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Insight to composition evolution in the synthesis of high-performance Cu/SiO_2 catalysts for CO_2 hydrogenation

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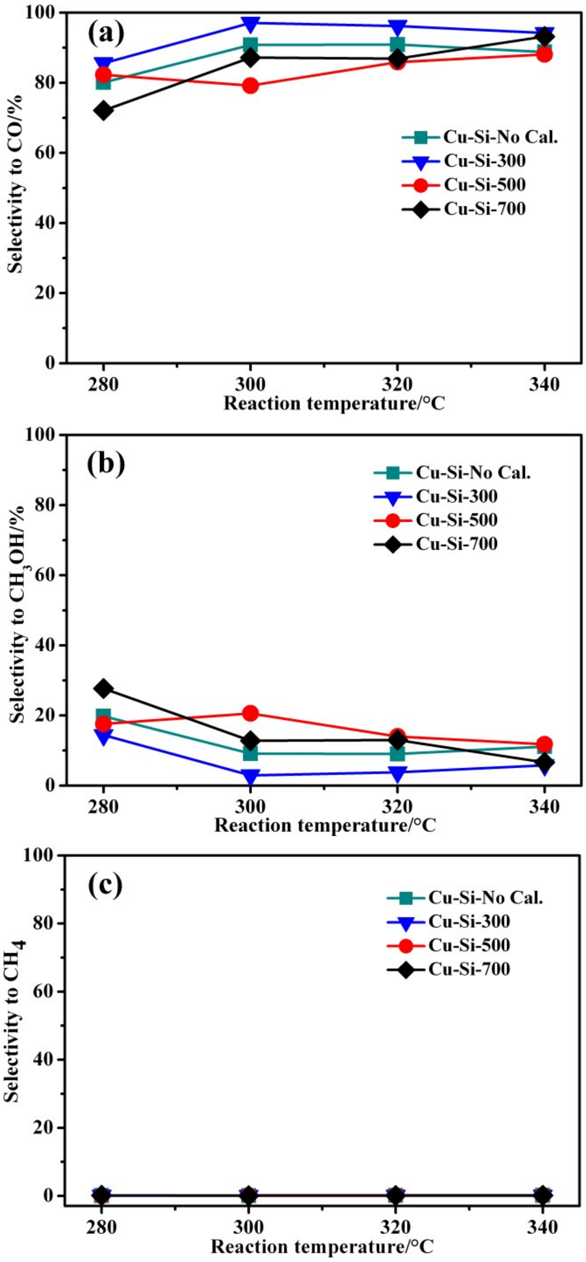

Fig. S1 Selectivities to (a) CO, (b) CH_3OH and (c) CH_4 over the reduced Cu/SiO_2 catalysts with different reaction temperature at 3.0 MPa and 16 $L\cdot g_{cat}^{-1}\cdot h^{-1}$.

