

Supplementary Material for

**Mechanism study of the hydrocarbon resistance of selective catalytic reduction
catalysts supported on different zeolites**

Table of contents

Fig. S1 DRIFTS spectra of (a) Cu-Mn/ZSM-5 and (b) Cu-Mn/SAPO-34 exposed to 2000 ppm of $C_3H_6 + 14\% O_2$ and purged by He for 30 min at 200 °C

Fig. S2 DRIFTS spectra of (a) Cu-Mn/ZSM-5 and (b) Cu-Mn/SAPO-34 exposed to 2000 ppm of $C_3H_6 + 14\% O_2$ as the background and followed by exposure to 300 ppm of $NH_3 + 14\% O_2$ for various times at 200 °C

Fig. S3 DRIFTS spectra of (a) Cu-Mn/ZSM-5 and (b) Cu-Mn/SAPO-34 successively exposed to 2000 ppm of $C_3H_6 + 14\% O_2$ as the background, and then to 300 ppm of $NO + 14\% O_2$ before He purging, followed by exposure to 300 ppm of $NH_3 + 14\% O_2$ for various times at 200 °C

Fig. S4 DRIFTS spectra of (a) Cu-Mn/ZSM-5 and (b) Cu-Mn/SAPO-34 successively exposed to 2000 ppm of $C_3H_6 + 14\% O_2$ as the background, and then to 300 ppm of $NH_3 + 14\% O_2$ before He purging, followed by exposure to 300 ppm of $NO + 14\% O_2$ for various times at 200 °C

Fig. S5 Reaction intermediates variation of (a) Cu-Mn/ZSM-5 and (b) Cu-Mn/SAPO-4
(Reaction conditions: 200 °C, 2000 of ppm $C_3H_6 + 14\% O_2 \rightarrow 300$ ppm of $NO + 14\% O_2 \rightarrow 300$ ppm of $NH_3 + 14\% O_2$)

Fig. S6 Reaction intermediates variation of (a) Cu-Mn/ZSM-5 and (b) Cu-Mn/SAPO-4
(Reaction conditions: 200 °C, 2000 ppm of $C_3H_6 + 14\% O_2 \rightarrow 300$ ppm of $NH_3 + 14\% O_2 \rightarrow 300$ ppm of $NO + 14\% O_2$)

Table S1 Physical properties of Cu-Mn/SAPO-34

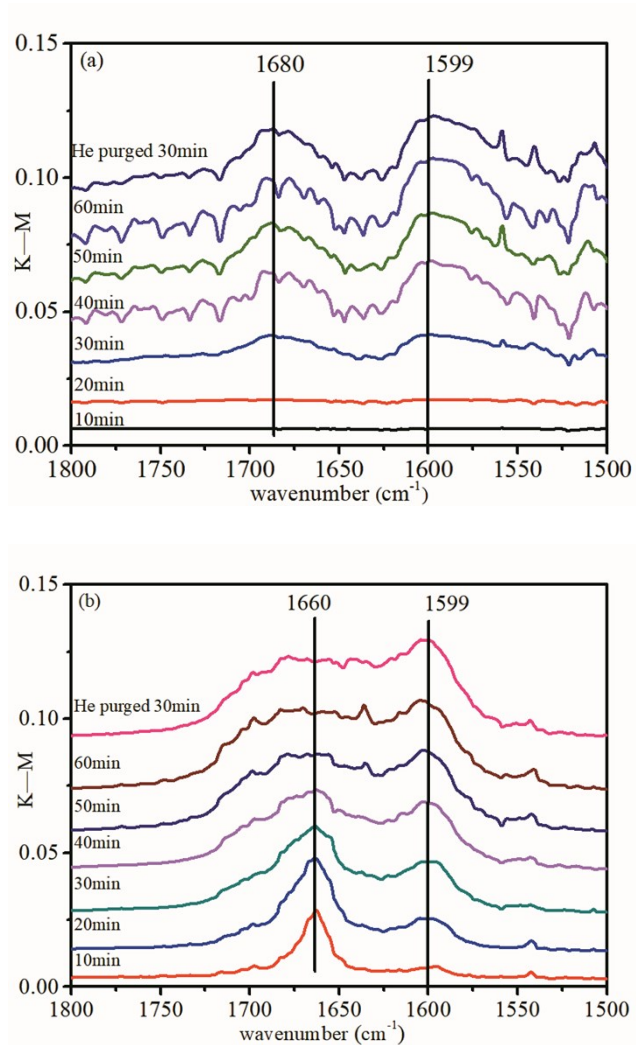


Fig. S1 DRIFTS spectra of (a) Cu-Mn/ZSM-5 and (b) Cu-Mn/SAPO-34 exposed to 2000 ppm of C₃H₆+14% O₂ and purged by He for 30 min at 200 °C

