

Cobalt-/pH-Modified V₂O₅-MoO₃/TiO₂ Catalyst with Enhanced Activity for the Low-Temperature Selective Catalytic Reduction Process

Supplementary Materials

Table S1. NO removal efficiency under laboratory conditions of Co-doped or pH-regulated catalysts.

Sample	Preparation method	Reaction condition	NO(NO _x) conversion	Ref
1CoVMT-10	Impregnation/ pH value of 10	[NO _x] = [NH ₃] = 700 ppm, [O ₂] = 5%, GHSV = 30000 h ⁻¹	>90% (160–240 °C)	-
Co ₁ Mn ₄ Ce ₅ O _x	Co-precipitation	[NO] = [NH ₃] = 500 ppm, [O ₂] = 5%, GHSV = 48,000 h ⁻¹	90%-93% (125–175 °C)	[10]
Mn–Co/TiO ₂	sol-gel	[NO] = [NH ₃] = 600 ppm, [O ₂] = 5%, GHSV = 108,000 h ⁻¹	>98% (200 °C)	[11]
Co/ZSM-5	impregnation	[NO] = [NH ₃] = 500 ppm, [O ₂] = 5%, GHSV = 80000 mL·g ⁻¹ h ⁻¹	>92% (175–300 °C)	[3]
Cu-SSZ-13	one-step ion-exchange/ pH value of 4 and 5	[NO _x] = [NH ₃] = 600 ppm, [O ₂] = 5%, GHSV = 450,000 h ⁻¹	>90% (250–450 °C)	[7]
LM-1.4	sol-gel/ pH value of 1.4	[NO _x] = [NH ₃] = 500 ppm, [O ₂] = 5%, GHSV = 30,000 h ⁻¹	~100% (160–200 °C)	[8]

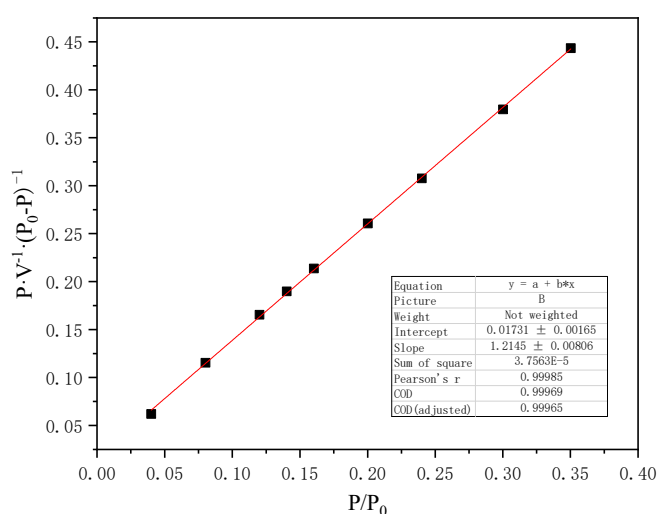


Figure S1. BET fitting curve of VMT catalyst

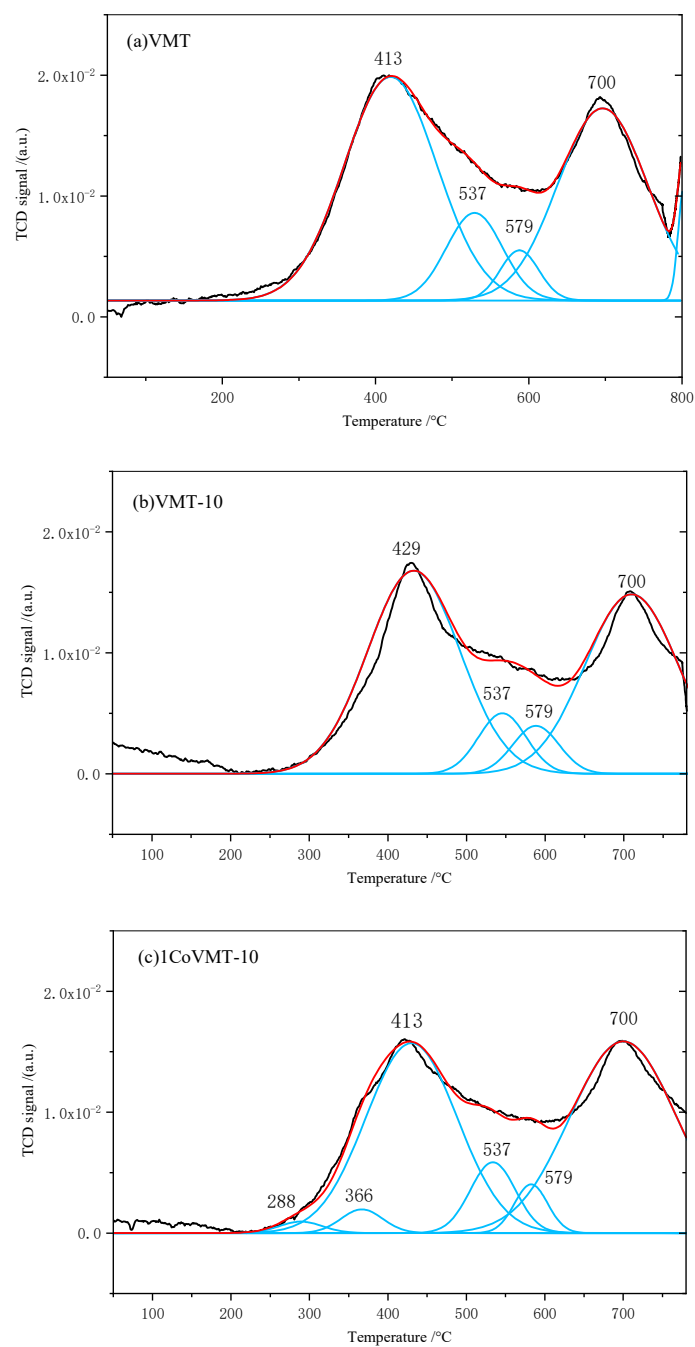


Figure S2. H₂-TPR profiles of the catalyst samples: (a) VMT; (b) VMT-10; (c) 1CoVMT-10.

Table S2. Peak area of vanadyl species species from fitting data

Sample	isolated monomeric species ($\leq 497\text{--}507\text{ }^{\circ}\text{C}$)(%)	polymeric species ($537\text{ }^{\circ}\text{C}$) (%)	bulk amorphous ($579\text{ }^{\circ}\text{C}$) (%)
VMT	60.7	21.3	18.0
VMT-10	78.6	12.1	9.2
1CoVMT-10	79.4	13.3	7.2