

SUPPLEMENTARY INFORMATION

Efficient catalytic activity of NiO and CeO₂ films for benzoic acid removal by ozone

Daynahi Franco-Pelález¹, Julia Liliana Rodríguez S.*¹, Tatiana Poznyak¹, Hugo Martínez Gutiérrez², J. Alberto Andraca Adame³, Luis Lartundo Rojas², Claudia Ramos Torres²

¹ Laboratorio de Investigación en Ingeniería Química Ambiental, ESIQIE-Instituto Politécnico Nacional, Zacatenco, Ciudad de México 07738, México.

² Centro de Nanociencias y Micro y Nanotecnologías. Instituto Politécnico Nacional. Zacatenco, Ciudad de México, 07738, México

³ Departamento Ciencias Básicas, UPIIH—Instituto Politécnico Nacional, Mexico City, 42050, Mexico

Corresponding author

Julia Liliana Rodríguez S.

Laboratorio de Investigación en Ingeniería Química Ambiental, ESIQIE-Instituto Politécnico Nacional, Zacatenco, Ciudad de México 07738, México. e-mail. jlrodriguezs@ipn.mx; ozliliana@yahoo.com.mx

Table S1. Relative peak positions (principals, multiplets and satellites) for Ni2p_{3/2} and Ni2p_{1/2} contributions

Thin film	Species	Fitting	Binding energy, eV	
			2p _{3/2}	2p _{1/2}
NiO	NiO	Principal	853.47	870.88
		Mult. 1	854.68	872.11
		Sat. 1	859.25	876.77
		Sat. 2	861.60	879.10
		Sat. 3	866.01	882.60
	NiOOH	Principal	855.21	872.66
		Mult. 1	855.66	873.30
		Mult. 2	858.12	875.70
		Mult. 3	860.27	877.68
		Sat. 1	860.81	878.35
		Sat. 2	862.87	880.57
		Sat. 3	867.33	884.07
	Ni(OH) ₂	Principal	856.43	873.89
		Mult. 1	857.03	874.59
		Mult. 2	859.21	876.66
		Sat. 1	863.31	880.41
		Sat. 2	864.63	881.98
		Sat. 3	868.78	885.69

Table S2. Energy position of Ce3d_{3/2} and Ce3d_{5/2} spin-orbit components in CeO₂ thin film

Thin film	v ₀	v	v'	v''	v'''	u ₀	u	u'	u''	u'''
CeO₂	881.6	883.1	885.3	888.2	897.3	899	900.3	903.6	906.7	916.1

