

# Magnesium Effect in K/Co-Mg-Mn-Al Mixed Oxide Catalyst for Direct NO Decomposition

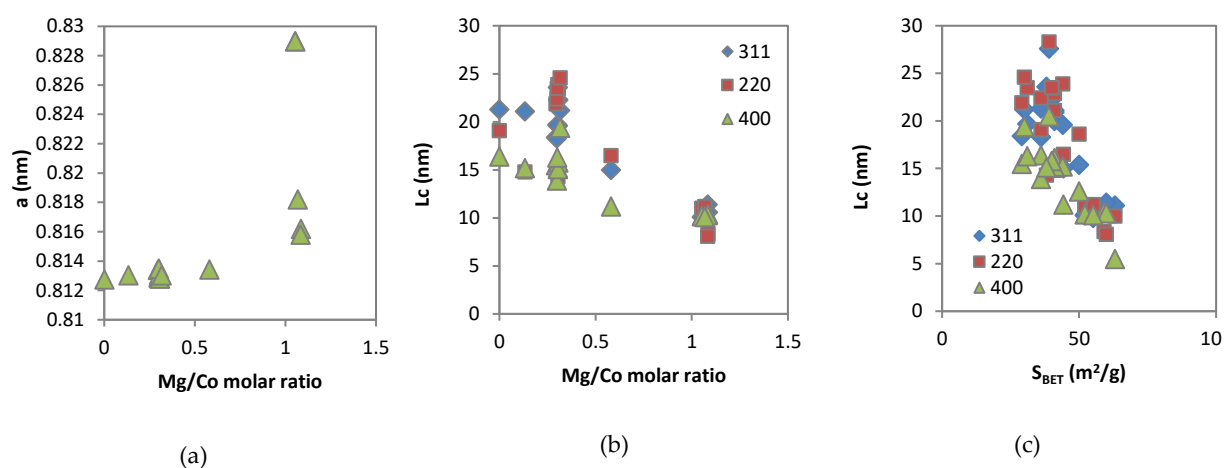
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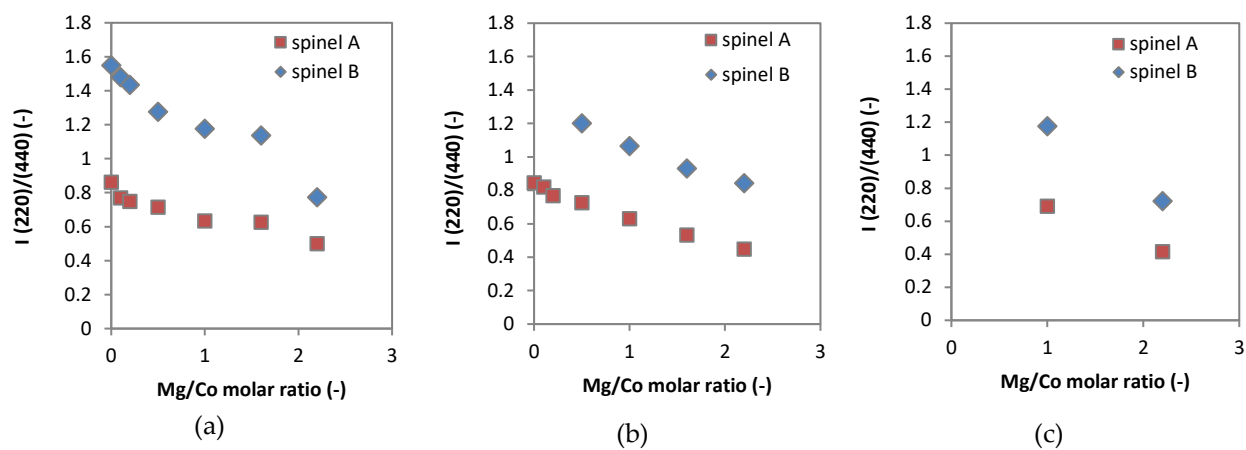
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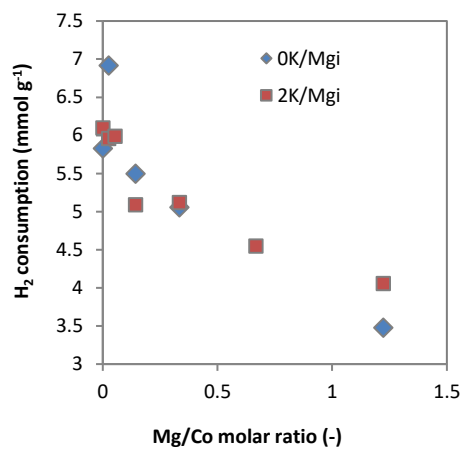
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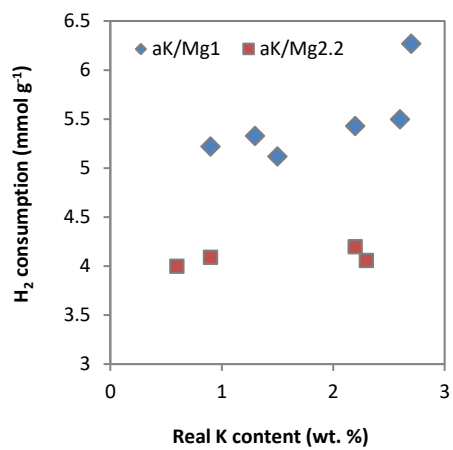
**Figure S1.** Dependence of (a) the lattice parameter  $a$  on Mg/Co molar ratio; (b) the coherent domain size  $L_c$  on Mg/Co molar ratio; (c) the coherent domain size  $L_c$  on specific surface area for spinel B.



