

*Supporting information for*

# Development of Quinary Layered Double Hydroxide-derived High-entropy Oxides for Toluene Catalytic Removal

Tianshan Xue <sup>1,\*</sup>, Yiping Wang <sup>2</sup>, Li Yang <sup>1</sup>, Zhe Li <sup>3</sup>, Yanshan Gao <sup>3</sup> and Qiang Wang <sup>3</sup>

<sup>1</sup> Institute of Atmospheric Environment, Chinese Research Academy of Environmental Sciences,  
Beijing 100012, China

<sup>2</sup> State Key Laboratory of Chemical Resource Engineering, Beijing University of Chemical Technology,  
Beijing 100029, China

<sup>3</sup> College of Environmental Science and Engineering, Beijing Forestry University, Beijing 100083, China

\* Correspondence: author: lynnleslie@foxmail.com

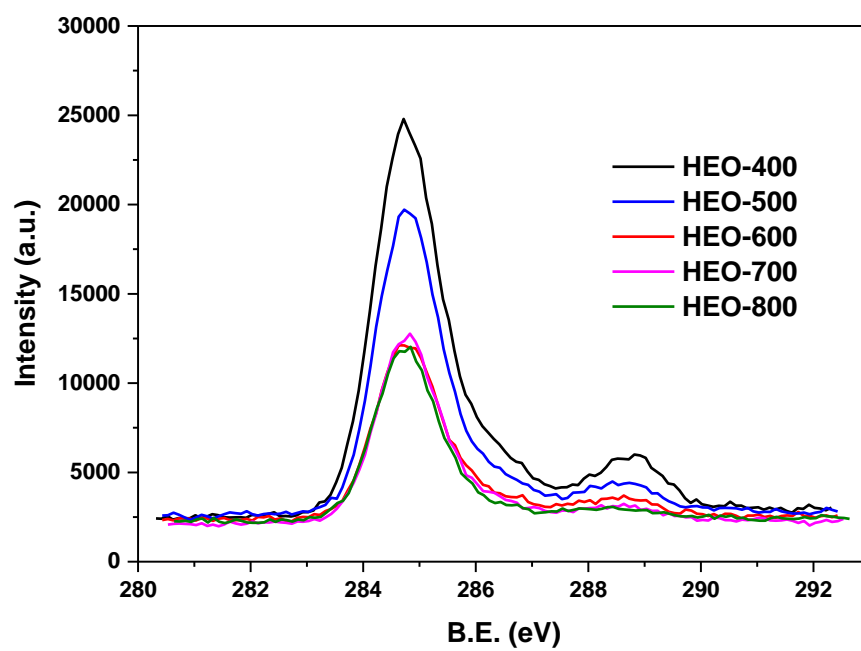
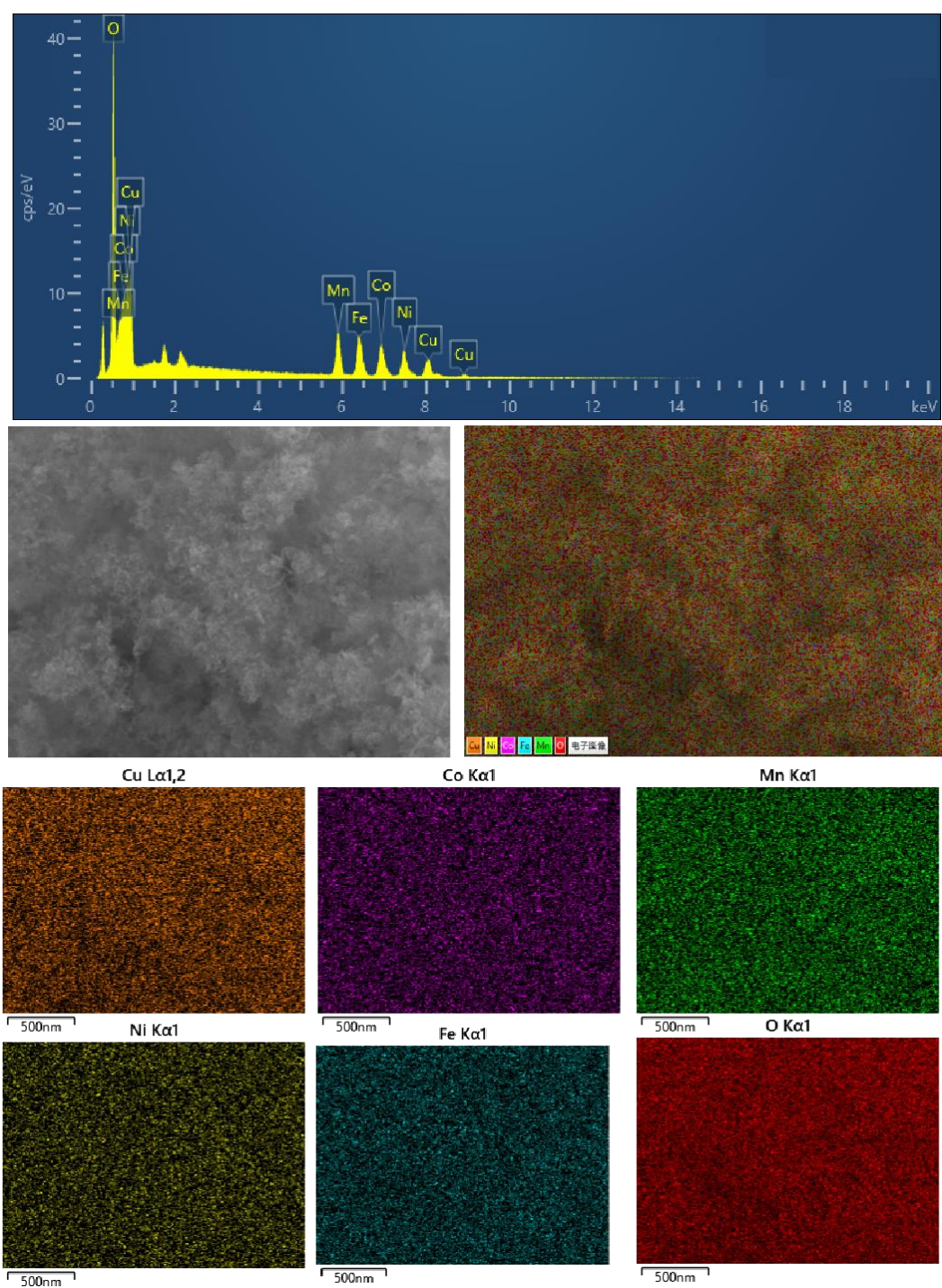
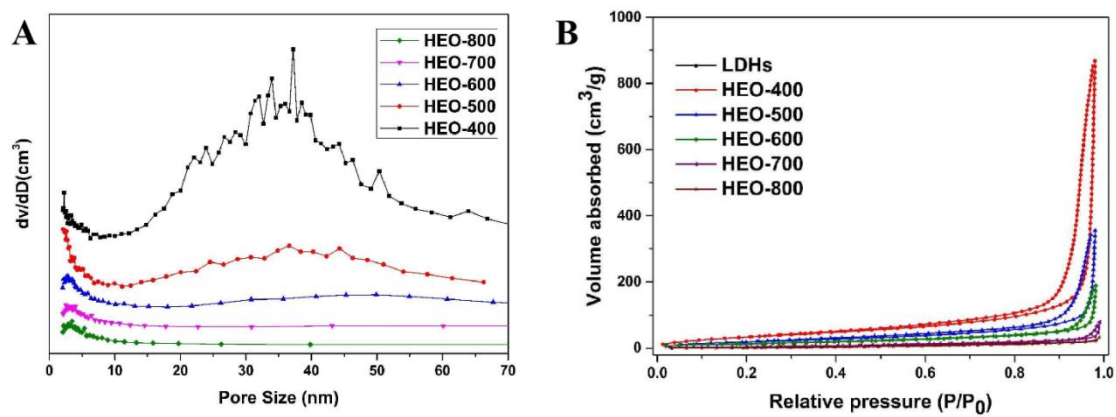


Figure S1. C 1s XPS spectra of HEOs.