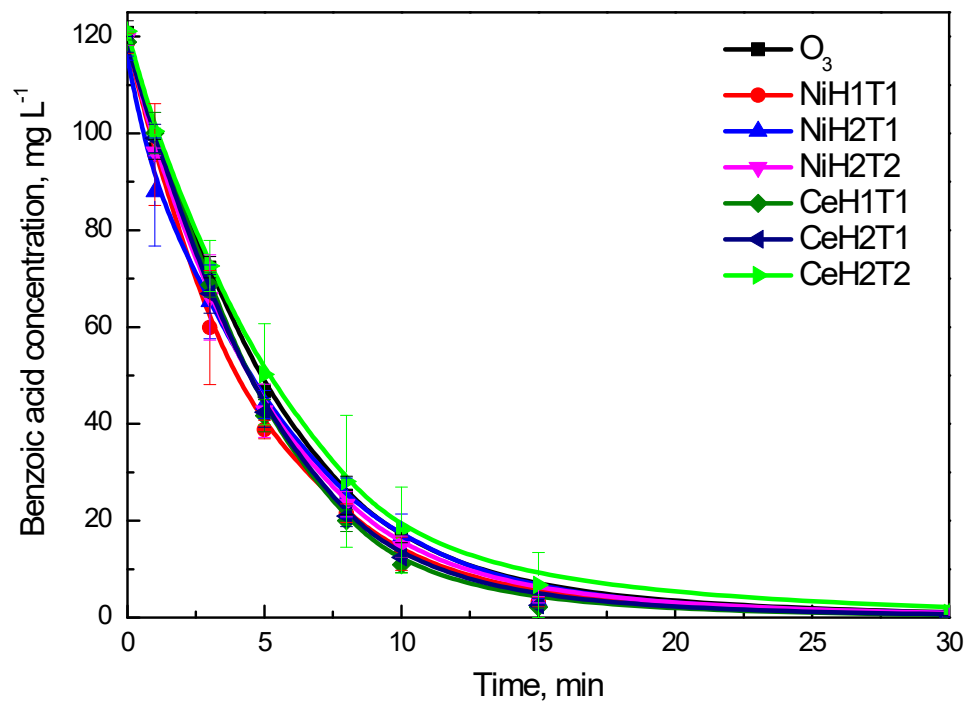


Figure S1. BA decomposition profiles by conventional and catalytic ozonation

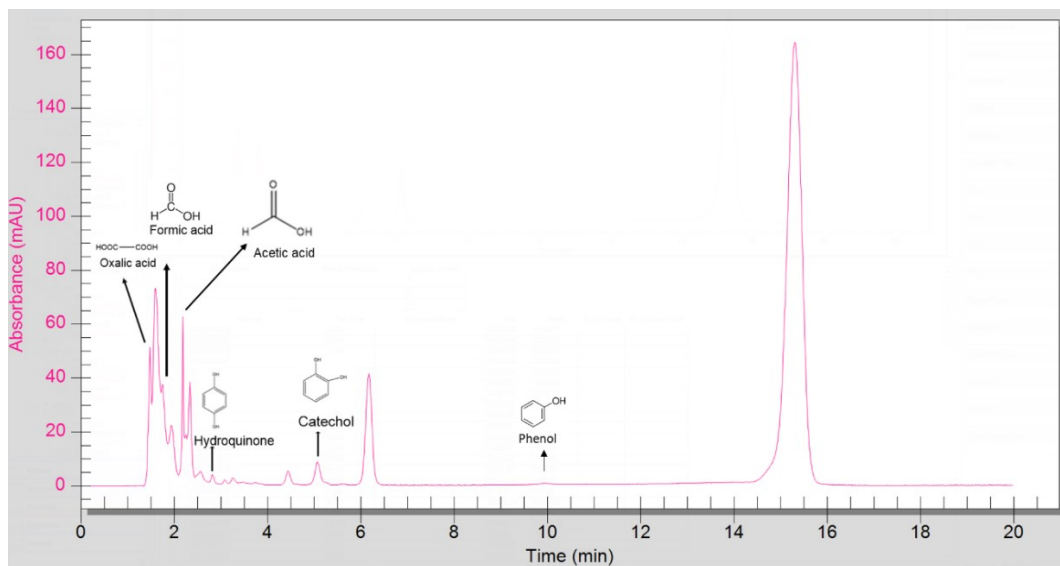
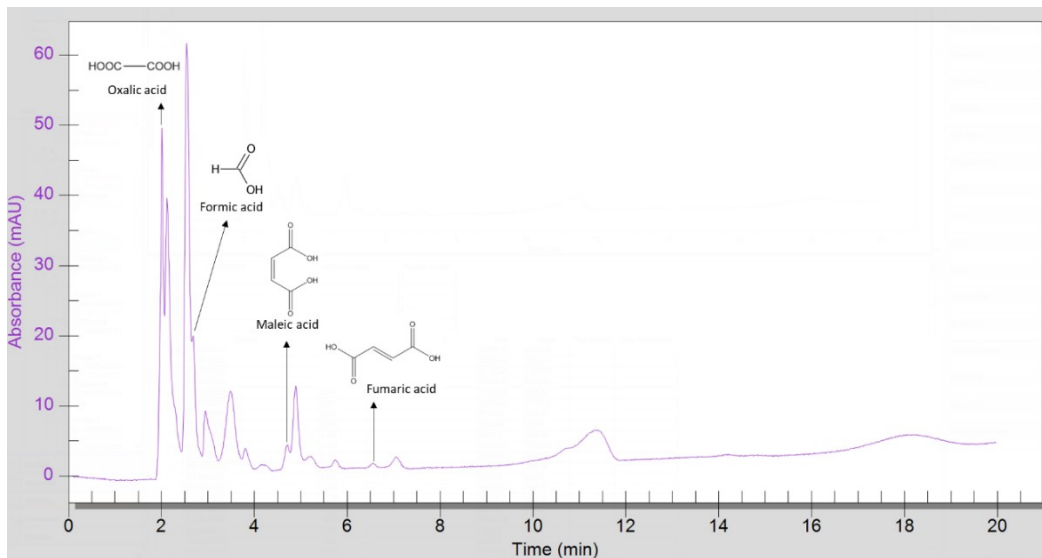
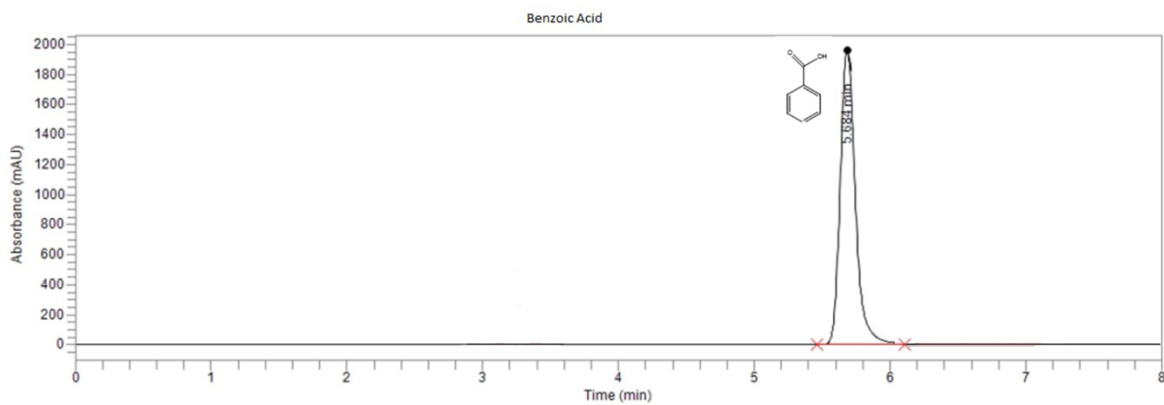