**Figure S2.** Intensity ratio  $I(220)/(440)$  for (a) 0K/Mgi, (b) 2K/Mgi, (c) 4K/Mgi.

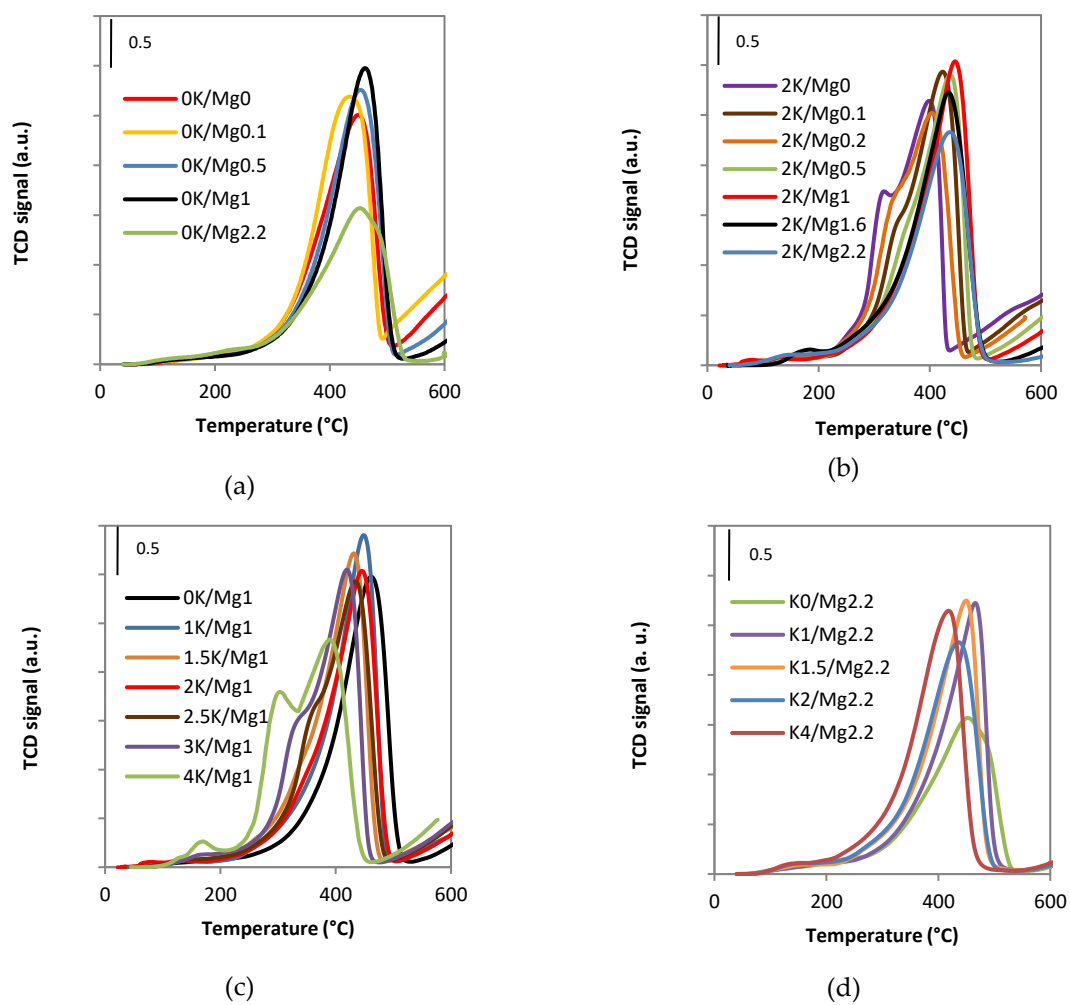


(a)

