Electronic Supplementary Information

Shape effect of TiO_2 in VO_x/TiO_2 catalysts for selective reduction of NO by NH_3

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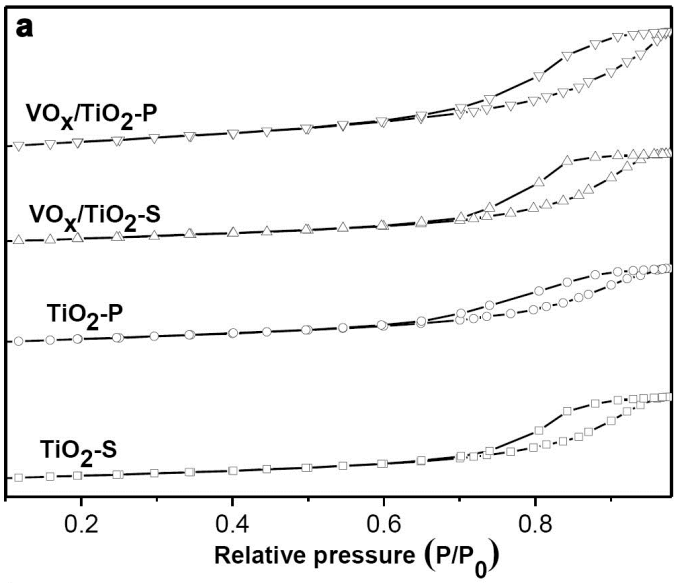

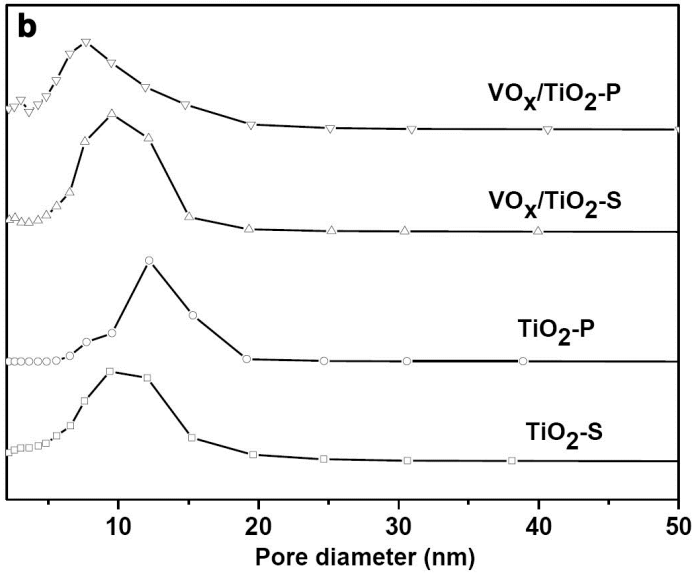

c

Sample	Surface area (m^2 g^{-1})	Pore volume (cm^{-3} g^{-1})	Pore diameter (nm)
TiO_2-S	87.4	0.223	9.6
TiO_2-P	95.6	0.218	12.2
VO_x/TiO_2-S	70.8	0.205	9.4
VO_x/TiO_2-P	78.7	0.190	7.7

Fig. S1 (a) Nitrogen adsorption–desorption isotherms, (b) pore size distributions, and (c) summary of physical properties of TiO_2 nanoparticles and VO_x/TiO_2 catalysts.

