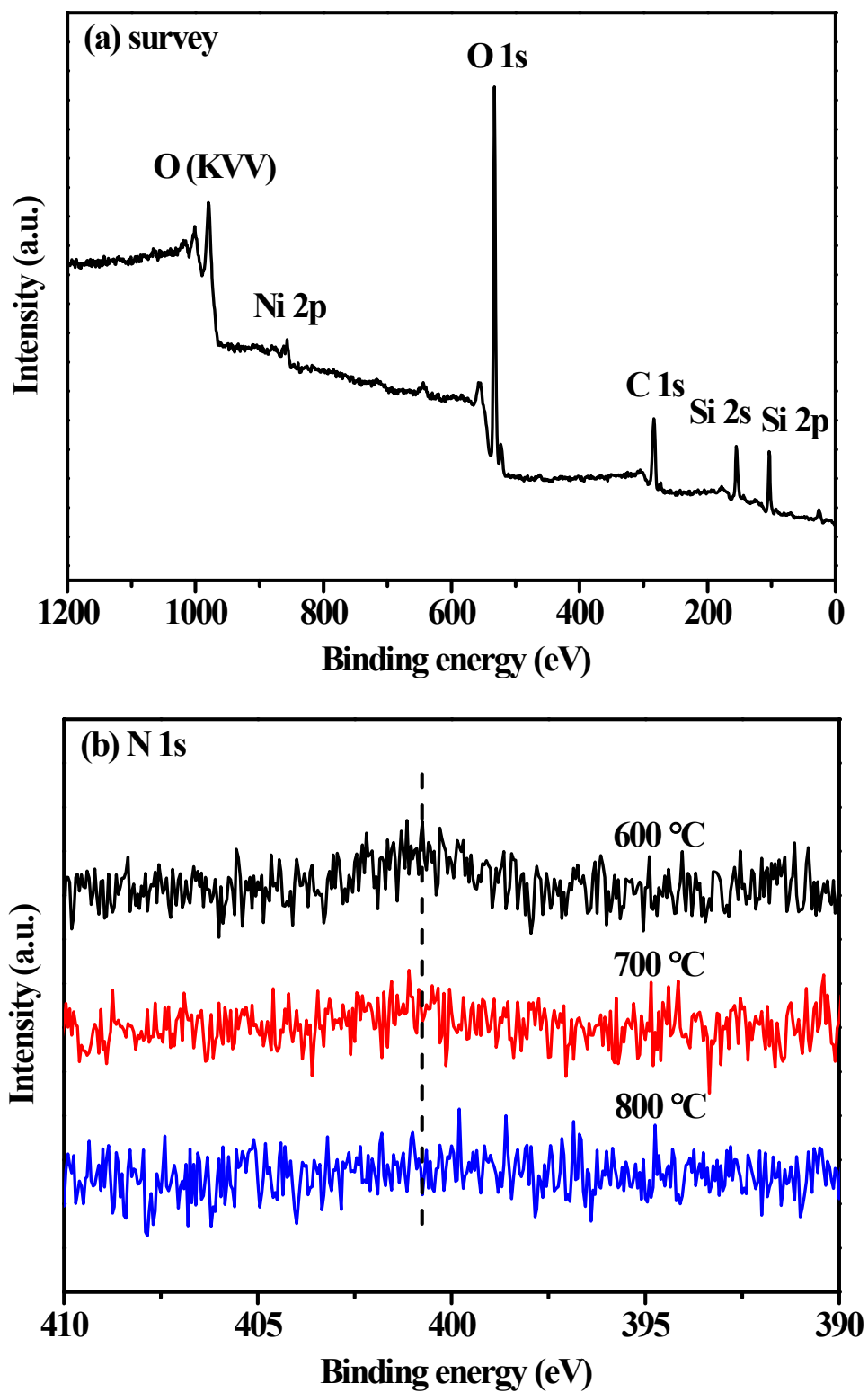


Fig. S1 XPS spectra of the calcined Ni/SiO₂-F catalysts: (a) survey scan for catalyst calcined at 600 °C; (b) high resolution scan of N 1s for catalyst calcined at indicated temperatures.