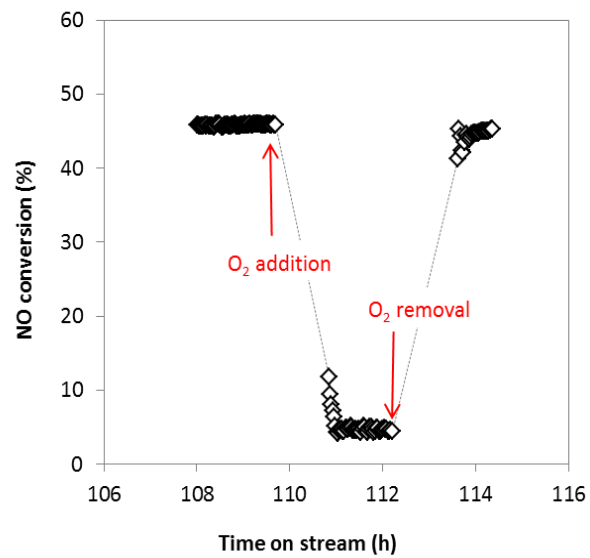


(b)

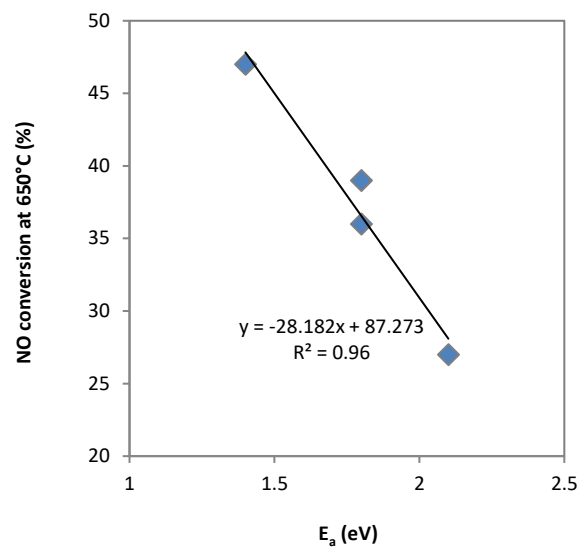
**Figure S3.** Consumed amount of H<sub>2</sub> during TPR-H<sub>2</sub> for: (a) the 0K/Mgi and 2K/Mgi catalysts; (b) the aK/Mg1 and aK/Mg2.2 catalysts.



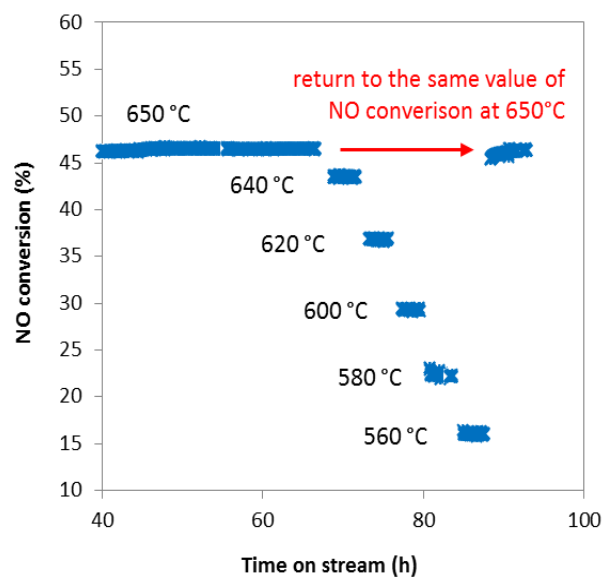
**Figure S4.** TPR-H<sub>2</sub> of K/Co-Mg-Mn-Al mixed oxide catalysts: (a) the 0K/Mg<sub>i</sub> catalysts; (b) the 2K/Mg<sub>i</sub> catalysts; (c) the aK/Mg<sub>1</sub> catalysts; (d) the aK/Mg<sub>2.2</sub> catalysts.



**Figure S5.** Time on stream dependence of NO conversion. Conditions: 4K/Mg1 catalyst, 1000 ppm NO balanced by N<sub>2</sub> or 1000 ppm NO + 2 mol. % O<sub>2</sub> balanced by N<sub>2</sub>, GHSV = 6 L g<sup>-1</sup> h<sup>-1</sup>.



**Figure S6.** Dependence of NO conversion on potassium desorption activation energies.



**Figure S7.** Catalytic measurement procedure - stability verification. Conditions: 2K/Mg1 catalyst, 1000 ppm NO balanced by N<sub>2</sub> GHSV = 6 L g<sup>-1</sup> h<sup>-1</sup>.