Electronic supplementary information (ESI)

Understanding the Mechanism of Low Temperature Deactivation of Cu/SAPO-34 Exposed to Various Amount of Water Vapor in NH_3-SCR reaction

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Supplementary figures

Figure S1. NO-DRIFTS spectra of a) 10W-Cu/SAPO-34(MO), b) 10W-Cu/SAPO-34(TEA), c) 10W-Cu/SAPO-34(TEAOH) d) 55W-Cu/SAPO-34(MO), e) 55W-Cu/SAPO-34(TEA), f) 55W-Cu/SAPO-34(TEAOH).

Figure S2. H_2-profiles of 10W and 55W-Cu/SAPO-34(MO, TEA, TEAOH).

Figure S3. NOx conversion as a function of temperature over Cu/SAPO-34(MO, TEA, TEAOH); reaction conditions: 400 ppm NH_3, 400 ppm NO, 8% O_2, 5% H_2O; GHSV ~24264 h^{-1}.

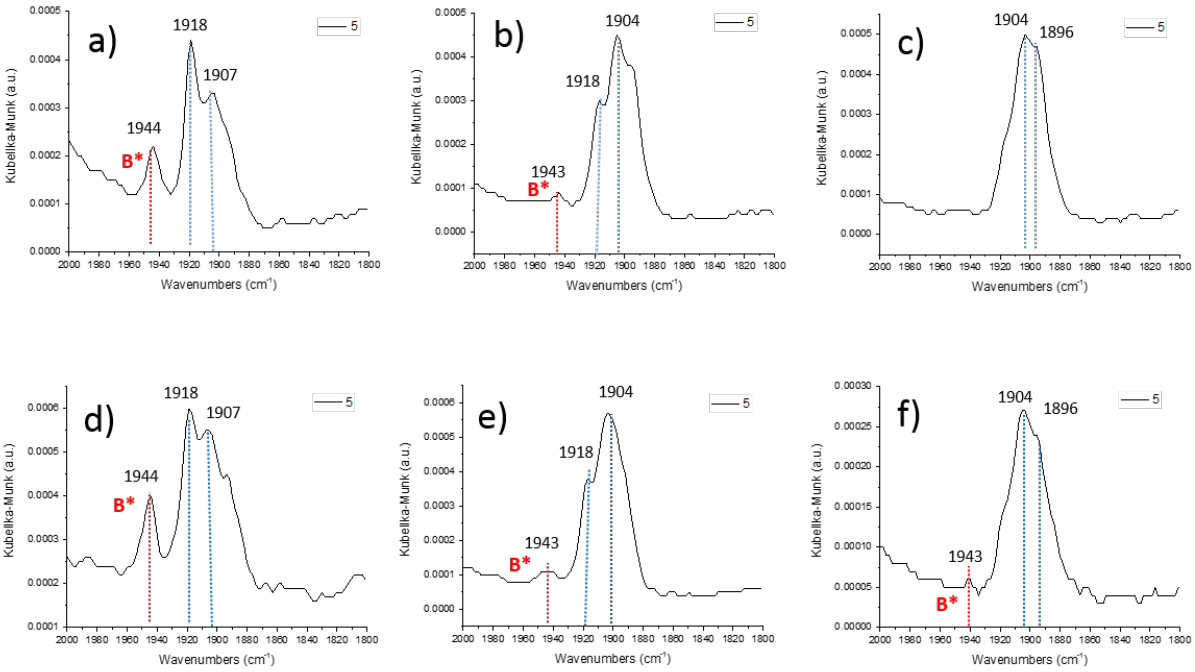

Figure S1. NO-DRIFTS spectra of a) 10W-Cu/SAPO-34(MO), b) 10W-Cu/SAPO-34(TEA), c) 10W-Cu/SAPO-34(TEAOH) d) 55W-Cu/SAPO-34(MO), e) 55W-Cu/SAPO-34(TEA), f) 55W-Cu/SAPO-34(TEAOH).

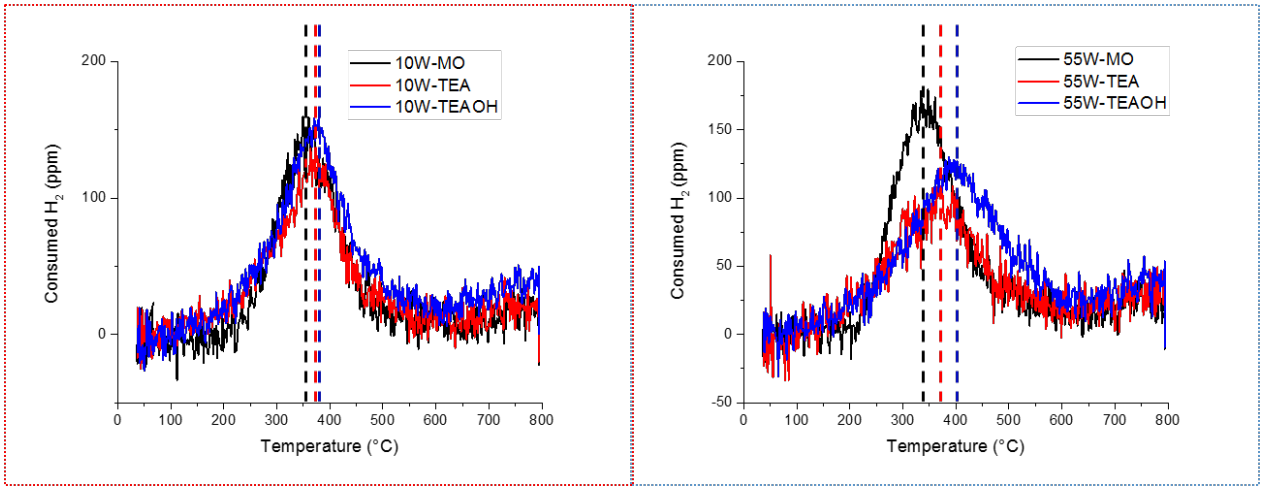

Figure S2. H_2-TPR profiles of 10W and 55W-Cu/SAPO-34(MO, TEA, TEAOH).