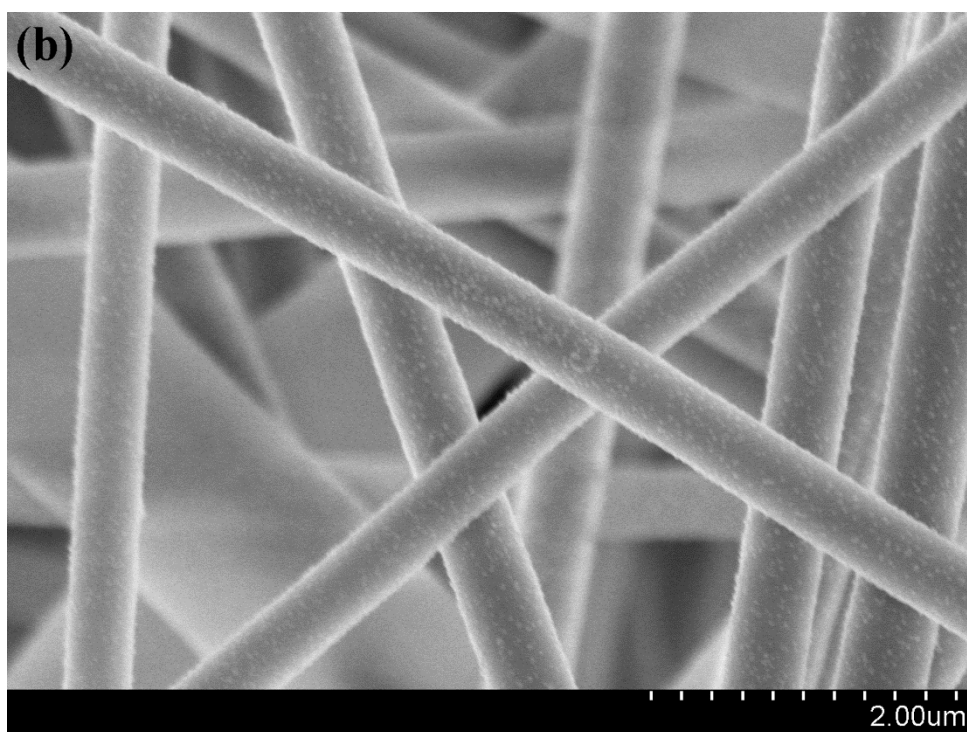
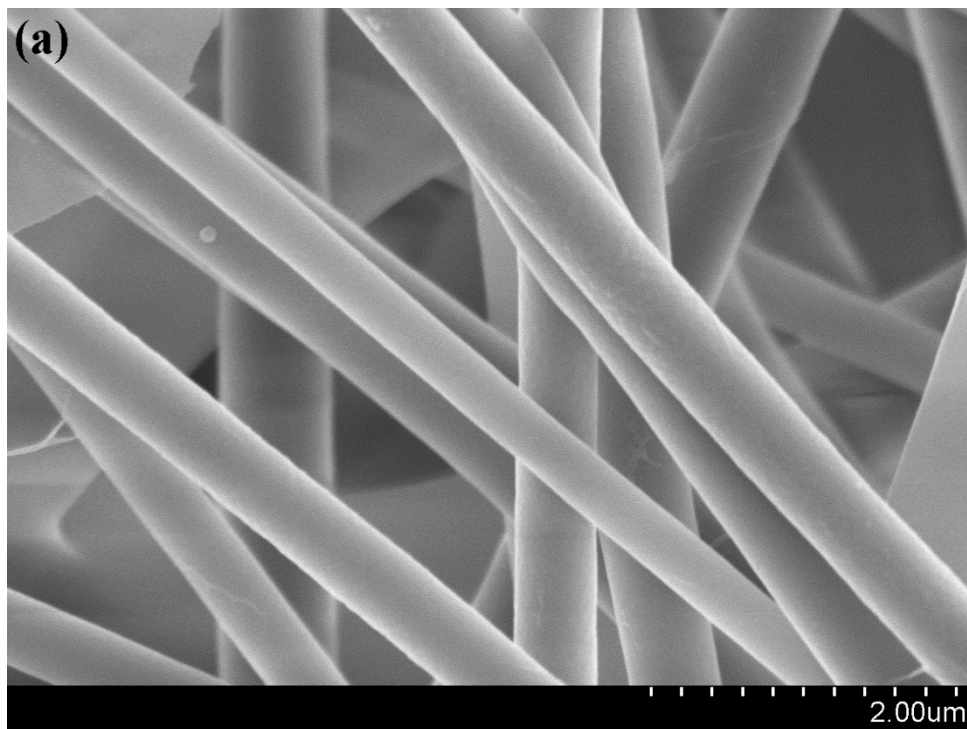


Fig. S2 SEM images of the Ni/SiO₂-F catalyst before (a) and after (b) calcination at 800 °C.