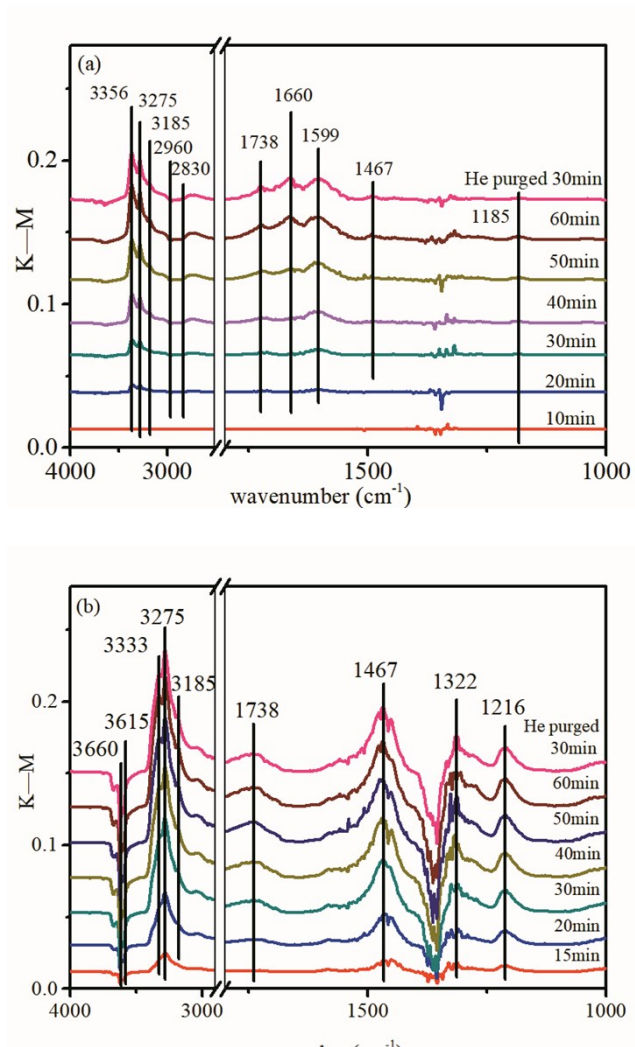


Fig. S2 DRIFTS spectra of (a) Cu-Mn/ZSM-5 and (b) Cu-Mn/SAPO-34 exposed to 2000 ppm of C₃H₆ + 14% O₂ as the background and followed by exposure to 300 ppm of NH₃ + 14% O₂ for various times at 200 °C

