Electronic Supplementary Material (ESI) for New Journal of Chemistry.

Selective catalytic reduction of NO with NH_3 over TiO_2 supported metal sulfate catalysts prepared via a sol-gel protocol

Yanke Yu[a], Jiali Zhang[ab], Changwei Chen[a], Mudi Ma[a], Chi He*[ac], Jifa Miao[d], Huirong Li[d] and Jinsheng Chen*[d]

[a.] *Department of Environmental Science and Engineering, School of Energy and Power Engineering, Xi'an Jiaotong University, Xi'an 710049, P.R. China Address here.*

[b.] *College of Geology and Environment, Xi'an University of Science and Technology, Xi'an 710054, P.R. China.*

[c.] *National Engineering Laboratory for VOCs Pollution Control Material & Technology, University of Chinese Academy of Sciences, Beijing 101408, P.R. China.*

[d.] *Center for Excellence in Regional Atmospheric Environment, Institute of Urban Environment, Chinese Academy of Sciences, Xiamen, 361021, P.R. China*

Table S1 The distribution of acid sites on metal sulfate catalysts (%)

Sample	Weak acid sites	Medium strong acid sites	Strong acid sites
Cu-S/Ti	51.1	37.5	11.4
Fe-S/Ti	33.0	37.4	29.6
Mn-S/Ti	20.7	40.9	38.4
Ce-S/Ti	27.7	40.3	32.0
Co-S/Ti	33.1	48.8	18.1

