

SUPPLEMENTARY INFORMATION

NO_x storage on BaTi_{0.8}Cu_{0.2}O₃ perovskite catalysts: addressing a feasible mechanism.

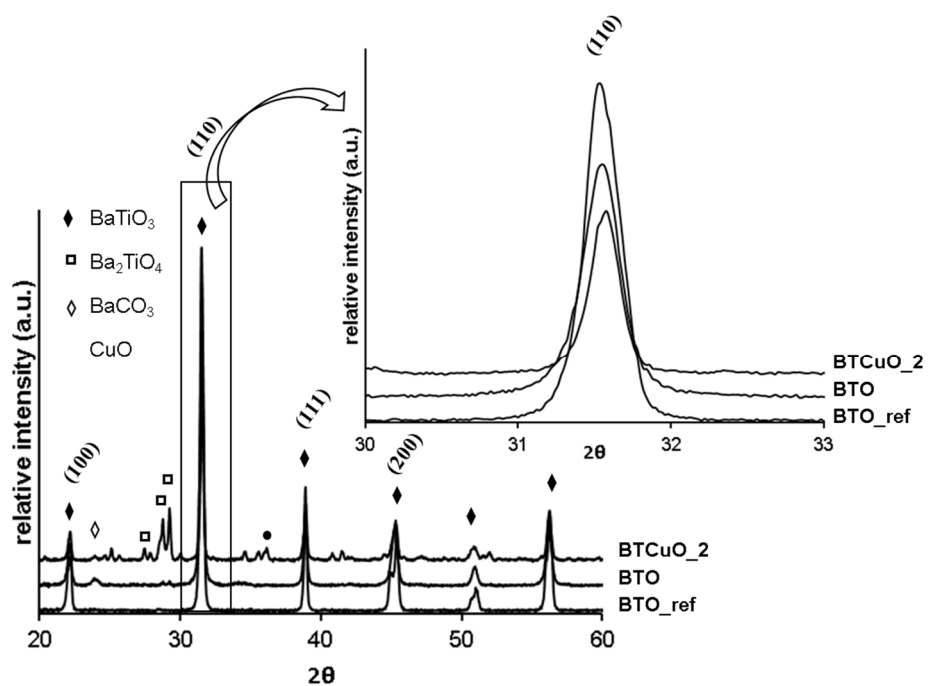
Vicente Albaladejo-Fuentes¹, María-Salvadora Sánchez-Adsuar¹, J. A. Andersson²,
María-José Illán-Gómez^{1,*}

¹*Carbon Materials and Environment Research Group, Department of Inorganic Chemistry, Faculty of Science, Universidad de Alicante, Alicante, Spain*

²*Surface Chemistry and Catalysis Group, School of Engineering, University of Aberdeen, AB24 3UE Scotland, UK*

* *Corresponding author: illan@ua.es. Phone: +34965903975.*

a)



b)