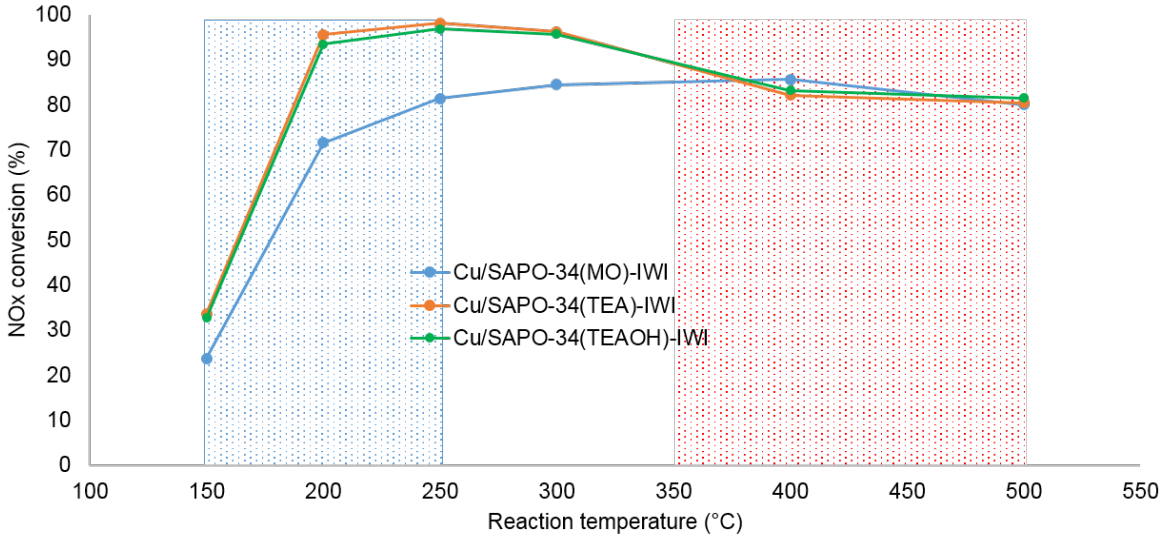

Figure S3. NO_x conversion as a function of temperature over Cu/SAPO-34(MO, TEA, TEAOH); reaction conditions: 400 ppm NH_3, 400 ppm NO, 8% O_2, 5% H_2O; GHSV ~24264 h^{-1}.

Supplementary tables

Table S1. BET and micropore surface area, pore volume, and average pore diameter of F-, 10W-, 55W-Cu/SAPO-34(MO, TEA, TEAOH).

Table S2. Chemical composition of F, 10W, 55W-Cu/SAPO-34(MO, TEA, TEAOH) determined by ICP-SFMS.

Table S1. BET and micropore surface area, pore volume, and average pore diameter of F, 10W, 55W-Cu/SAPO-34(MO, TEA, TEAOH)

Catalyst	S_{BET} (m^2/g)	Pore volume (cm^3/g)	Average pore diameter (Å)
F-Cu/SAPO-34(MO)	577	0.28	19.1
10W-Cu/SAPO-34(MO)	401	0.21	21
55W-Cu/SAPO-34(MO)	602	0.31	20.3
F-Cu/SAPO-34(TEA)	598	0.29	19.4
10W-Cu/SAPO-34(TEA)	457	0.25	22
55W-Cu/SAPO-34(TEA)	562	0.29	20.7
F-Cu/SAPO-34(TEAOH)	592	0.36	24.6
10W-Cu/SAPO-34(TEAOH)	438	0.29	26.2
55W-Cu/SAPO-34(TEAOH)	617	0.4	25.8

Table S2. Chemical composition of F, 10W, 55W-Cu/SAPO-34(MO, TEA, TEAOH) determined by ICP-SFMS. Note that 10W and 55W samples are crushed monoliths that contain significant amount of cordierite.

Catalyst	Cu(wt.%)	Si(wt.%)	Al(wt.%)	P(wt.%)
F-Cu/SAPO-34(MO)	1.90	5.6	21.7	15.8
F-Cu/SAPO-34(TEA)	1.91	4.2	19.4	16.3
F-Cu/SAPO-34(TEAOH)	1.85	5.4	19.8	16.2
10W-Cu/SAPO-34(MO)	0.30	18.5	17.6	2.4
10W-Cu/SAPO-34(TEA)	0.30	16.7	17.1	2.7
10W-Cu/SAPO-34(TEAOH)	0.30	18.1	18.3	2.7
55W-Cu/SAPO-34(MO)	0.30	18.2	18.5	2.4
55W-Cu/SAPO-34(TEA)	0.32	16.7	17.7	3.1
55W-Cu/SAPO-34(TEAOH)	0.30	15.5	15.9	2.4