Figure S2. HPLC Chromatograms for the identification of byproducts obtained of BA removal

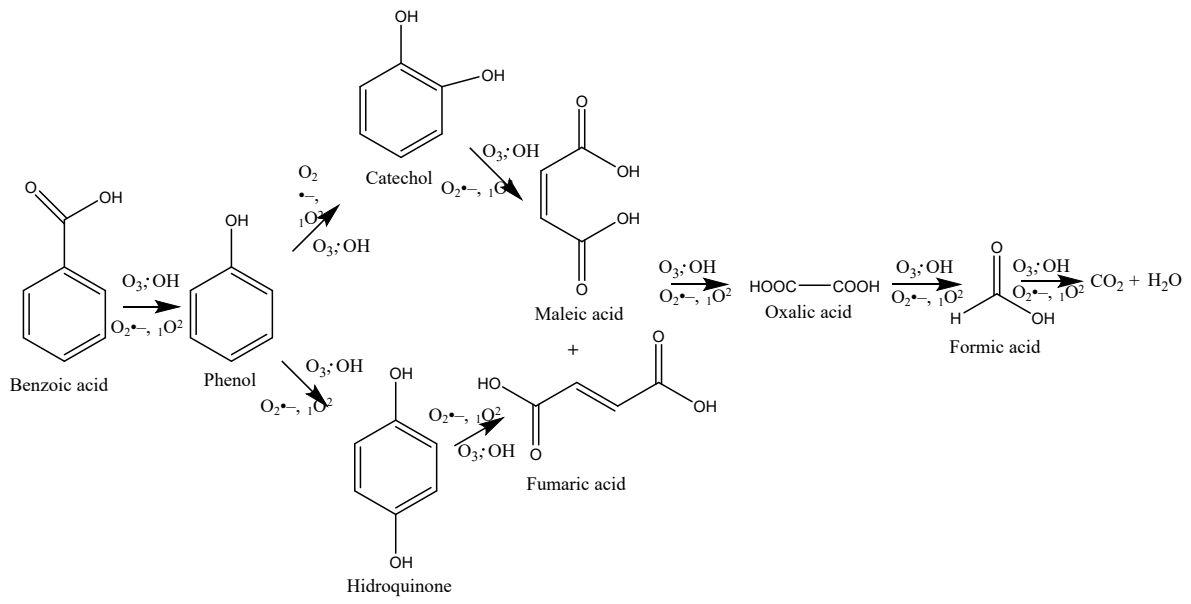


Figure S3. Proposed pathway of BA removal by catalytic ozonation.