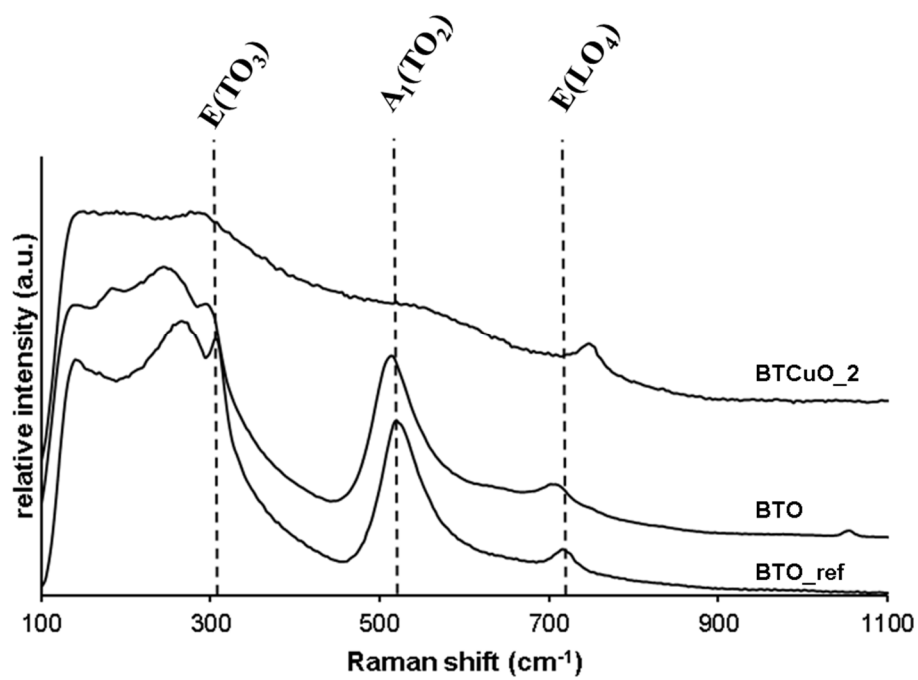
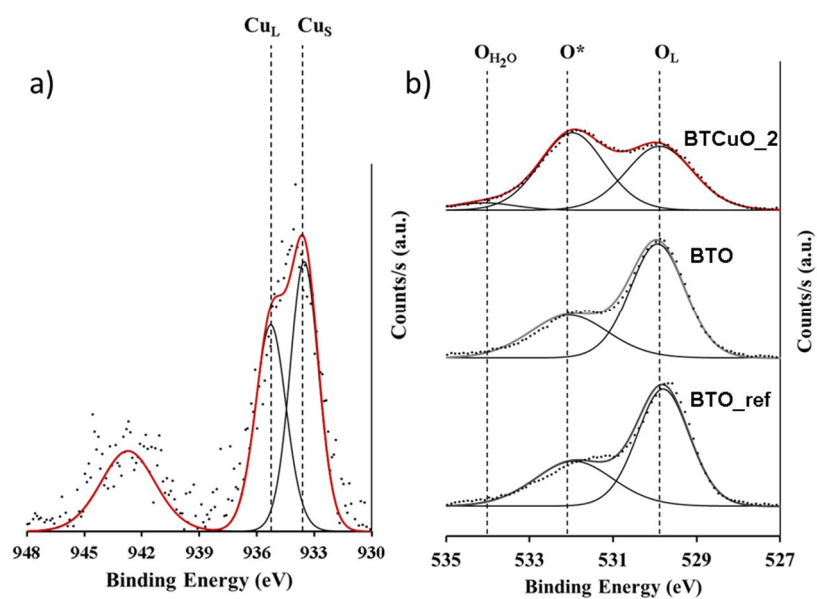


Figure.S1a-b. $\text{BaTi}_{0.8}\text{Cu}_{0.2}\text{O}_3$ characterization data: a) DRX diffractograms, and b) Raman spectra,

c)



d)

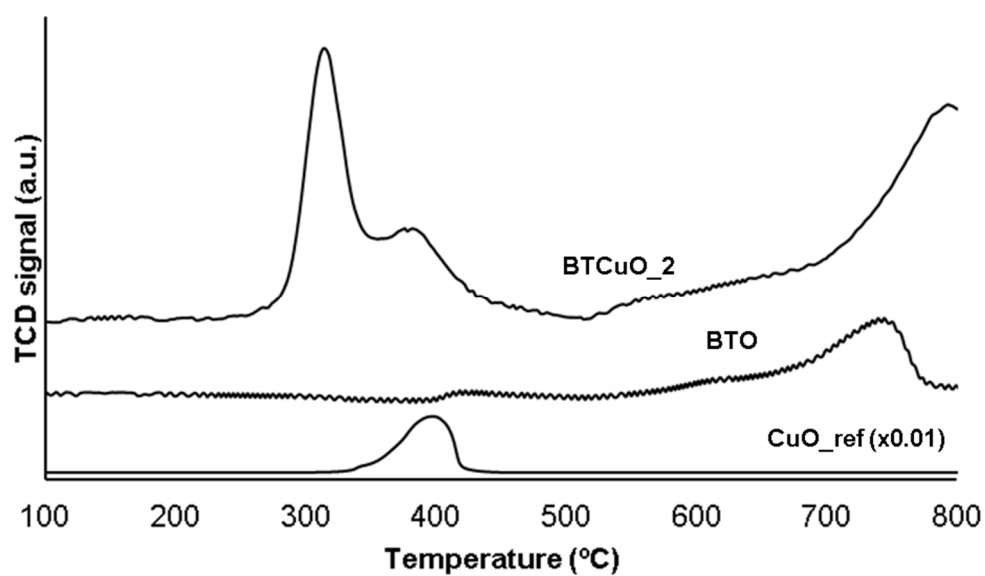


Figure.S1c-d. BaTi_{0.8}Cu_{0.2}O₃ characterization data: c) XPS spectra corresponding to Cu_{2p}3/2 (a) and O1s (b) transitions , and d) H₂-TPR profiles.