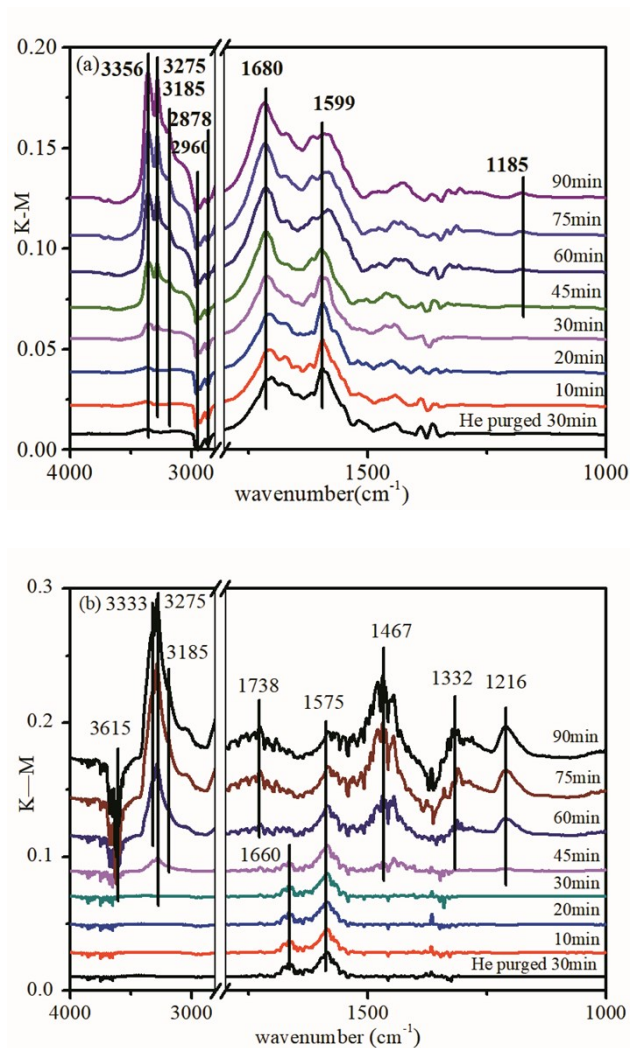


Fig. S3 DRIFTS spectra of (a) Cu-Mn/ZSM-5 and (b) Cu-Mn/SAPO-34 successively exposed to 2000 ppm of C₃H₆ + 14% O₂ as the background, and then to 300 ppm of NO + 14% O₂ before He purging, followed by exposure to 300 ppm of NH₃ + 14% O₂ for various times at 200 °C

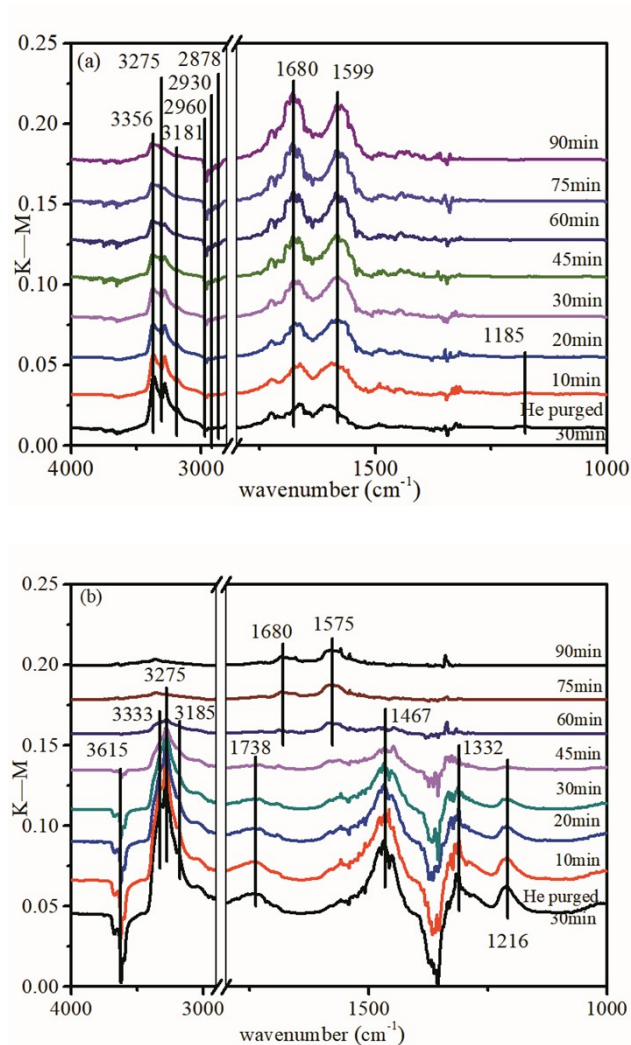


Fig. S4 DRIFTS spectra of (a) Cu-Mn/ZSM-5 and (b) Cu-Mn/SAPO-34 successively exposed to 2000 ppm of C₃H₆ + 14% O₂ as the background, and then to 300 ppm NH₃ + 14% O₂ before He purging, followed by exposure to 300 ppm of NO + 14% O₂ for various times at 200 °C