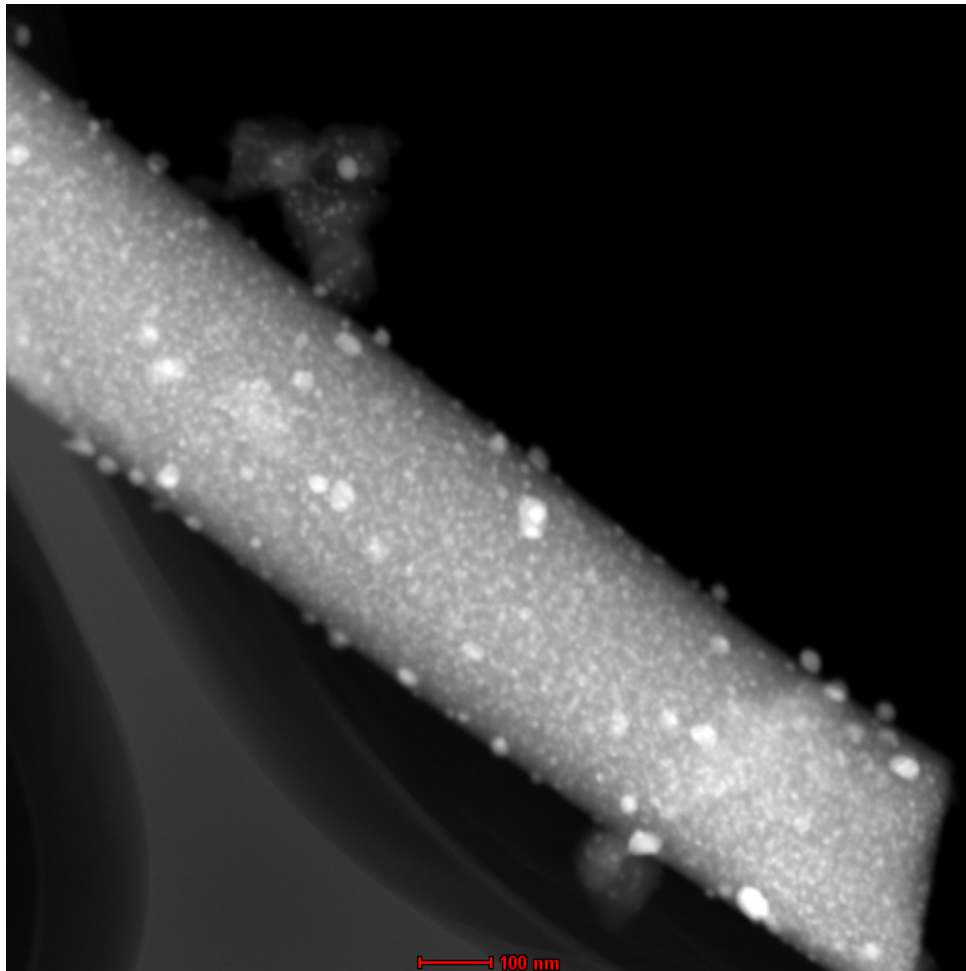


Fig. S3 STEM image of the fresh Ni/SiO₂-F catalyst. The white dots corresponded to Ni nanoparticles.