Table S1. XPS characterization data for BaTi_{0.8}Cu_{0.2}O₃

Catalyst	Cu/ (Ba+Ti+Cu) (XPS)	Cu/ (Ba+Ti+Cu) (nominal)	(Cu ⁺ +Ti)/ Ba (XPS)	O _L /(Ba+Ti+Cu) (XPS)
BTO ref	-	-	0.98	2.05
BTO	-	-	0.72	1.78
BTCuO_2	0.06	0.1	0.49	1.50

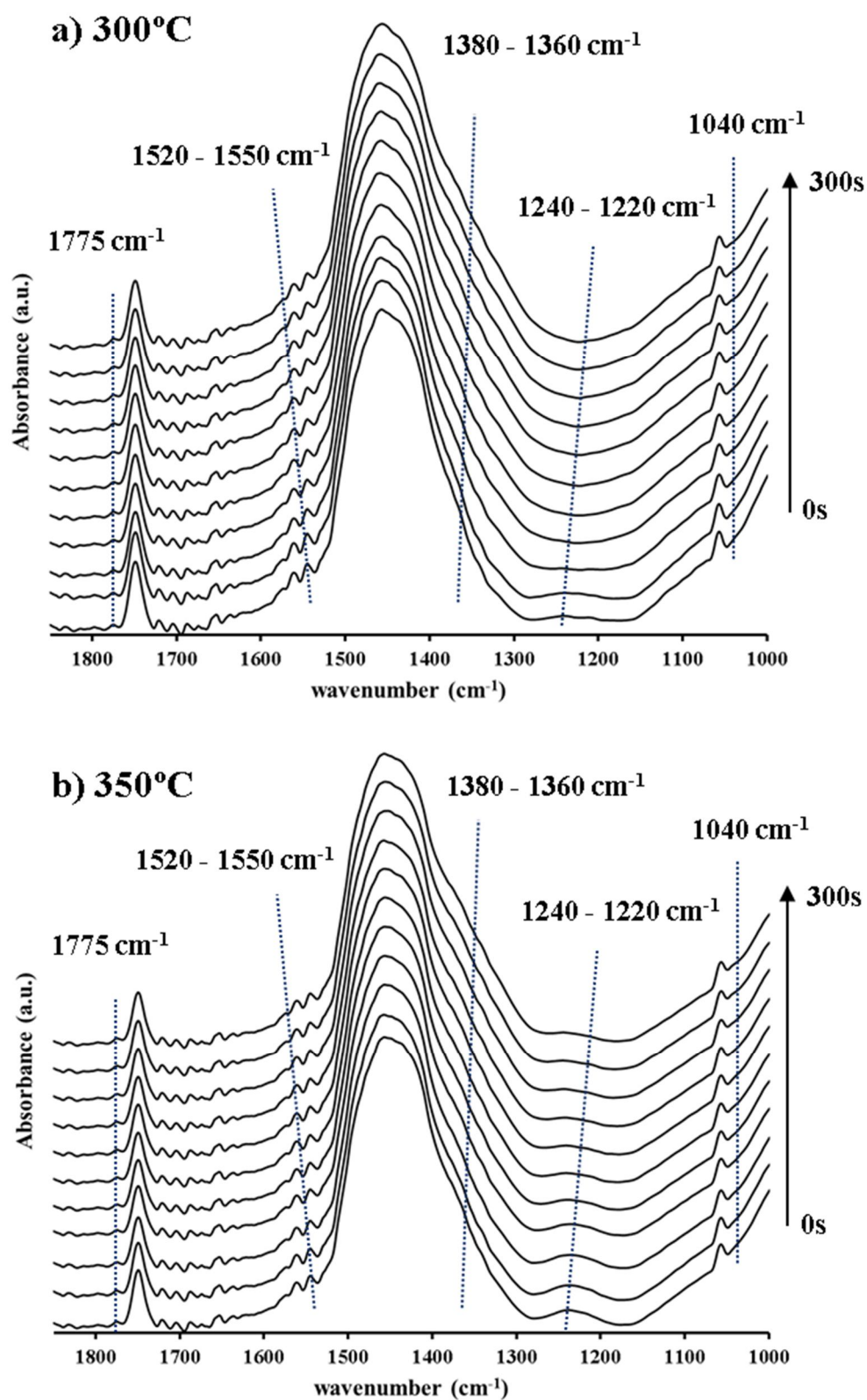