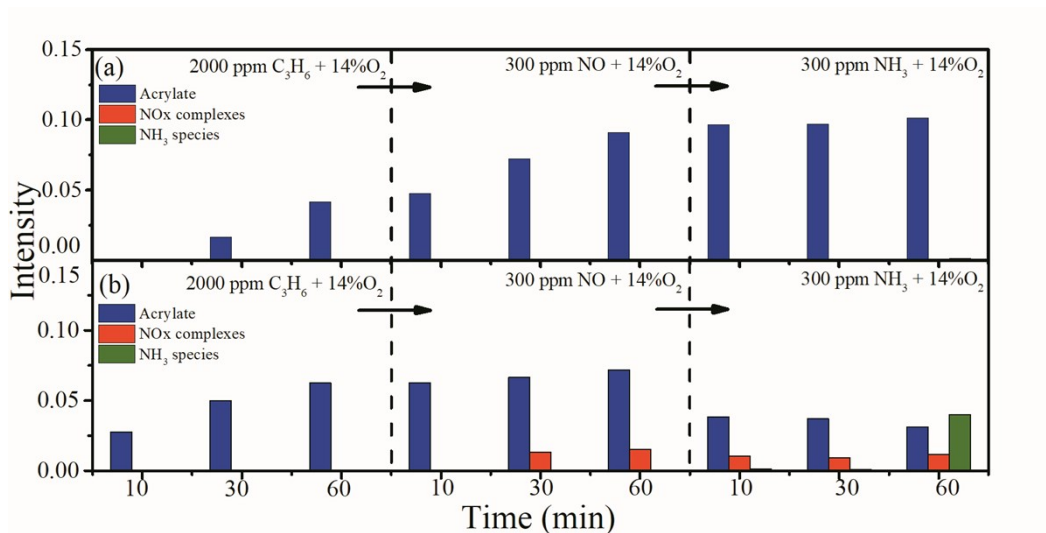


Fig. S5 Reaction intermediates variation of (a) Cu-Mn/ZSM-5 and (b) Cu-Mn/SAPO-4 (Reaction conditions: 200 °C, 2000 ppm of C₃H₆ + 14% O₂ → 300 ppm of NO + 14% O₂ → 300 ppm of NH₃ + 14% O₂)

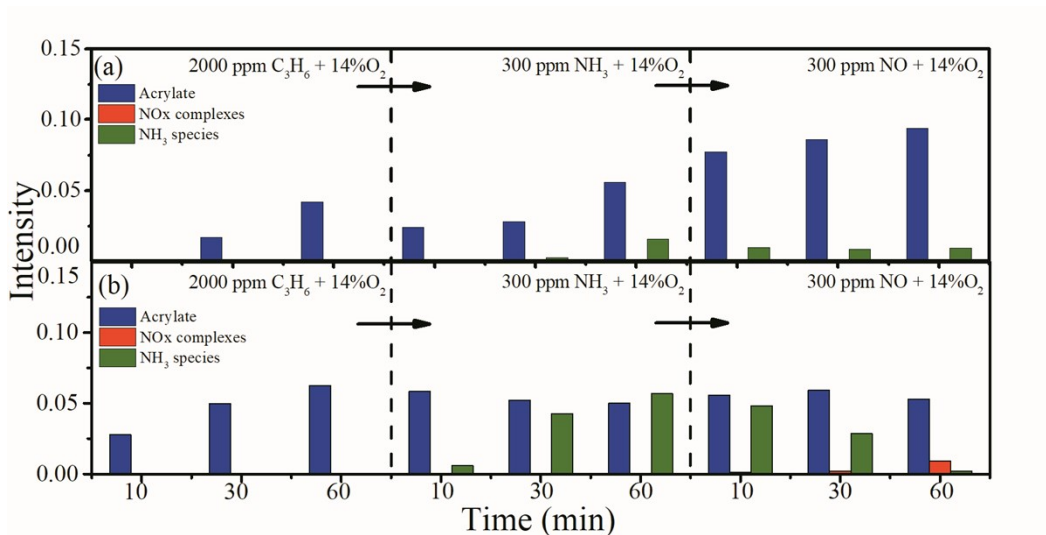


Fig. S6 Reaction intermediates variation of (a) Cu-Mn/ZSM-5 and (b) Cu-Mn/SAPO-4 (Reaction conditions: 200 °C, 2000 of ppm C₃H₆ + 14% O₂ → 300 ppm of NH₃ + 14% O₂ → 300 ppm of NO + 14% O₂)

Table S1 Physical properties of Cu-Mn/SAPO-34

Catalyst	S_{BET} (m^2/g)	Pore volume (cm^3/g)	Average pore diameter (\AA)
Cu-Mn/SAPO-34	388	0.14	4.0