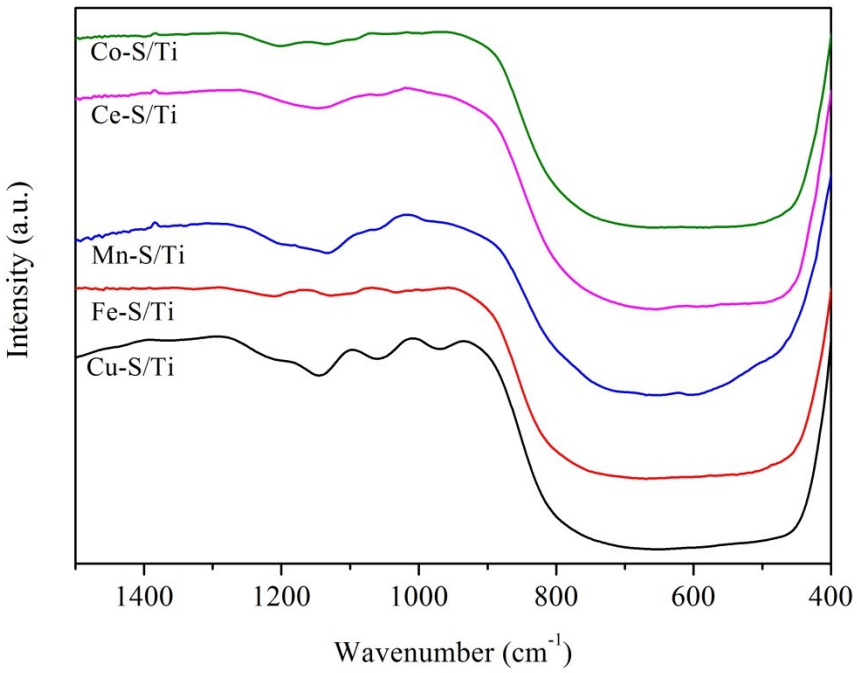
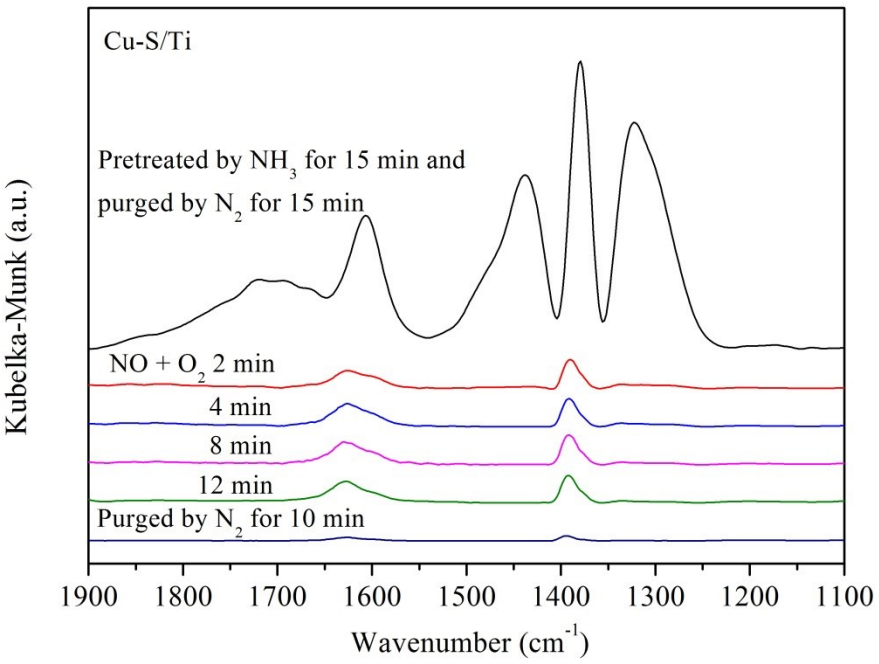
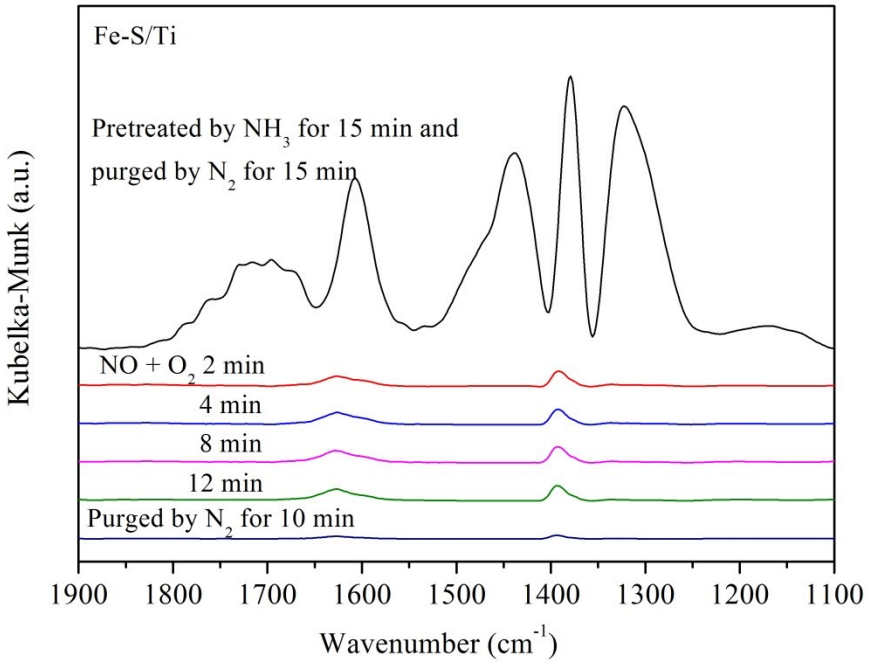
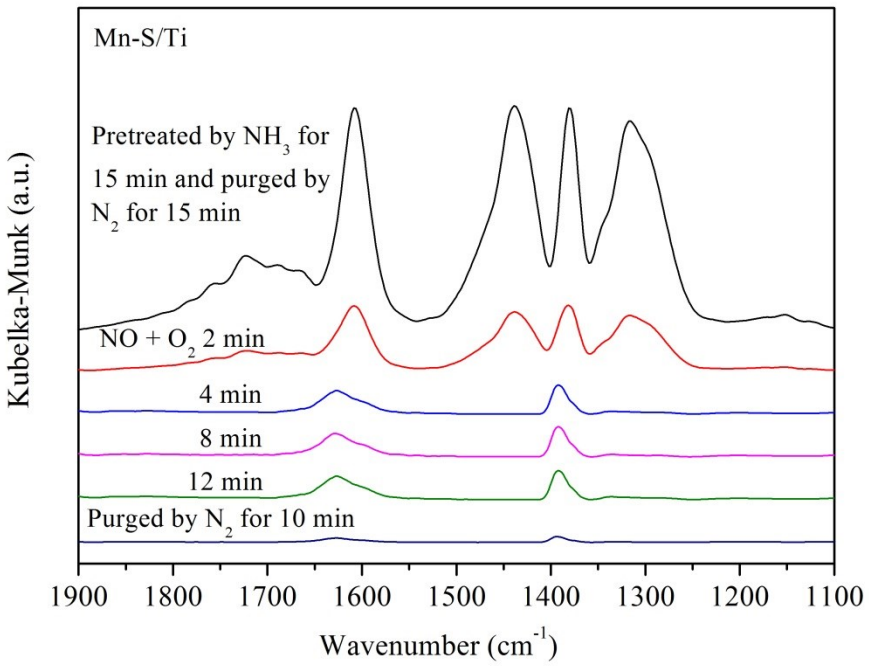
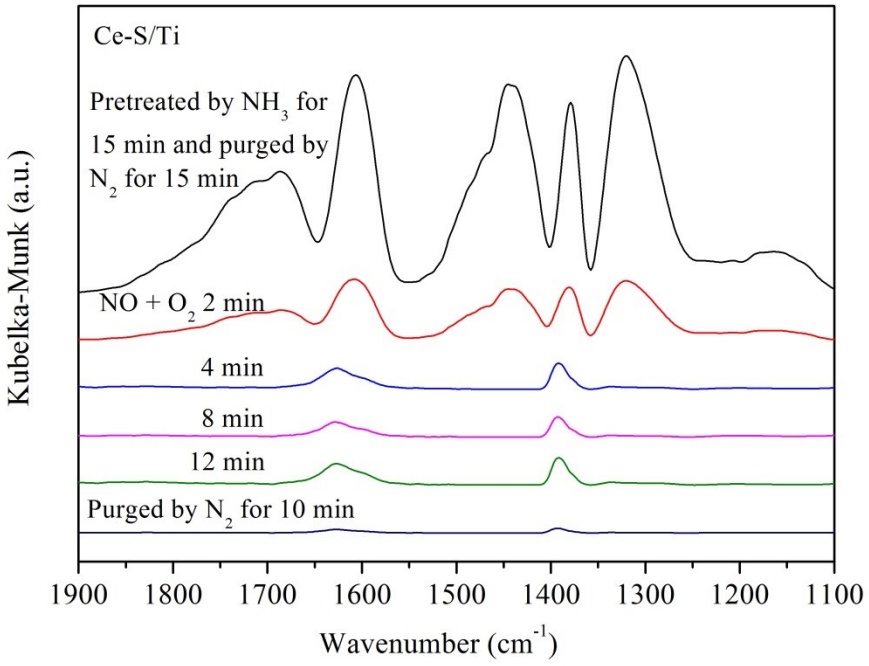