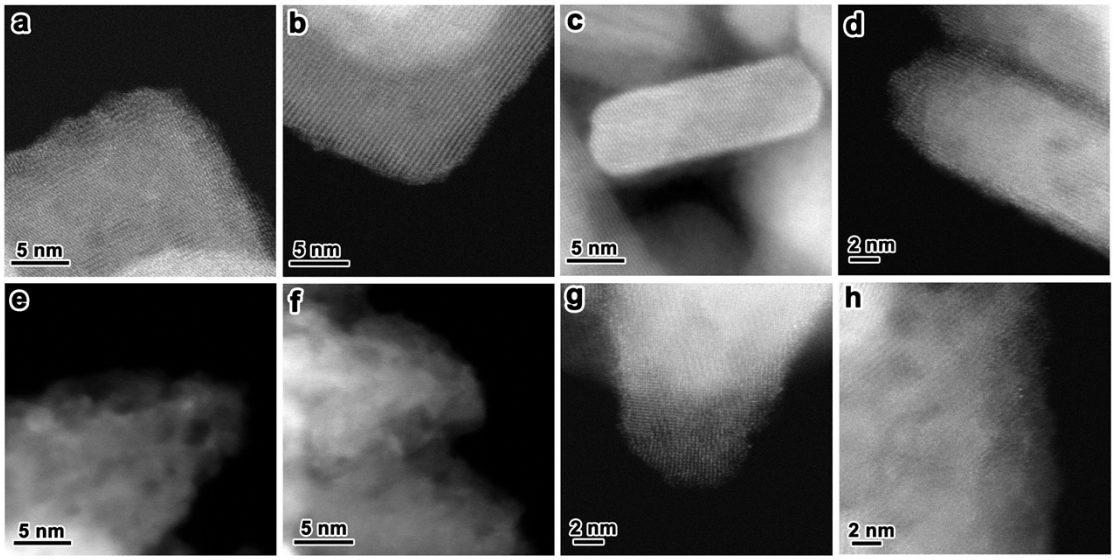

Fig. S2 HAADF-STEM images of VO_x/TiO_2-S (a-d) and VO_x/TiO_2-P (e-h) catalysts.

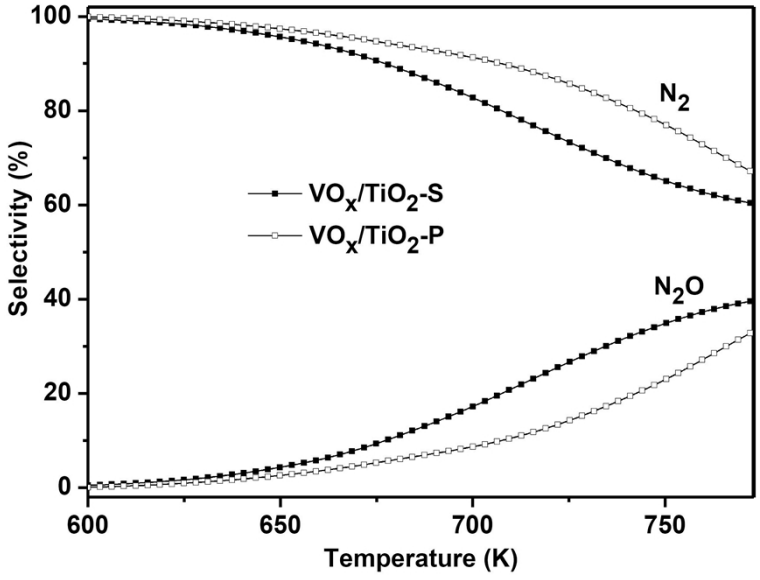

Fig. S3 N_2 and N_2O selectivities as a function of temperature on VO_x/TiO_2 catalysts. Reaction conditions: 1000 ppm NH_3/1000 ppm NO/3 vol.% O_2 /He, 3,6000 ml g^{-1} h^{-1}.