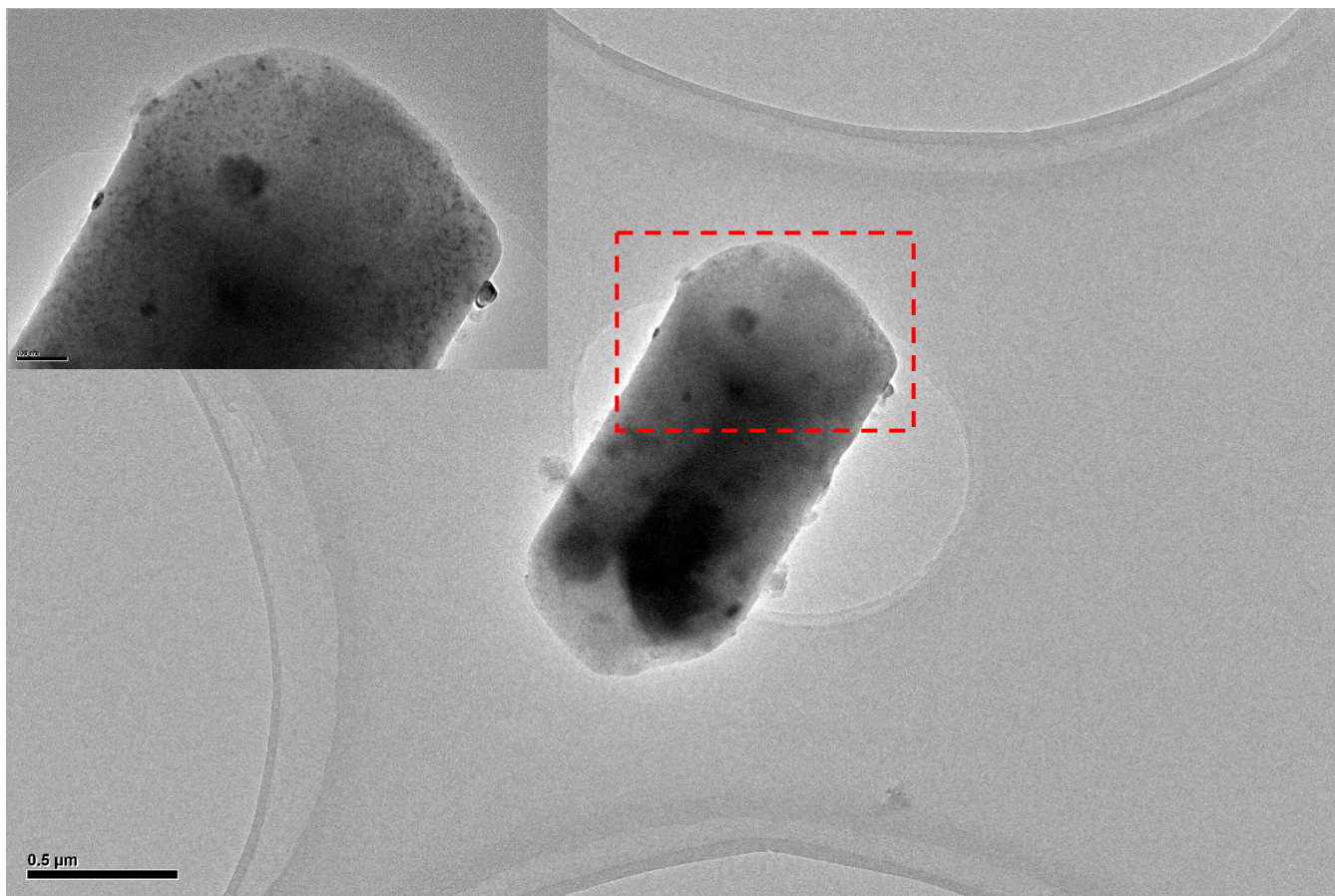


Fig. S4 HR-TEM image of the cross-section of the fresh Ni/SiO₂-F catalyst. Scale bar of the inset HR-TEM image is 100 nm.

