Electronic Supplementary Information

Effect of FeO_x and MnO_x doping into CeO_2-V_2O_5/TiO_2 nanocomposite on the performance and mechanism in selective catalytic reduction of NO_x with NH_3

Jinxiu Wang,[a] Xianfang Yi,[a,b] Qingfa su,[a,b] Jinsheng Chen*[a] and Zongli Xie*[c]

[a] Center for Excellence in Regional Atmospheric Environment, and Key Laboratory of Urban Pollutant Conversion, Institute of Urban Environment, Chinese Academy of Sciences, Xiamen 361021, P.R. China

[b] University of Chinese Academy of Sciences, Beijing 100049, P.R. China

[c] CSIRO Manufacturing, Private bag 10, Clayton South MDC, VIC 3169, Australia

Corresponding Author

* Jinsheng Chen, Tel./Fax: +86 592 6190765, Email: jschen@iue.ac.cn

* Zongli Xie, Tel: +61 (3) 9545 2938, Email: zongli.xie@csiro.au

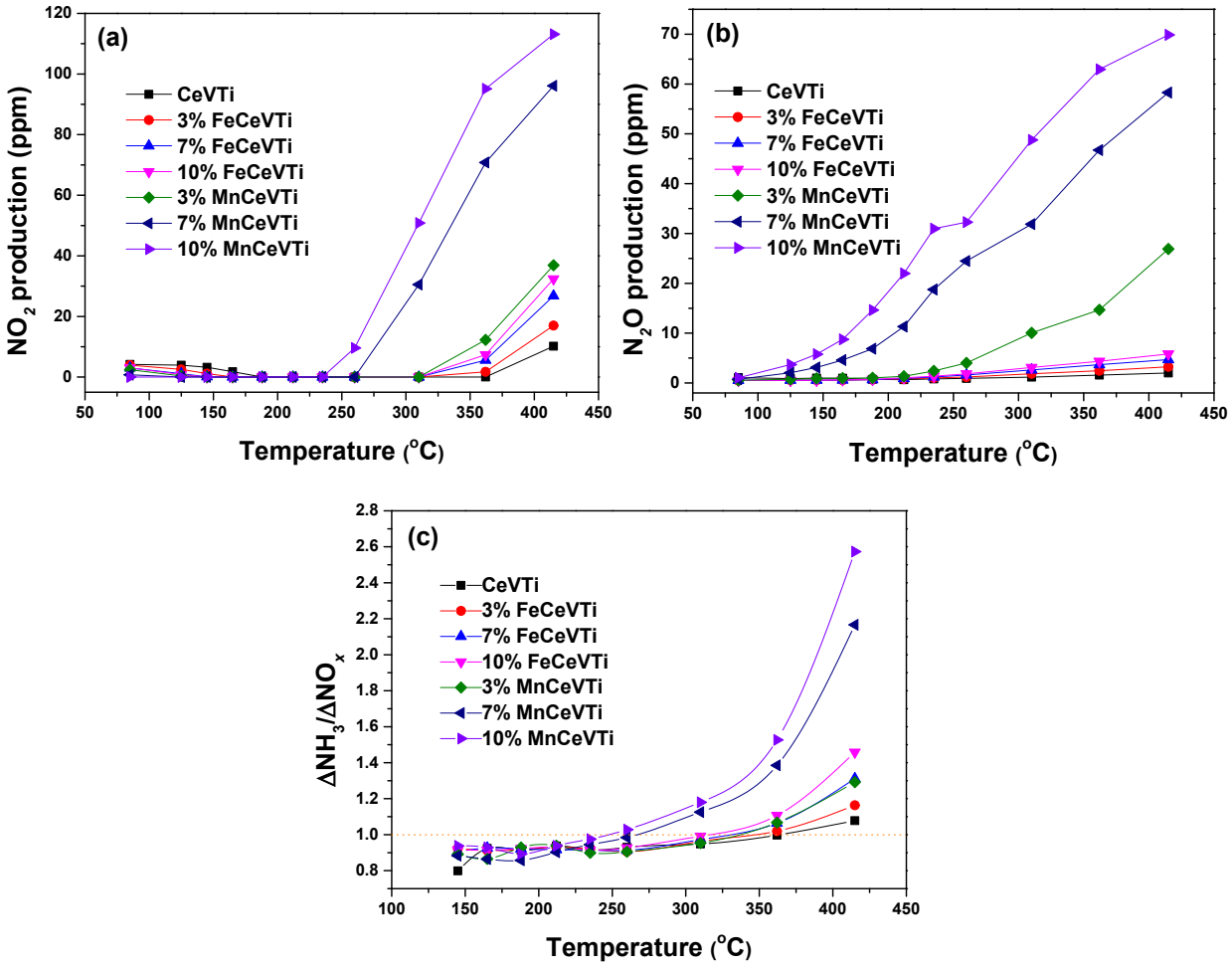

Fig. S1 (a) NO_2 production, (b) N_2O production, (c) $\Delta NH_3/\Delta NO_x$ of the prepared catalysts

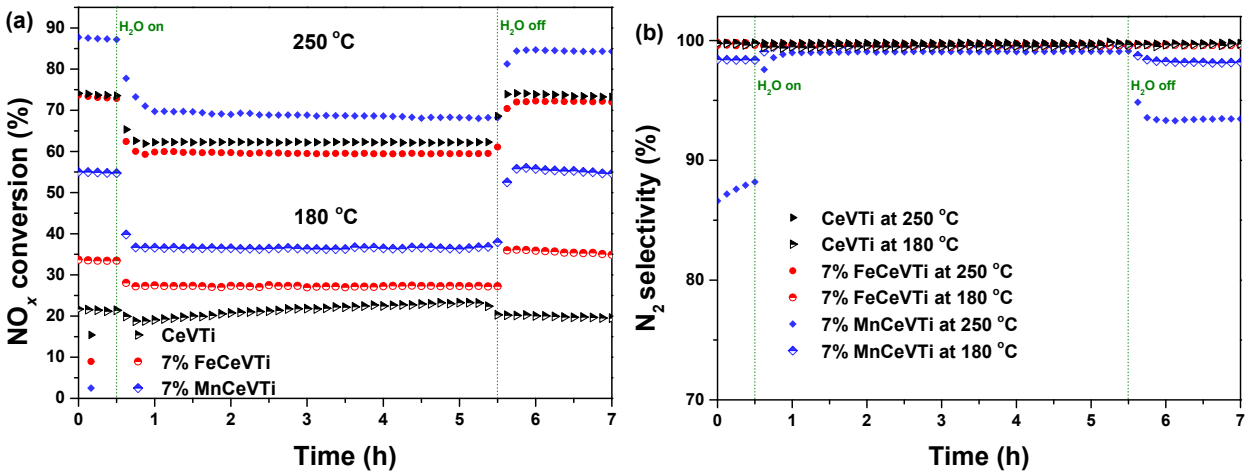

Fig. S2 The effect of H_2O on (a) NO_x conversion and (b) N_2 selectivity of CeVTi, 7%FeCeVTi and 7%MnCeVTi with time at 180 °C and 250 °C with GHSV of 150, 000 h^{-1} in the reaction gas containing 500 ppm NO, 500 ppmNH_3, 5 vol% O_2, 3 vol % H_2O and N_2 balance.

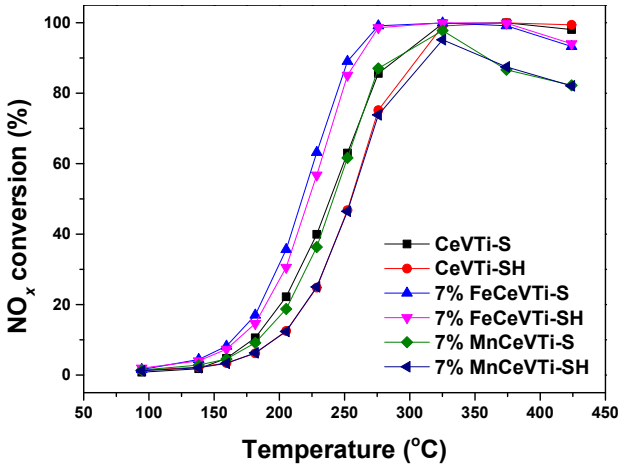

Fig. S3 NO_x conversion of used CeVTi, 7%FeCeVTi and 7%MnCeVTi after SO_2 resistance (suffix-S) and SO_2-H_2O resistance test (suffix -SH) measured at different temperatures with a gaseous mixture containing 500 ppm NO, 500 ppmNH_3, 5% O_2 and N_2 balance.