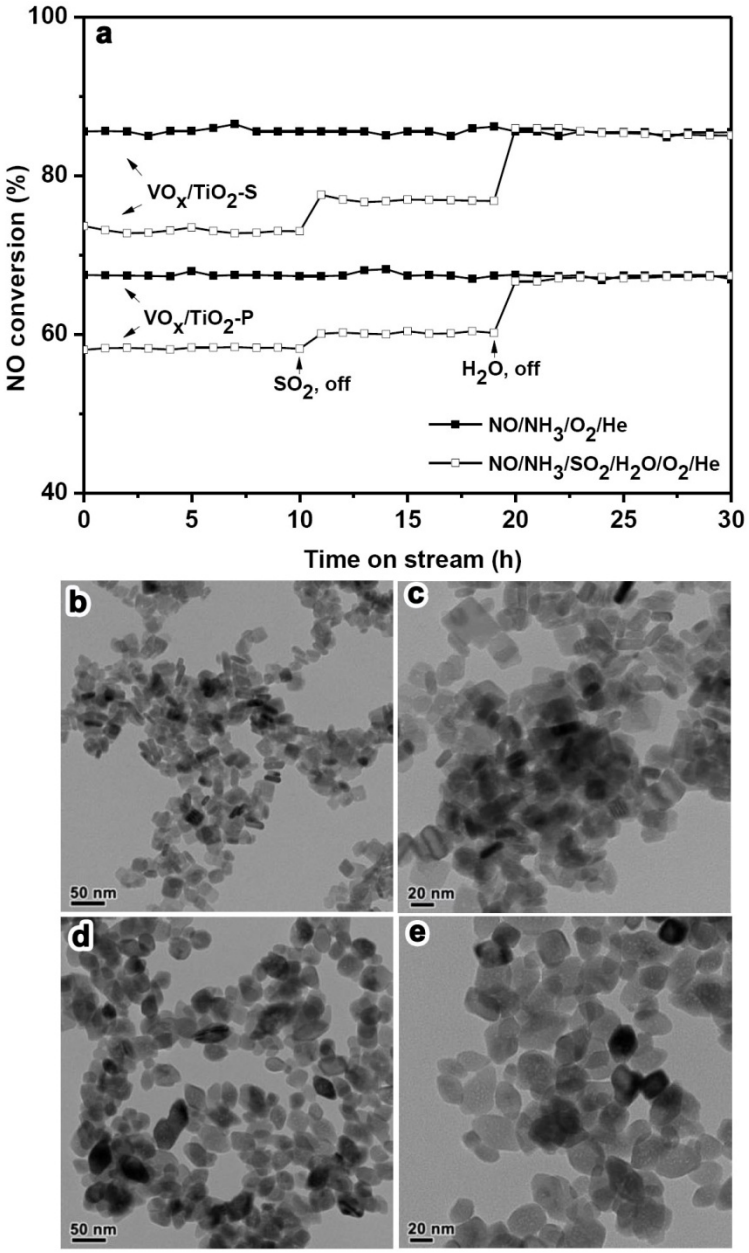

Fig. S4 (a) Stability tests of VO_x/TiO_2 catalysts for NH_3-SCR; (b-e) TEM images of the spent VO_x/TiO_2-S (b, c) and VO_x/TiO_2-P (d, e) catalysts. Reaction conditions: 1000 ppm NH_3/1000 ppm NO/3 vol.% O_2/10 vol.% H_2O/100 ppm SO_2/He, 3,6000 ml g^{-1} h^{-1}, 503 K.

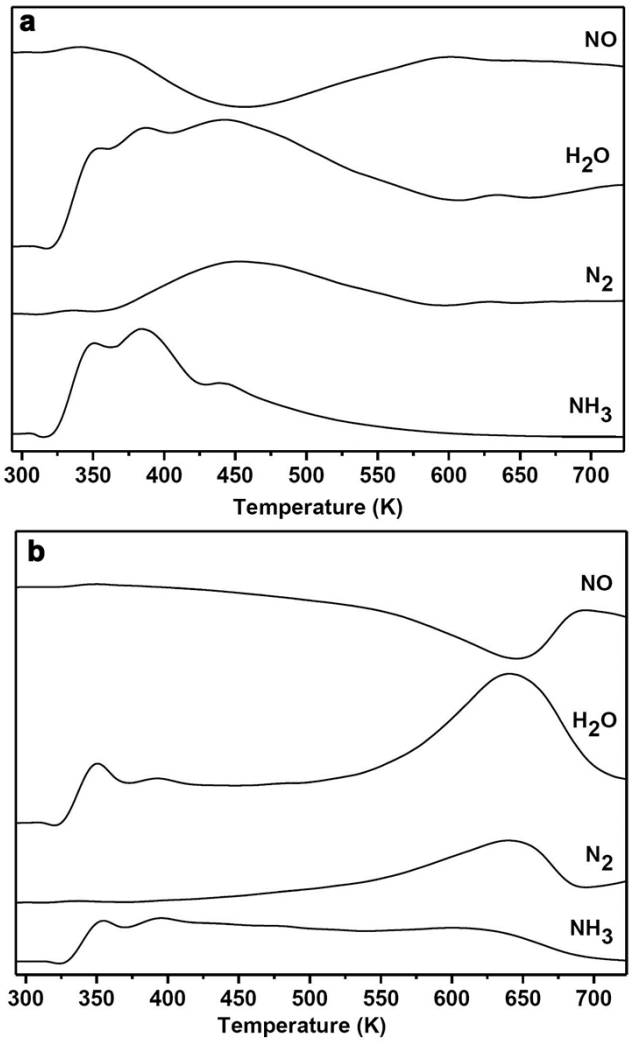

Fig. S5 TPSR of pre-adsorbed NH_3 with NO/He over (a) VO_x/TiO_2-S and (b) VO_x/TiO_2-P catalysts.