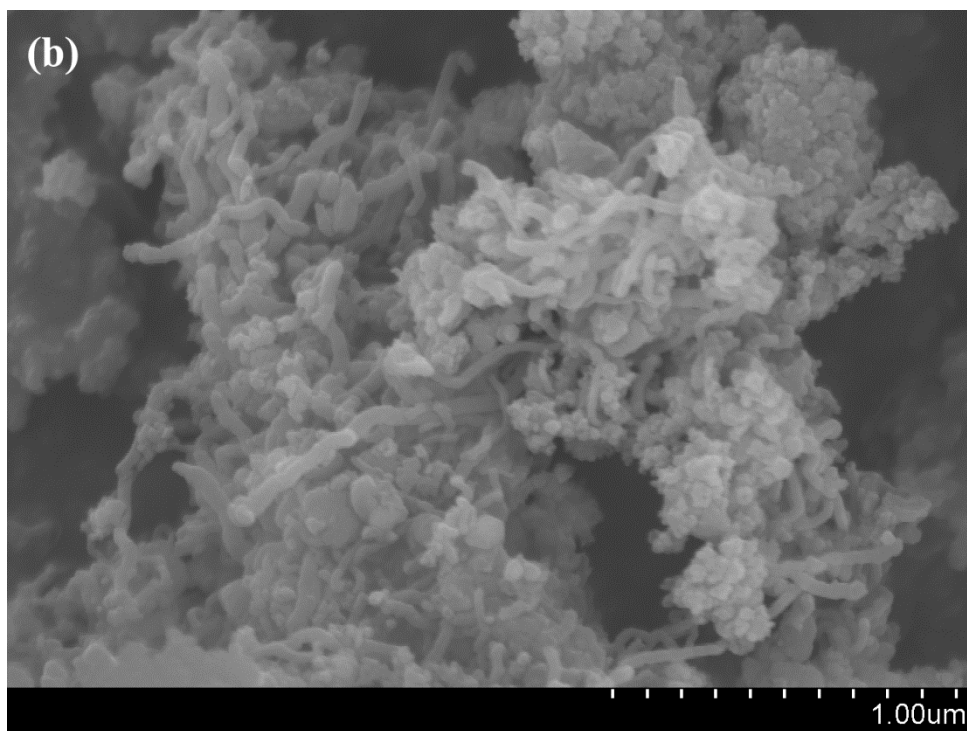
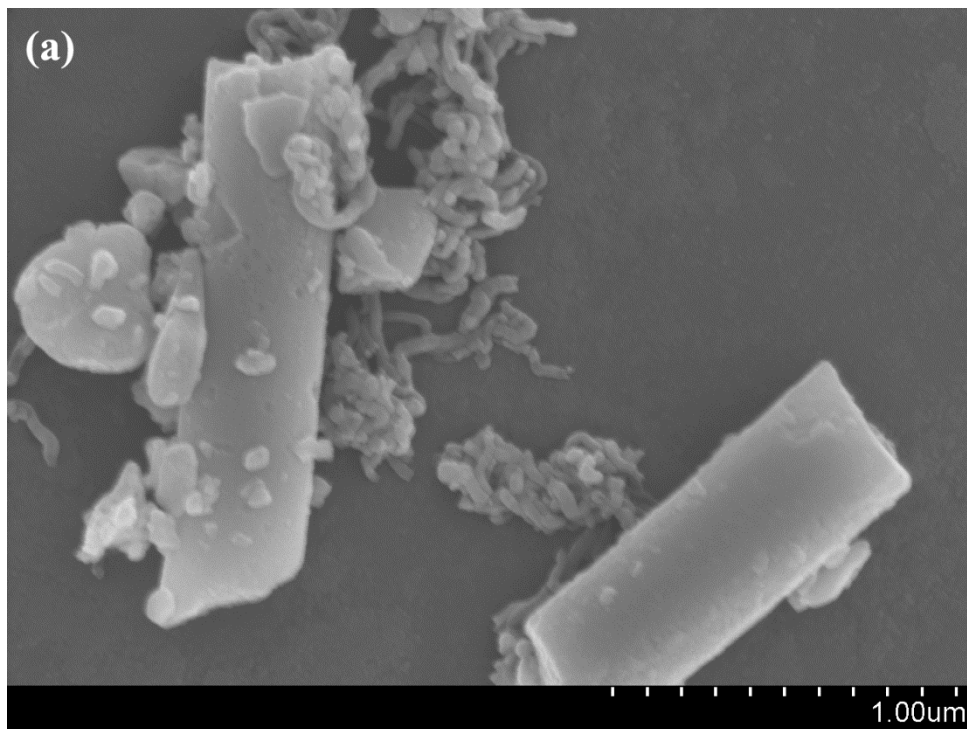


Fig. S5 SEM images of the spent Ni/SiO₂-F (a) and Ni/SiO₂-C (b) catalysts after reaction of 360 min.