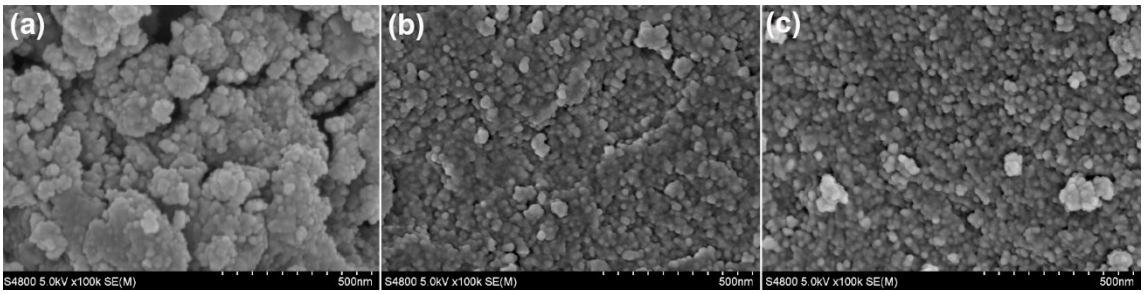

Fig. S4 SEM images of (a) CeVTi, (b) 7%FeCeVTi and (c) 7%MnCeVTi catalyst

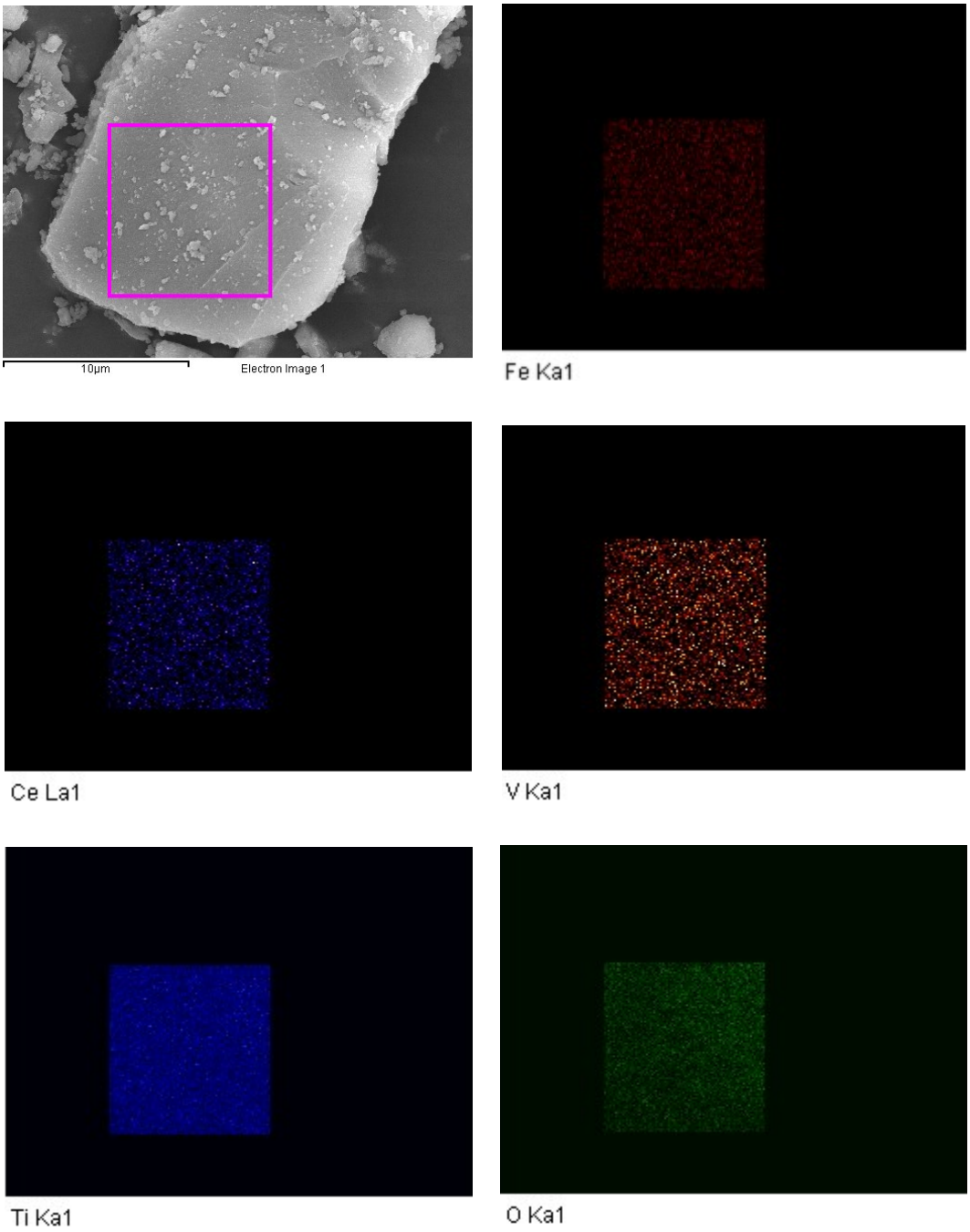

Fig. S5 EDS-mapping images of elements in 7%FeCeVTi catalyst

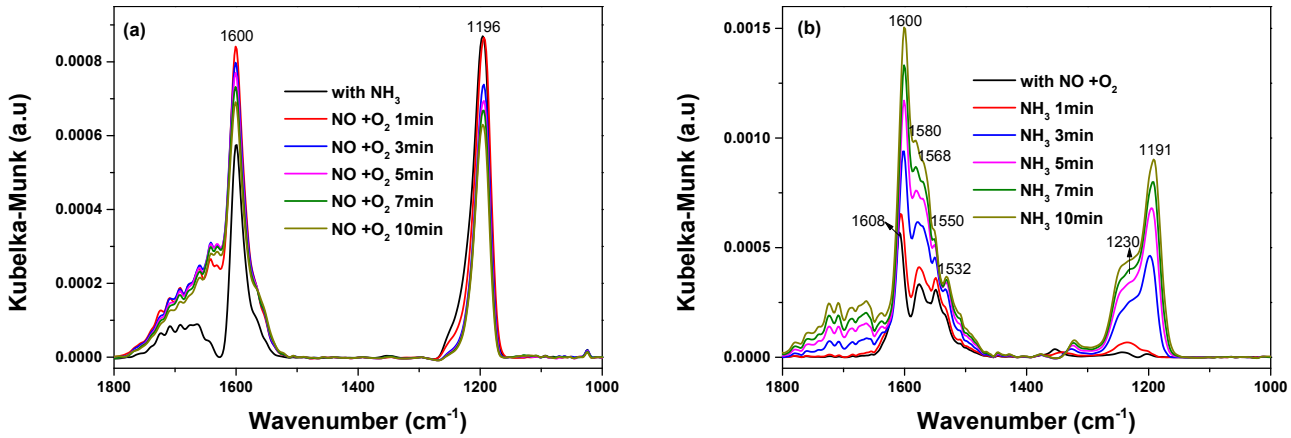

Fig. S6 In situ DRIFTS of CeVTi catalyst exposed to (a) 500 ppm NO+5% O_2/N_2 after 500 ppm NH_3/N_2 for 30 min followed with 20 min N_2 purge, and (b) 500 ppm NH_3/N_2 after 500 ppm NO+5% O_2/N_2 for 30 min followed with 20 min N_2 purge in order at 250 °C.