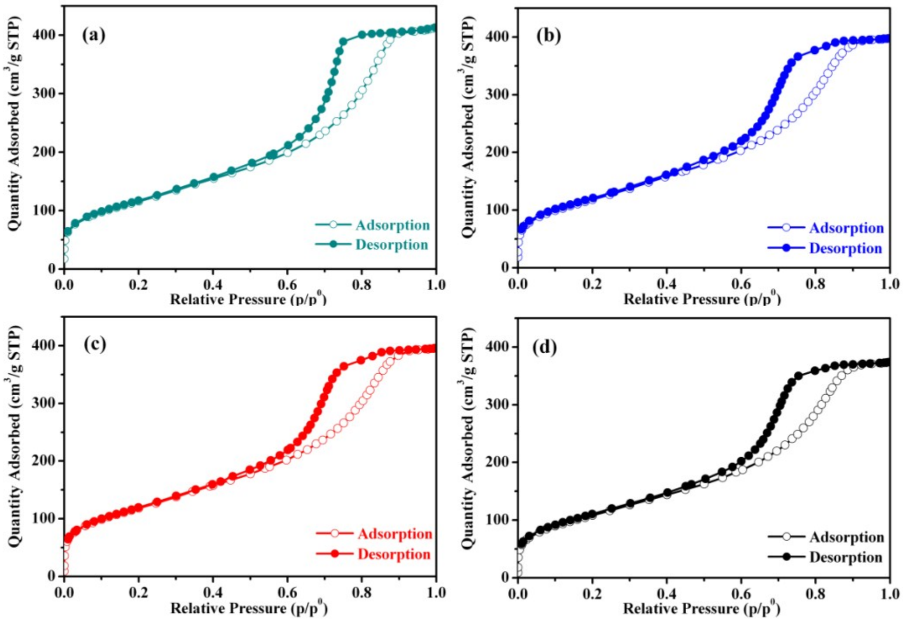

Fig. S2 N_2 adsorption-desorption isotherms of the reduced Cu/SiO_2 catalysts: (a) Cu-Si-No Cal., (b) Cu-Si-300, (c) Cu-Si-500 and (d) Cu-Si-700.

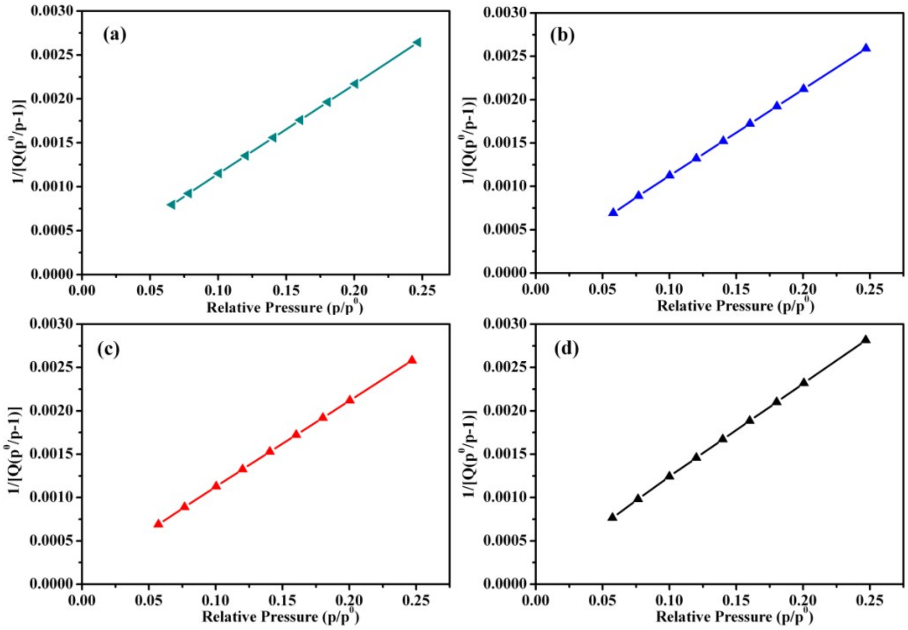

Fig. S3 BET surface area plots of the reduced Cu/SiO_2 catalysts: (a) Cu-Si-No Cal., (b) Cu-Si-300, (c) Cu-Si-500 and (d) Cu-Si-700.