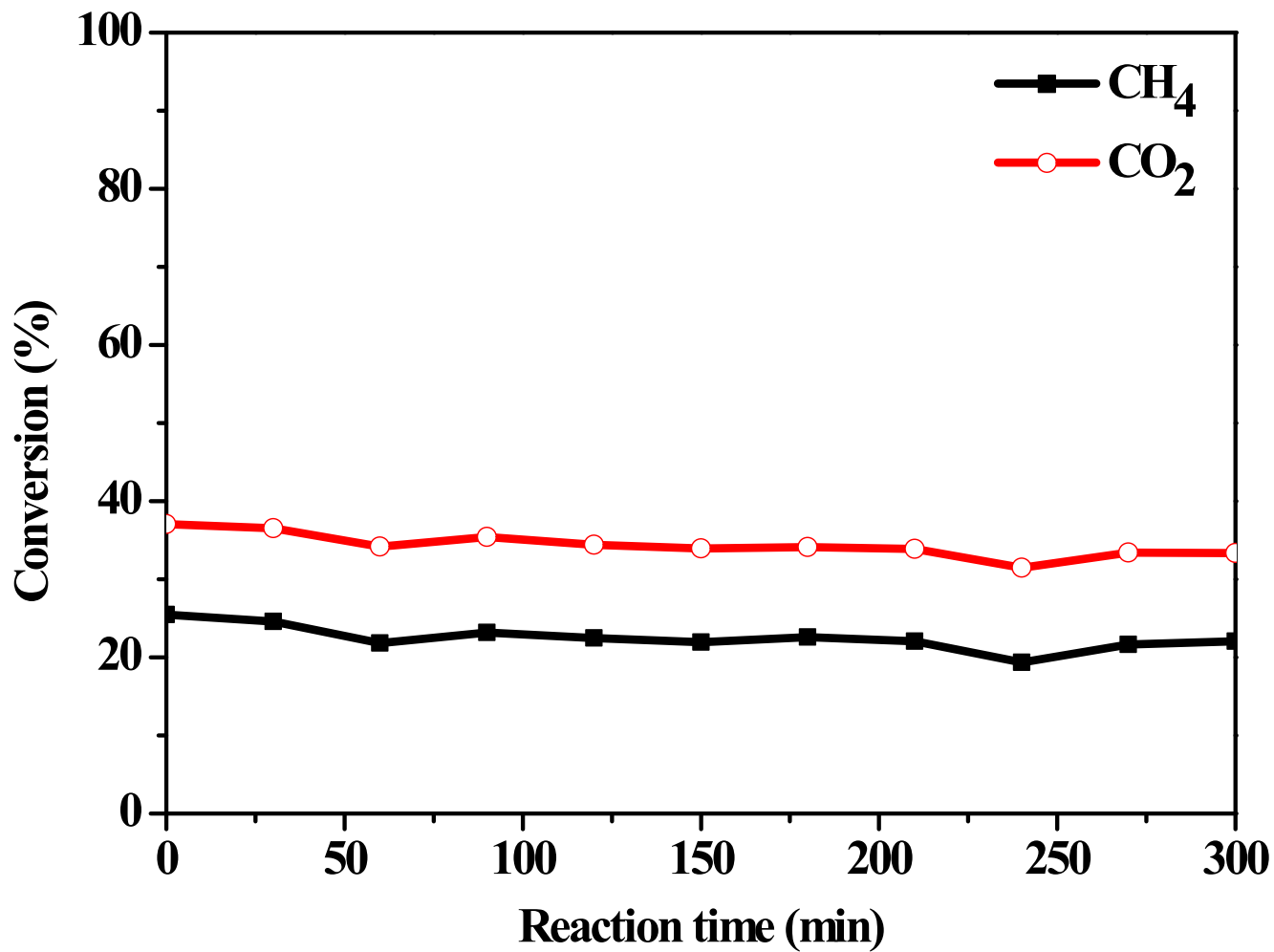


Fig. S6 Catalytic performances of the Ni/SiO₂-FI catalyst. Reaction conditions: P= 1 atm; T=700 °C; the nickel amount=10 wt%; CH₄:CO₂:Ar=1:1:2; GHSV=48 000 ml (h gcat)⁻¹.