Figure S2a-b DRIFT spectra recorded for the BaTi_{0.8}Cu_{0.2}O₃ catalyst during a NO_x storage cycle at a) 300°C and d) 350°C in 500 ppm NO + 5% O₂ in N₂ atmosphere.

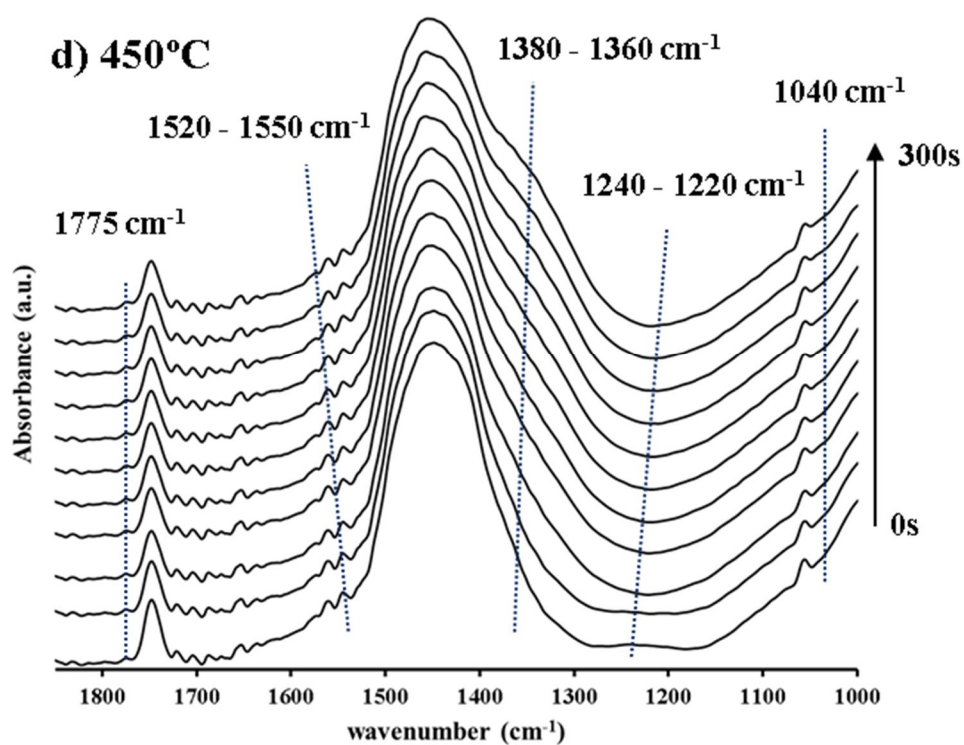
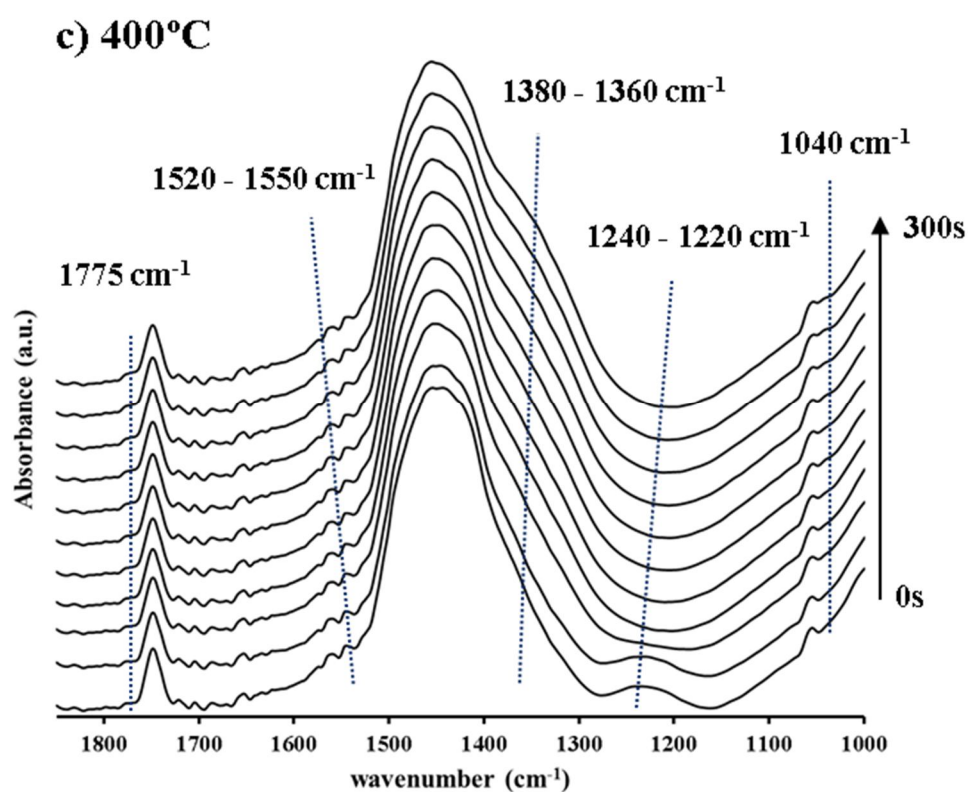


