

Supplementary Information

Table S1. Crystallite sizes of Fe-Al₂O₃ catalyst with varying Fe loadings (5-12.5 wt%)

Catalyst	Phase	2θ (°)	FWHM (°)	Crystallite size (nm)
5Fe-Al ₂ O ₃	Fe ₂ O ₃ (104)	33.7	0.56	15.48
7.5Fe-Al ₂ O ₃	Fe ₂ O ₃ (104)	33.69	0.4598	18.85
10Fe-Al ₂ O ₃	Fe ₂ O ₃ (104)	33.82	0.4292	20.21
12.5Fe-Al ₂ O ₃	Fe ₂ O ₃ (104)	34	0.3779	22.96

Table S2. ICP-MS-determined metal loadings of γ-Al₂O₃-supported 5 wt% transition-metal catalysts and Fe-Al₂O₃ with varying Fe loadings

Catalyst	Nominal metal loading (wt%)	ICP-MS analyte concentration (ppb)	Measured metal loading (wt%)
5Fe-Al ₂ O ₃	5	47342281.99	4.73
5Cu-Al ₂ O ₃	5	47576725.21	4.76
5Co-Al ₂ O ₃	5	50840339.59	5.08
5Ni-Al ₂ O ₃	5	48970254.05	4.90
7.5Fe-Al ₂ O ₃	7.5	72646507.33	7.26
10Fe-Al ₂ O ₃	10	99267886.1	9.93
12.5Fe-Al ₂ O ₃	12.5	122292038.7	12.23

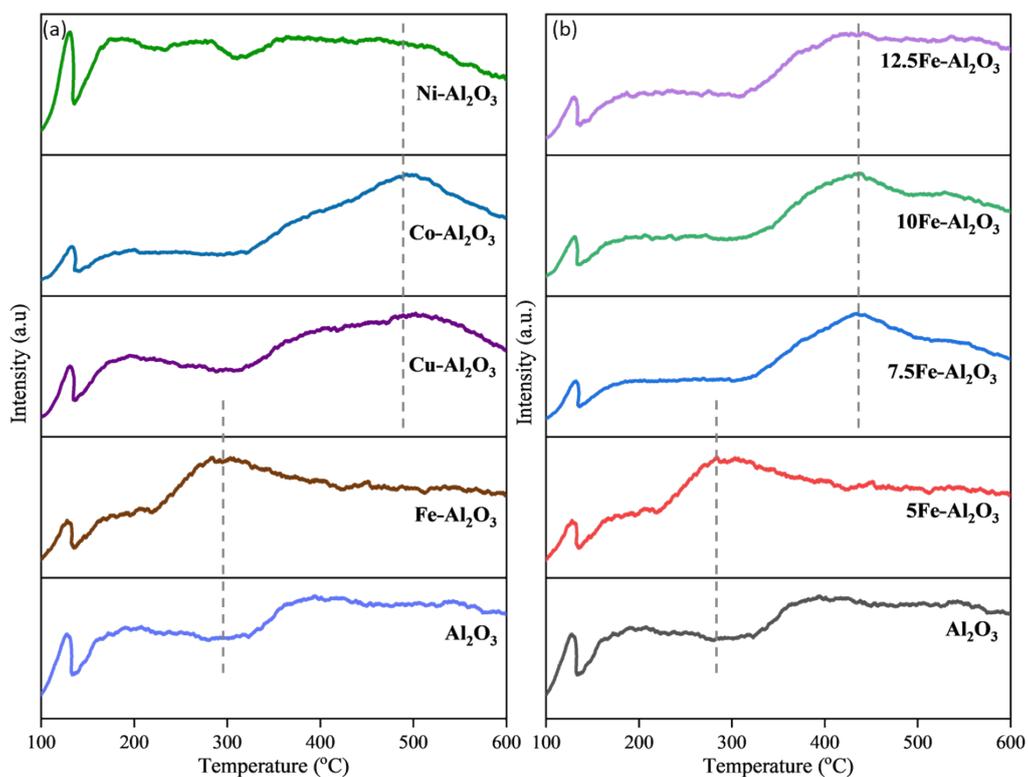


Figure S1. NH₃-TPD profiles of (a) γ-Al₂O₃, 5 wt% transition-metal catalysts and (b) Fe-Al₂O₃ with varying Fe loadings