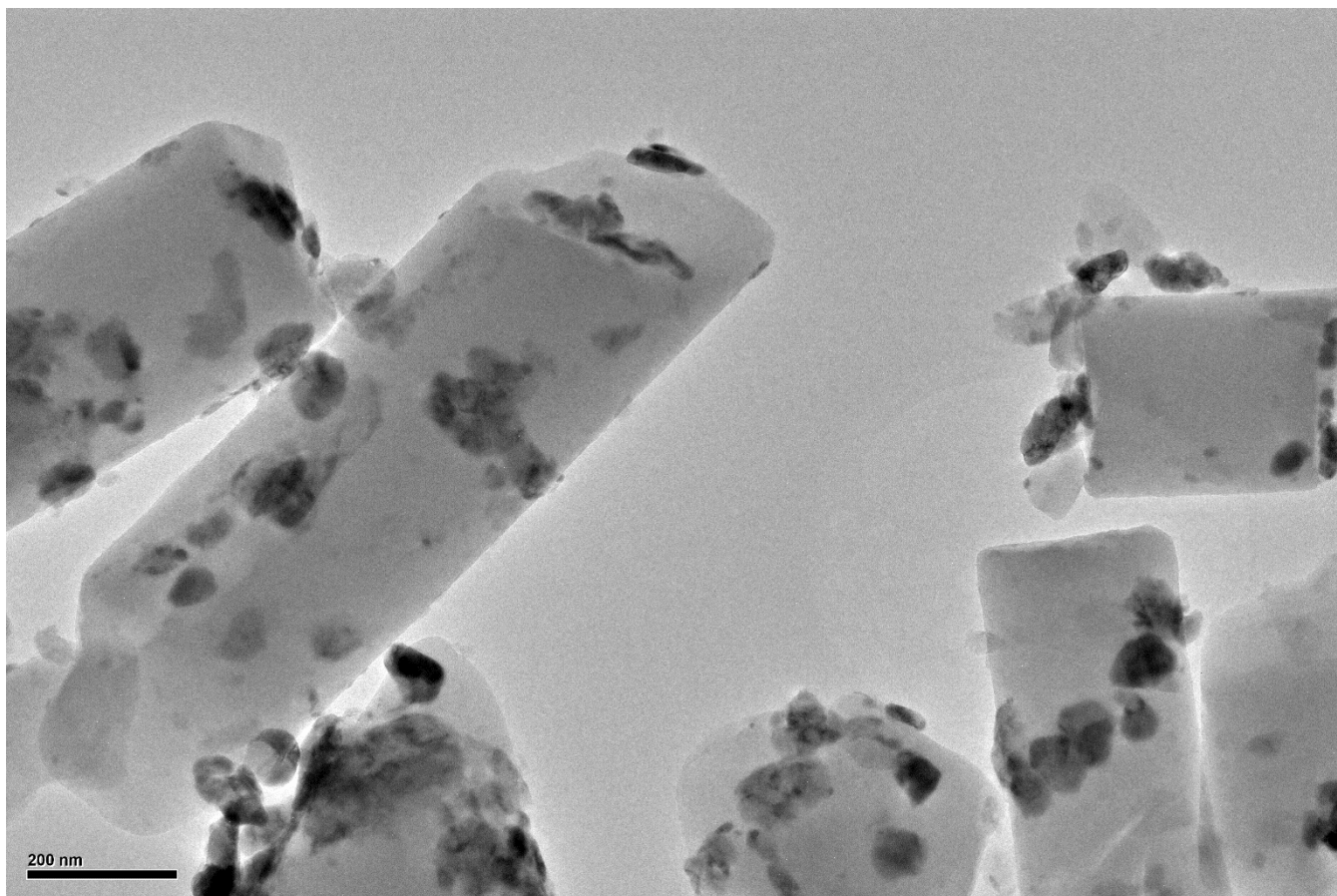


Fig. S7 HR-TEM image of the fresh Ni/SiO₂-FI catalyst.