Figure S1. FT-IR result of each metal sulfate catalyst.


Cu-S/Ti
Pretreated by NH3 for 15 min and
purged by N2 for 15 min
NO + O2 2 min
4 min
8 min
12 min
Purged by N2 for 10 min
Kubelka-Munk (a.u.)
1900 1800 1700 1600 1500 1400 1300 1200 1100
Wavenumber (cm-1)


Fe-S/Ti
Pretreated by NH3 for 15 min and
purged by N2 for 15 min
NO + O2 2 min
4 min
8 min
12 min
Purged by N2 for 10 min
Kubelka-Munk (a.u.)
1900 1800 1700 1600 1500 1400 1300 1200 1100
Wavenumber (cm-1)


Mn-S/Ti
Pretreated by NH3 for
15 min and purged by
N2 for 15 min
NO + O2 2 min
4 min
8 min
12 min
Purged by N2 for 10 min
Kubelka-Munk (a.u.)
1900 1800 1700 1600 1500 1400 1300 1200 1100
Wavenumber (cm-1)


Ce-S/Ti
Pretreated by NH3 for
15 min and purged by
N2 for 15 min
NO + O2 2 min
4 min
8 min
12 min
Purged by N2 for 10 min
Kubelka-Munk (a.u.)
1900 1800 1700 1600 1500 1400 1300 1200 1100
Wavenumber (cm-1)

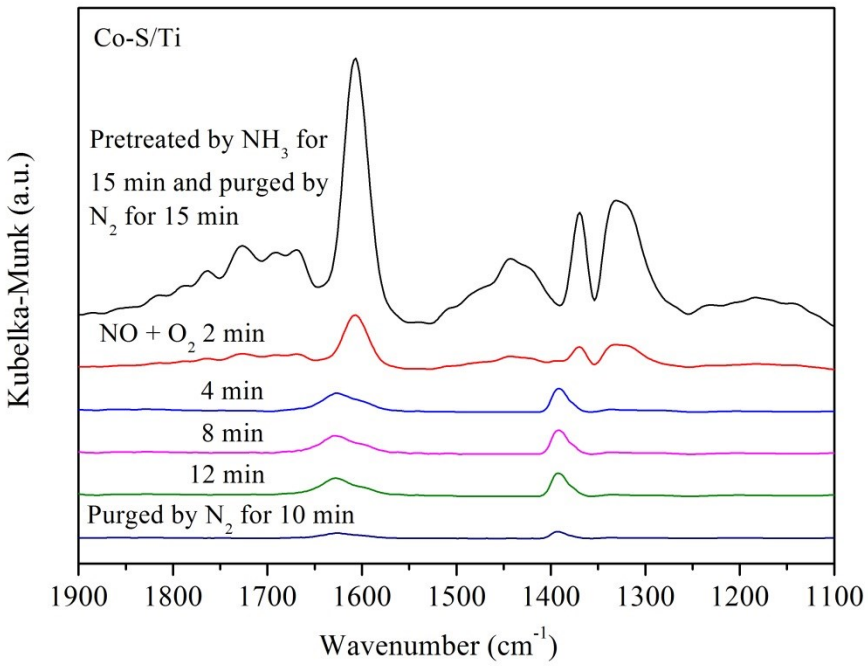


Figure S2. *In situ* DRIFTS of NO + O_2 on metal sulfate catalysts pretreated by NH_3 at 350 °C.