Figure S2c-d DRIFT spectra recorded for the BaTi_{0.8}Cu_{0.2}O₃ catalyst during a NO_x storage cycle at a) 400°C and d) 450°C in 500 ppm NO + 5% O₂ in N₂ atmosphere.

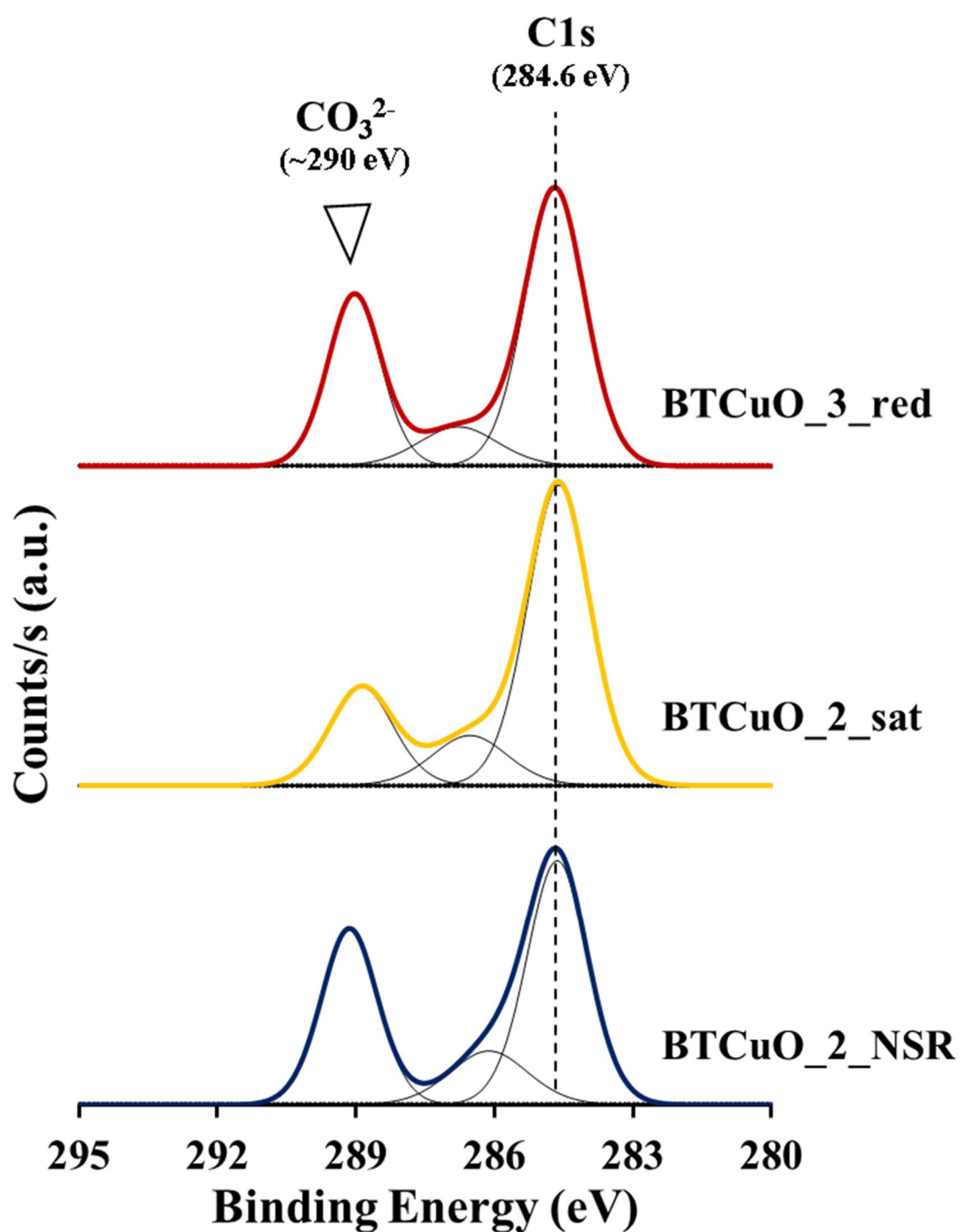


Figure S3 XPS of the C1s transition for the $\text{BaTi}_{0.8}\text{Cu}_{0.2}\text{O}_3$ catalyst after 5 NO_x storage-reduction cycles (BTCuO_2_NSR), followed by 1 hour term NO_x adsorption experiment in 500 ppm NO + 5% O₂ in N₂ atmosphere (BTCuO_2_sat) and finally regenerated in 10% H₂/N₂ atmosphere.