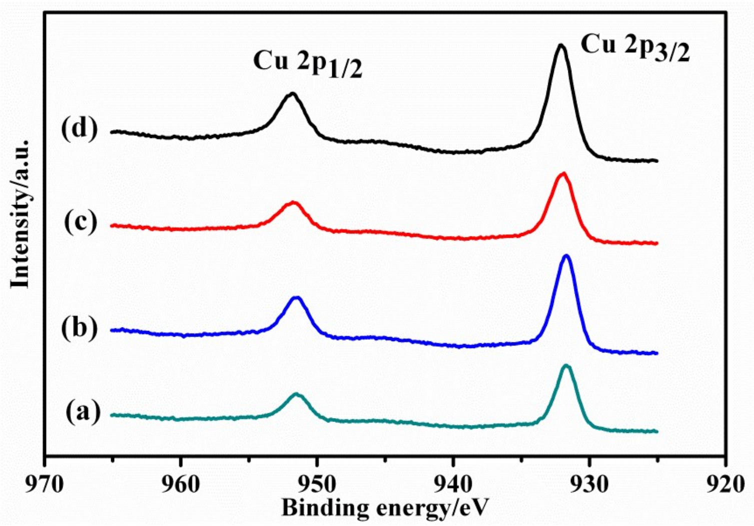

Fig. S4 Quasi-in-situ Cu 2p XPS spectra of the reduced Cu/SiO_2 catalysts: (a) Cu-Si-No Cal., (b) Cu-Si-300, (c) Cu-Si-500, (d) Cu-Si-700.

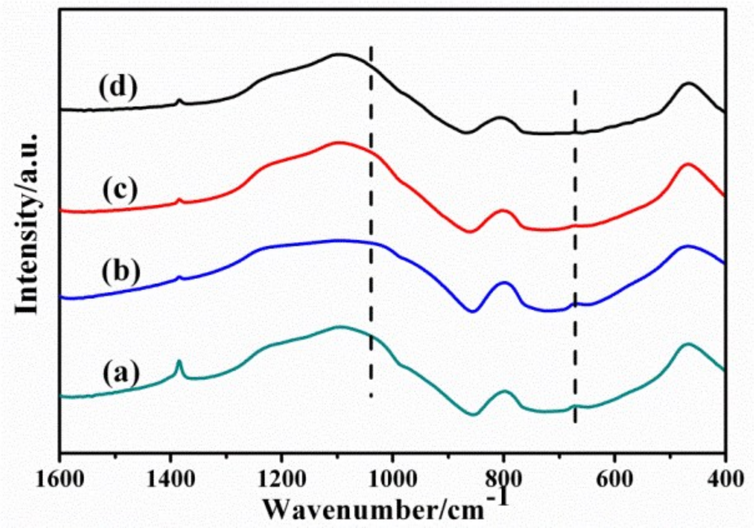

Fig. S5 FT-IR spectra of the calcined Cu-Si-O-T precursors: (a) Cu-Si-O-No Cal., (b) Cu-Si-O-300, (c) Cu-Si-O-500, (d) Cu-Si-O-700.

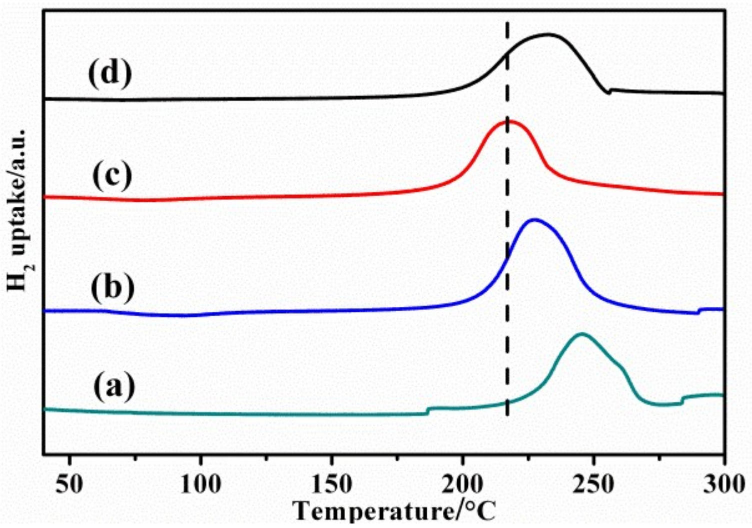

Fig. S6 H_2-TPR profiles of the calcined Cu-Si-O-T precursors: (a) Cu-Si-O-No Cal., (b) Cu-Si-O-300, (c) Cu-Si-O-500, (d) Cu-Si-O-700.