

Supplementary materials

Desorption kinetics of water on hydrophobic core-shell iron-based Fischer-Tropsch synthesis catalysts

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Table S1. E_d and A of H_2O on Fe_2O_3 catalyst at various coverages.

Peak	θ	Slope	$E_d/KJ \cdot mol^{-1}$	Intercep	A/s^{-1}
Low-temperature	0.9958	-2673.05	22.22	2.96	19.29
	0.9885	-2799.89	23.28	3.67	39.15
	0.9786	-2940.73	24.45	4.22	68.36
	0.9718	-3018.93	25.10	4.70	109.95
High-temperature	0.0901	-4786.28	39.79	4.94	139.77
	0.0876	-4979.51	41.40	5.30	200.34
	0.0838	-5319.76	44.23	5.93	376.15
	0.0790	-5805.28	48.27	6.82	915.99

Table S2. E_d and A of H_2O on $Fe_2O_3@Si$ catalyst at various coverages.

Peak	θ	Slope	$E_d/KJ \cdot mol^{-1}$	Intercep	A/s^{-1}
Low-temperature	0.9894	-2036.36	16.93	2.08	8.00
	0.9745	-2169.27	18.04	2.86	17.46
	0.9534	-2326.86	19.36	3.52	33.78

	0.9410	-2442.07	20.30	3.92	50.40
	0.1257	-9091.75	75.59	6.34	566.80
	0.1110	-10044.25	83.51	7.50	1808.04
High-temperature	0.1013	-10812.29	89.89	8.42	4536.90
	0.0983	-11111.71	92.38	8.80	6634.24

Table S3. E_d and A of H_2O on $Fe_2O_3@Si-CH_3$ catalyst at various coverages.

θ	Slope	$E_d/KJ \cdot mol^{-1}$	Intercep	A
0.9952	-528.11	4.39	-2.32	0.099
0.9911	-559.36	4.65	-2.15	0.117
0.9882	-583.53	4.85	-1.83	0.160
0.9787	-661.79	5.50	-1.18	0.308