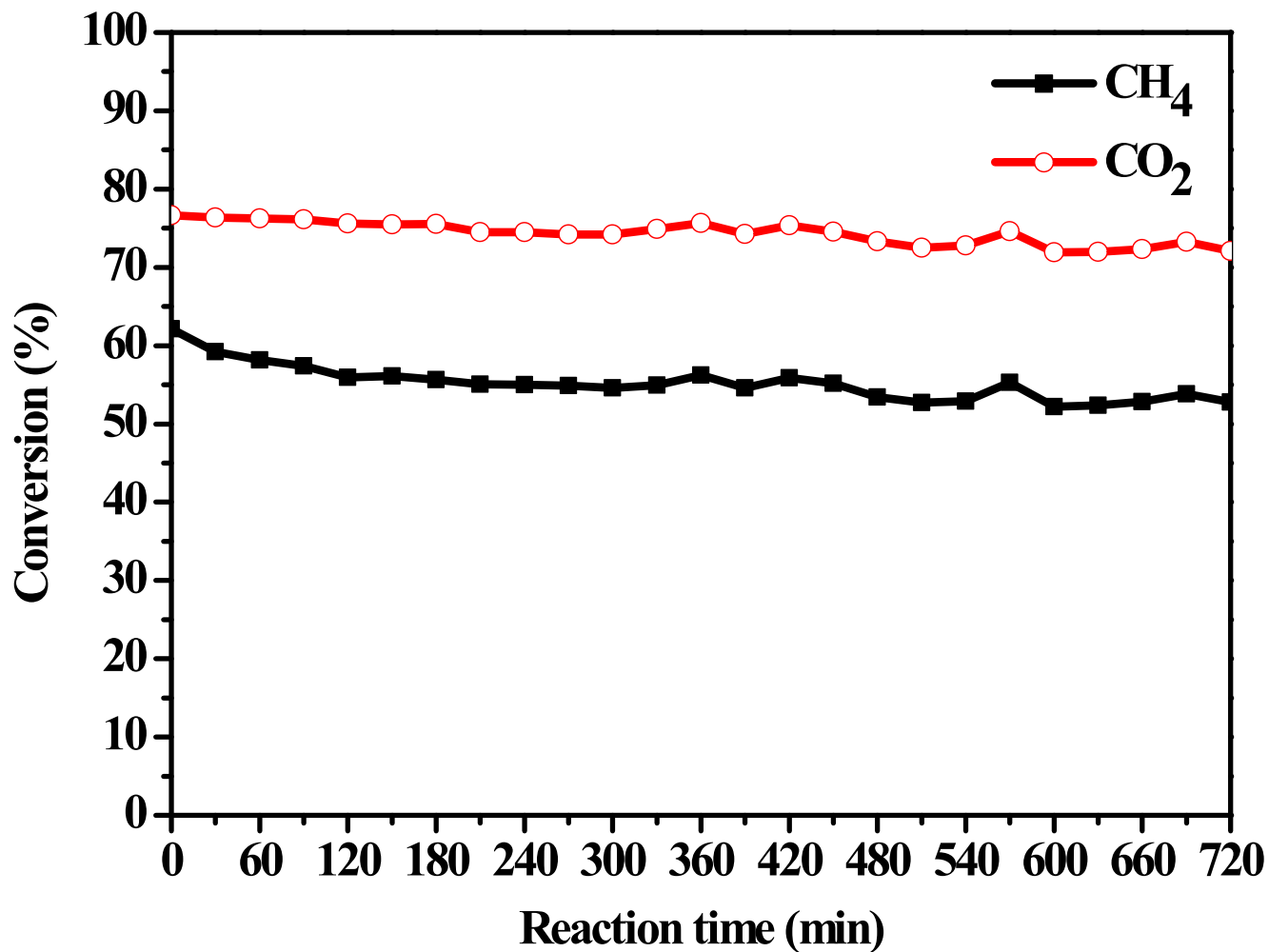


Fig. S8 Catalytic performances of the Ni/SiO₂-F catalyst with a prolonged reaction time. Reaction conditions: P= 1 atm; T=700 °C; the nickel amount=10 wt%; CH₄:CO₂:Ar=1:1:2; GHSV=48 000 ml (h gcat)⁻¹.