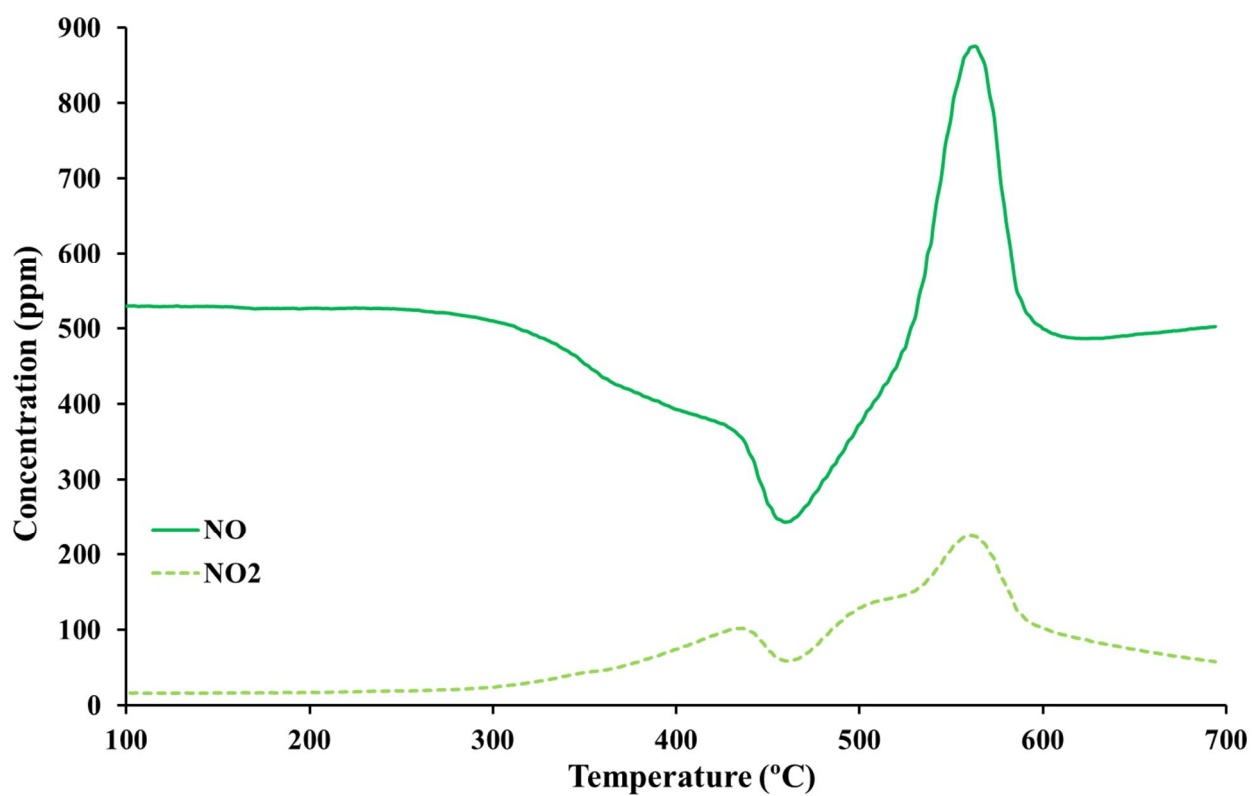


Figure S4 NO and NO₂ concentration registered for BaTi_{0.8}Cu_{0.2}O₃ catalyst during a TPR experiment in 500 ppm NO + 5% O₂ atmosphere balanced with N₂. (see details in Experimental Section)