**Figure S2.** EDS spectrum and elements mapping of HEO-600.



**Figure S3.** (A) N<sub>2</sub> adsorption/desorption isotherms and (B) BJH pore size distribution of HEOs.

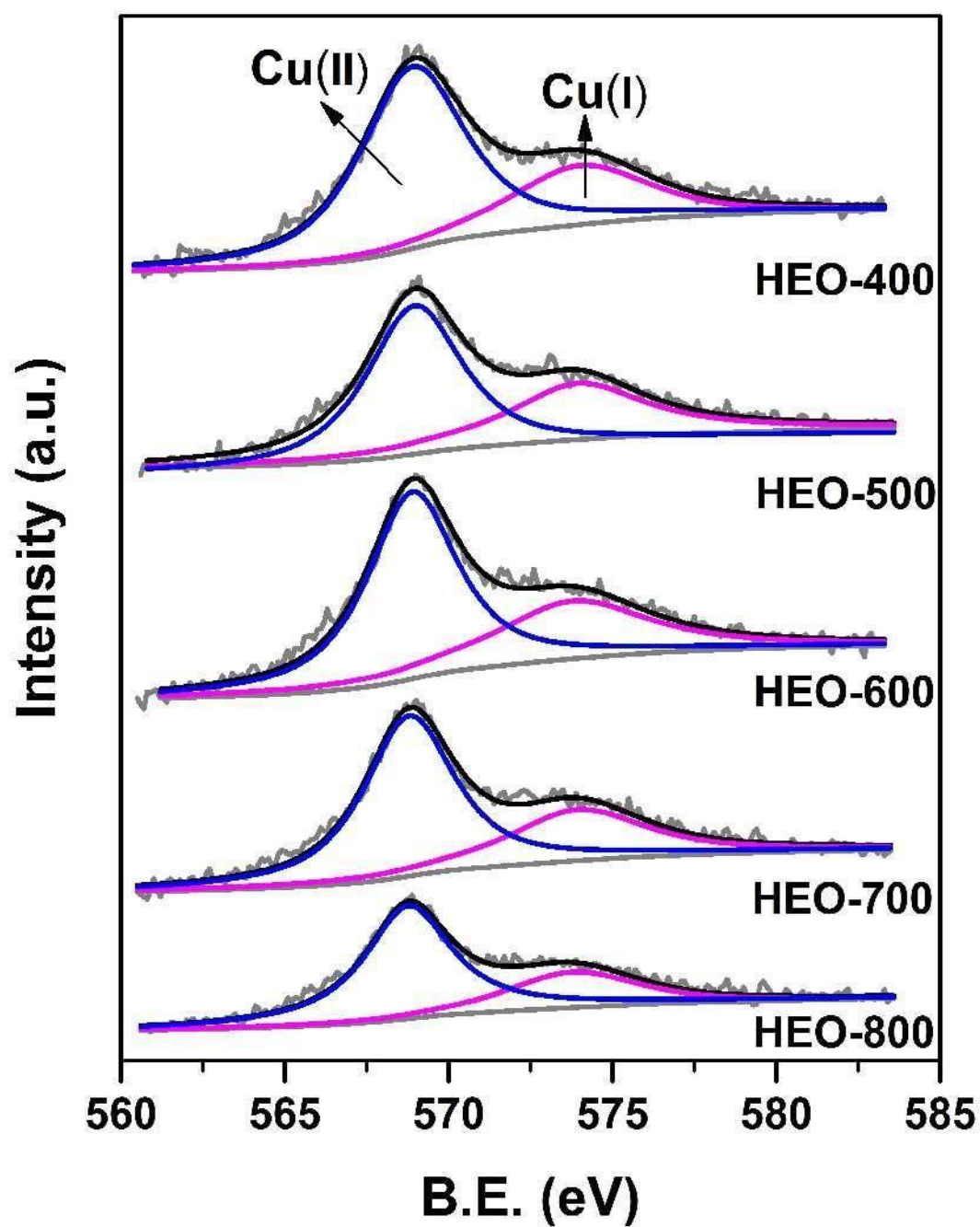


Figure S4. Cu AES spectra of HEOs.

