Appendix A. Supplementary data

Understanding the role of redox property and NO adsorption over $MnFeO_x$ for NH_3-SCR

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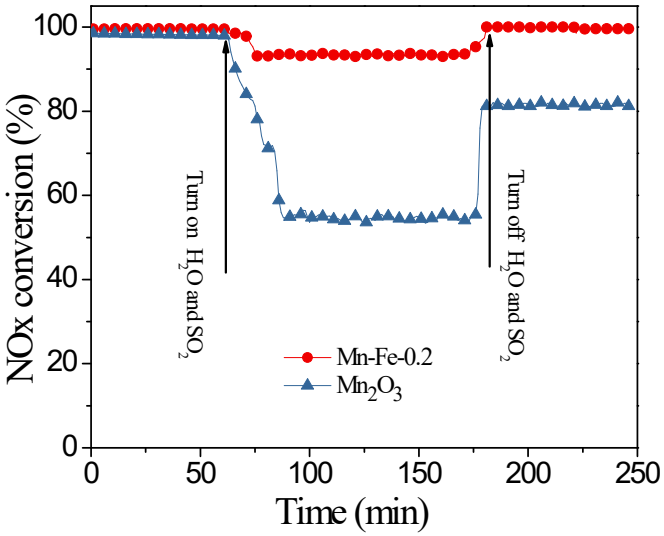

Fig. S1. H_2O and SO_2 tolerance test of the Mn_2O_3 and Mn-Fe-0.2 catalysts at 100 ºC

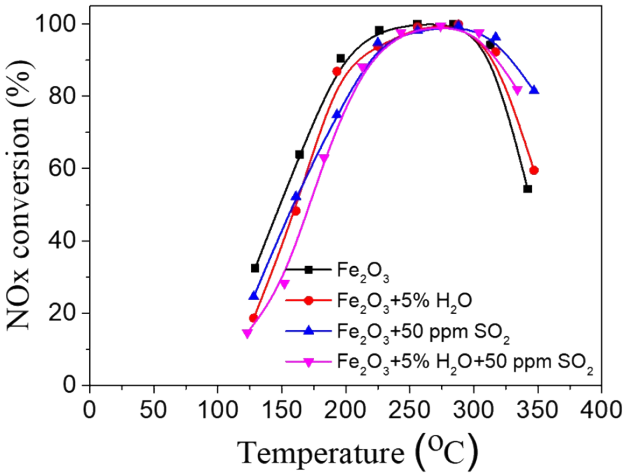

Fig. S2. Effect of H_2O or/and SO_2 on the activities of Fe_2O_3.

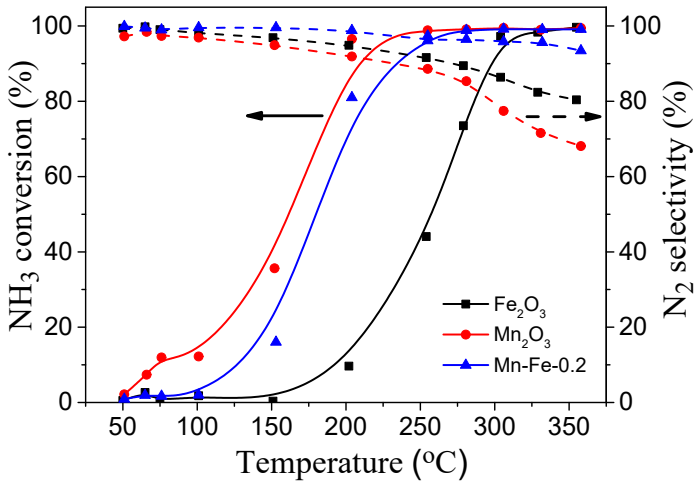

Fig. S3. NH_3 oxidation profiles of Mn_2O_3, Fe_2O_3, and Mn-Fe-0.2

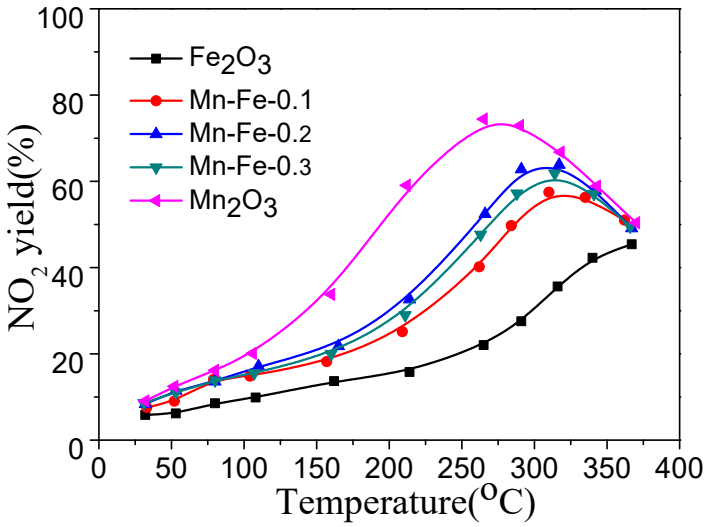

Fig. S4. The NO_2 yield during NO oxidation.

