Supplementary Information for

Improvement of NOx uptake/release over Pd/Beta by propylene: shielding effect of intermediates on adsorbed NOx species

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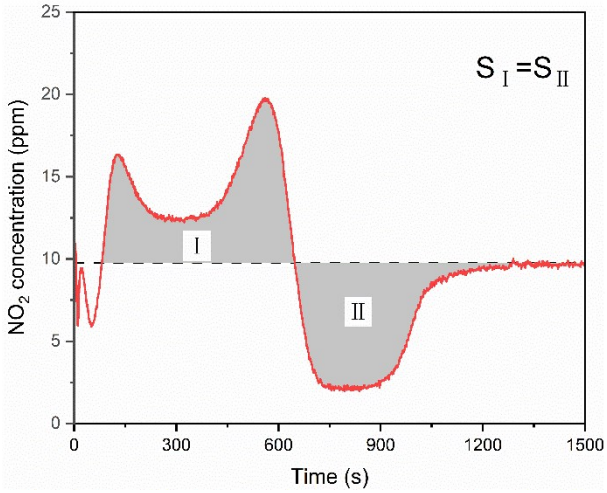

Fig. S1 NO_2 concentration curves of Pd/Beta during adsorption and the initial stage of desorption for a feed of 200 ppm NOx, 5% H_2O, 10% O_2 and balance N_2.

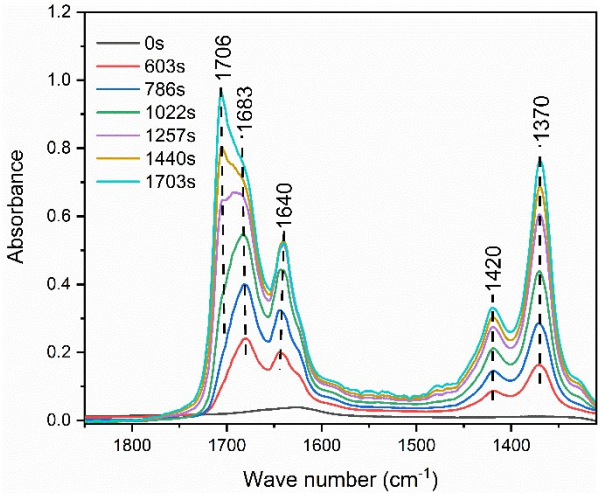

Fig. S2 In-situ FTIR spectra of Pd/Beta in a feed 400 ppm acetone and balance N_2.

To verify the peak assignments, we conducted an in-situ FTIR experiment under a flow of acetone and N_2, and the result was shown in Fig. S2. Two overlapping bands at 1683 cm^{-1} and 1706 cm^{-1} are assigned to C=O stretching mode of acetone molecules adsorbed on Pd species and silanol groups, respectively. There is no peak at 1706 cm^{-1} in Fig. 5b due to the shielding effect of water on silanol. In addition, the peak at 1623 cm^{-1} in Fig. 5b overlapped with the band at 1640 cm^{-1}.

Table S1 The comparison of the experimental and calculated frequency of C=O in Pd-NC_3H_6O and acetone

	Experimental frequency of C=O	Calculated frequency of C=O
C=O in Pd-NC_3H_6O	1746 cm^{-1}	1593 cm^{-1}
C=O in acetone	1692 cm^{-1}	1554 cm^{-1}
Difference	54 cm^{-1}	39 cm^{-1}