Supporting Information

Synthesis of SiO$_2$ nanofibre confined Ni catalyst by electrospinning for CO$_2$ reforming of methane

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Fig. S1 XPS spectra of the calcined Ni/SiO$_2$-F catalysts: (a) survey scan for catalyst calcined at 600 ºC; (b) high resolution scan of N 1s for catalyst calcined at indicated temperatures.
Fig. S2 SEM images of the Ni/SiO$_2$-F catalyst before (a) and after (b) calcination at 800 ºC.
Fig. S3 STEM image of the fresh Ni/SiO$_2$-F catalyst. The white dots corresponded to Ni nanoparticles.
Fig. S4 HR-TEM image of the cross-section of the fresh Ni/SiO$_2$-F catalyst. Scale bar of the inset HR-TEM image is 100 nm.
Fig. S5 SEM images of the spent Ni/SiO$_2$-F (a) and Ni/SiO$_2$-C (b) catalysts after reaction of 360 min.
Fig. S6 Catalytic performances of the Ni/SiO$_2$-FI catalyst. Reaction conditions: P= 1 atm; T=700 °C; the nickel amount=10 wt%; CH$_4$:CO$_2$:Ar=1:1:2; GHSV=48 000 ml (h gcat)$^{-1}$. 
Fig. S7 HR-TEM image of the fresh Ni/SiO$_2$-FI catalyst.
Fig. S8 Catalytic performances of the Ni/SiO$_2$-F catalyst with a prolonged reaction time. Reaction conditions: $P= 1$ atm; $T=700$ °C; the nickel amount=10 wt%; CH$_4$:CO$_2$:Ar=1:1:2; GHSV=48 000 ml (h gcat)$^{-1}$. 