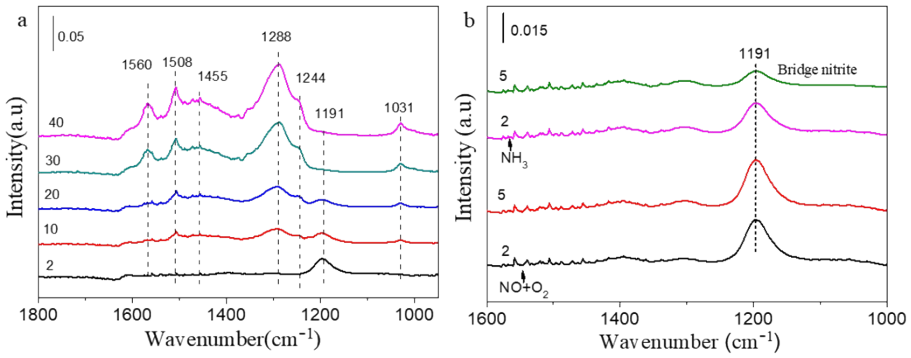

Fig. S5. In situ DRIFT spectra of Mn-Fe-0.2 catalysts exposed to 500 ppm NO + 5 vol % O_2/Ar (50 mL/min) (a)，and then switched to 500 ppm NH_3/Ar (50 mL/min) (b) at 50 °C.

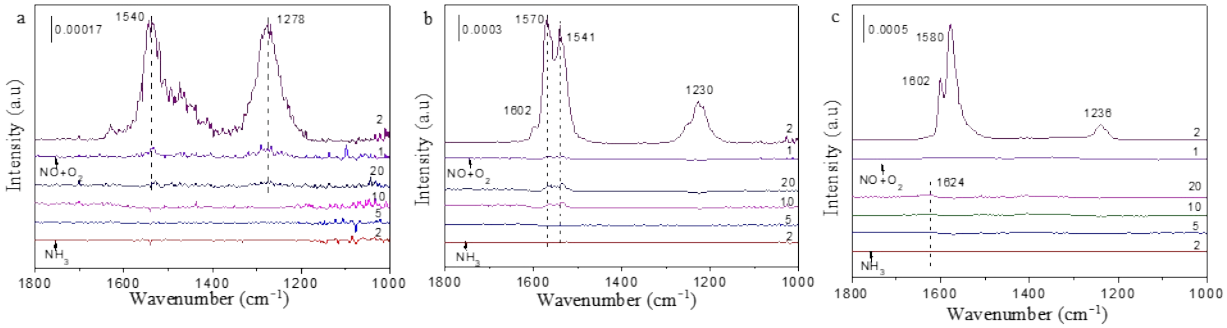

Fig. S6. In situ DRIFT spectra of the Mn_2O_3 (a), Fe_2O_3 (b), and Mn-Fe-0.2 (c) catalysts exposed to 500 ppm NH_3/Ar (50 mL/min), and then switched to 500 ppm NO + 5 vol % O_2/Ar (50 mL/min) at 300 °C.

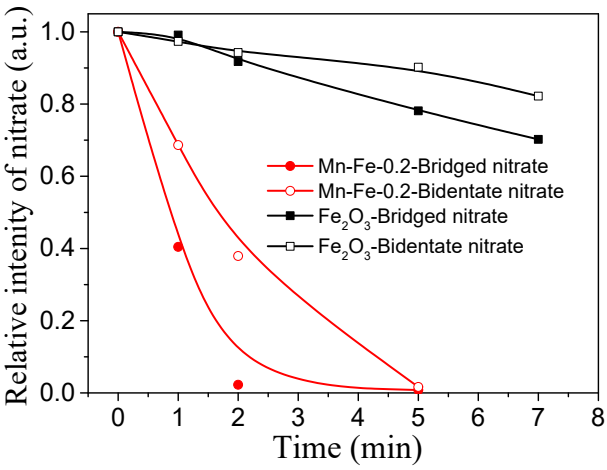

Fig. S7. Relative intensity of nitrate consumption over time on different samples at 300 °C.

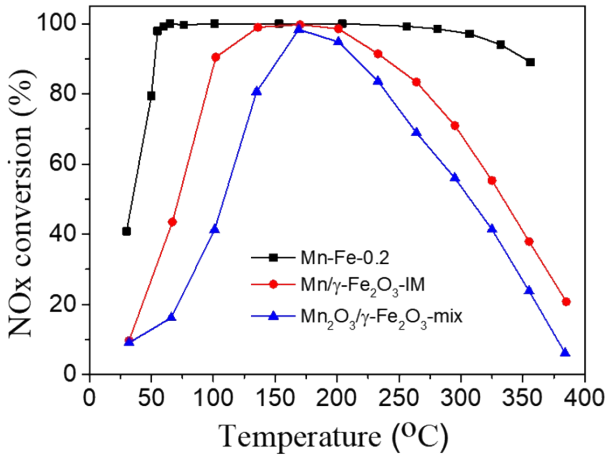

Fig. S8. NO_x conversion as a function of temperature over MnFe catalysts prepared by different methods.

Table S1. The H_2 consumption amount of the Mn-Fe catalysts.

Catalyst	The practical H_2 consumption amount of α (mmol/g)[a]	The total theoretical H_2 consumption amount (mmol/g)[b]	The difference value between the theoretical and practical H_2 consumption amount (mmol/g)
Fe_2O_3	1.91	18.80	6.95
Mn-Fe-0.1	2.29	17.56	6.16
Mn-Fe-0.2	2.04	16.63	5.21
Mn-Fe-0.3	2.47	15.78	2.84
Mn_2O_3	2.15	6.33	0.32

[a] Calculated via H_2-TPR results.

[b] Calculated via ICP results.