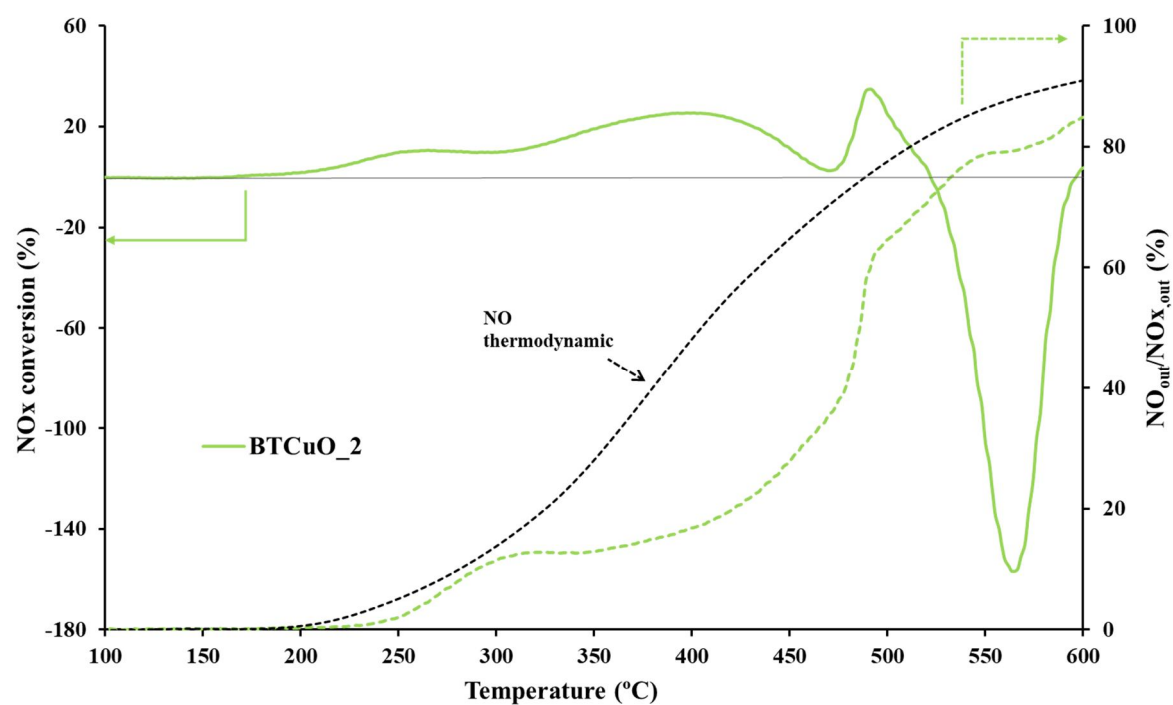


Figure S5 NO and NO₂ concentration registered for BaTi_{0.8}Cu_{0.2}O₃ catalyst during a TPR experiment in 500 ppm NO₂ + 5% O₂ atmosphere balanced with N₂. (see details in Experimental Section).