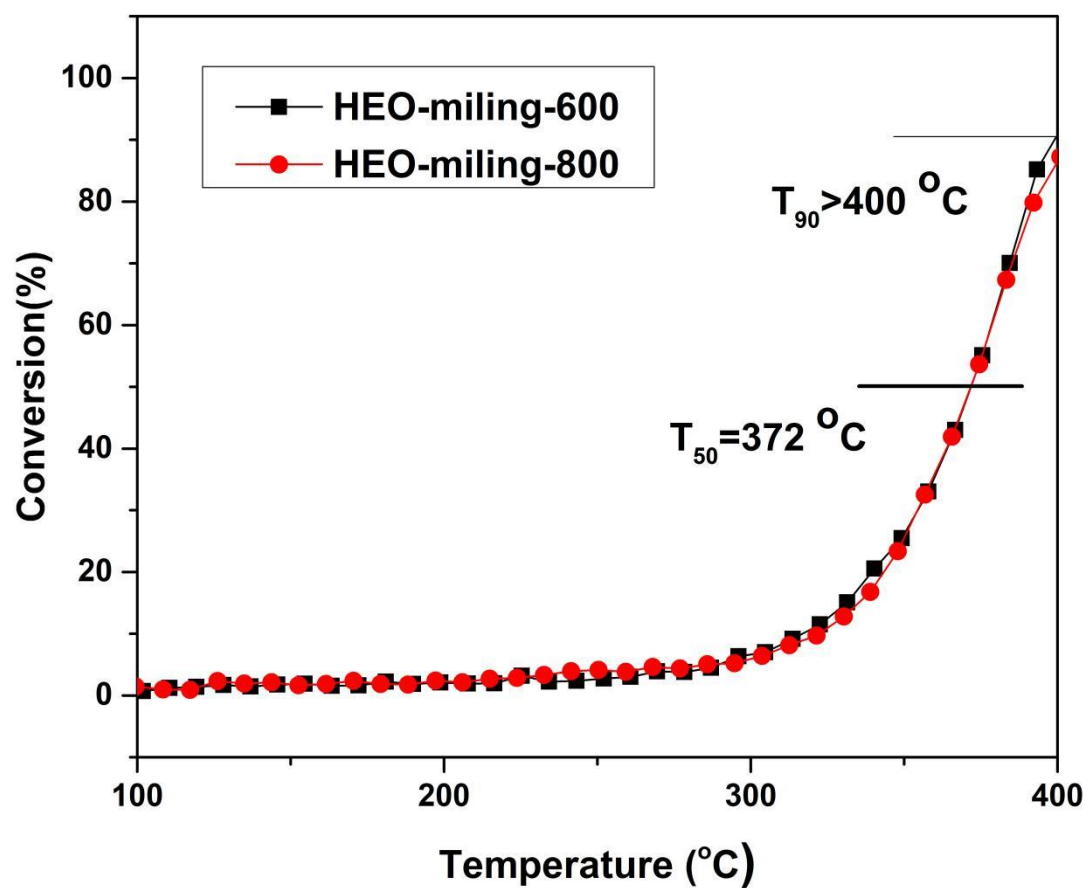


Figure S5. Catalytic performance of HEO-miling-600 and HEO-miling-800.

Table S1 The obtained atomic percentage from EDS spectrum

Element	Line	Weight%	Atom%
O	K	28.68	59.48
Mn	K	13.45	8.12
Fe	K	13.63	8.10
Co	K	14.48	8.15
Ni	K	14.24	8.05
Cu	L	15.52	8.10
Total		100.00	100.00