An approach to the optimization of Ba-Mn-Cu perovskites as catalysts for CO oxidation: the role of cerium

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Table S1. Mn(IV)/Mn(III) ratios obtained by using the Mn $2p^{3/2}$ and Mn $2p^{1/2}$ transitions.

Sample	Mn(IV)/Mn(III) (Mn $2p^{3/2}$)	Mn(IV)/Mn(III) (Mn $2p^{1/2}$)
Fresh B0.8MC	0.96 ± 0.10	0.84 ± 0.06
Fresh Cu4/B0.7M-E	1.28 ± 0.05	1.61 ± 0.16
Fresh Cu12/B0.7M-E	1.34 ± 0.10	1.71 ± 0.33
Used B0.8MC (250ºC)	0.58 ± 0.01	0.50 ± 0.02
Used Cu4/B0.7M-E (250ºC)	0.79 ± 0.01	0.58 ± 0.02
Used B0.8MC (300ºC, 15 % CO_2)	0.84 ± 0.03	0.60 ± 0.04
Used Cu4/B0.7M-E (300ºC, 15 % CO_2)	0.45 ± 0.02	0.18 ± 0.01
Fresh B0.7M-E	0.48 ± 0.01	0.33 ± 0.02
Fresh Cu2Ce2/B0.7M-E	1.05 ± 0.03	1.06 ± 0.07
Used Cu2Ce2/B0.7M-E (300ºC, 0 % CO_2)	0.75 ± 0.01	0.66 ± 0.03
Used Cu2Ce2/B0.7M-E (300ºC, 15 % CO_2)	0.77 ± 0.02	0.66 ± 0.04

Table S1 displays the Mn(IV)/Mn(III) ratios obtained through the analysis of the Mn $2p^{3/2}$ and Mn $2p^{1/2}$ transitions. Note that some ratios are very similar, meanwhile others significantly differ, however, in spite of this finding, the trends of the Mn(IV)/Mn(III) ratios followed by both set of data are similar.

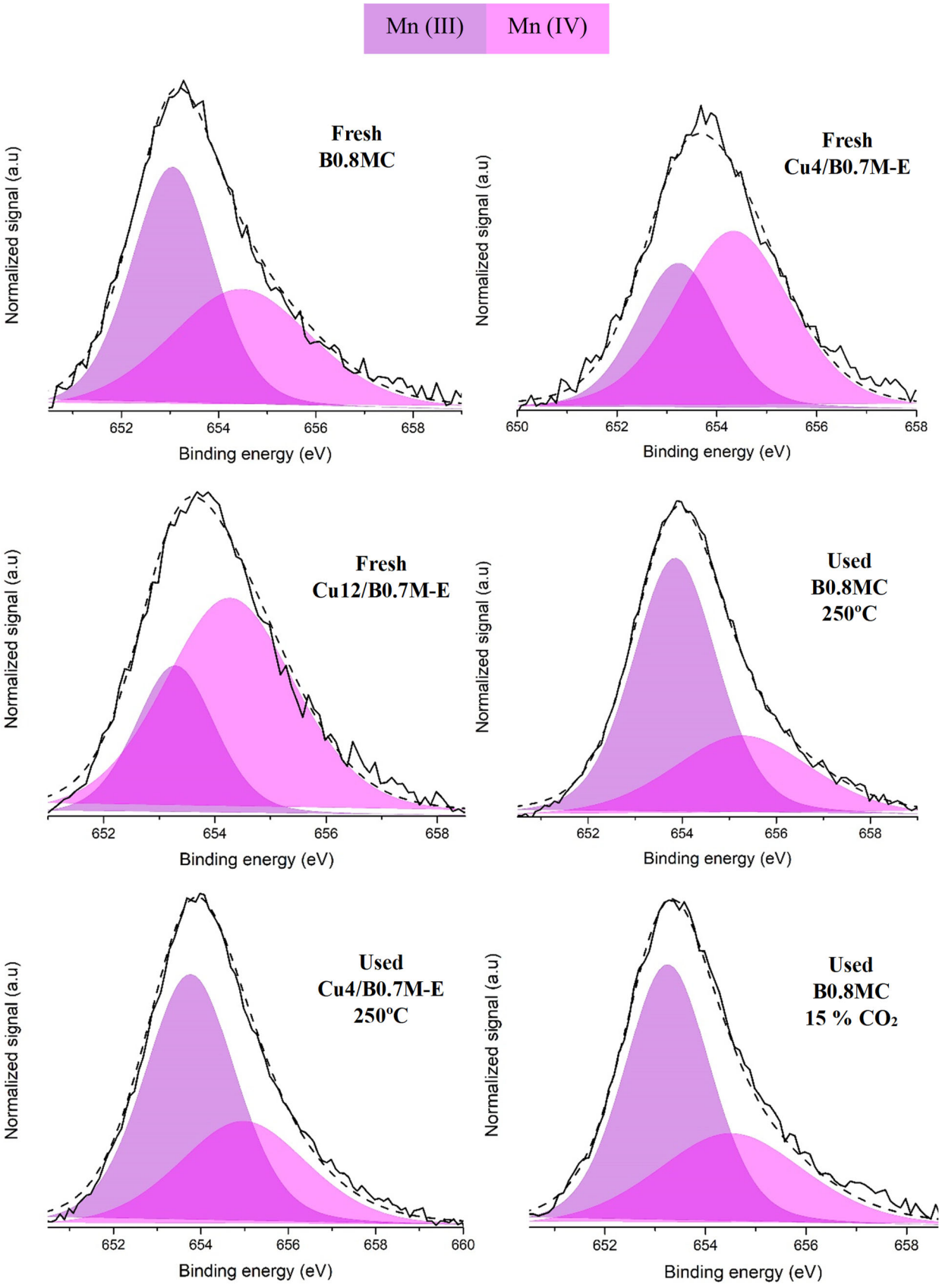


Figure S1 (part 1). Deconvoluted Mn $2p^{1/2}$ profiles.

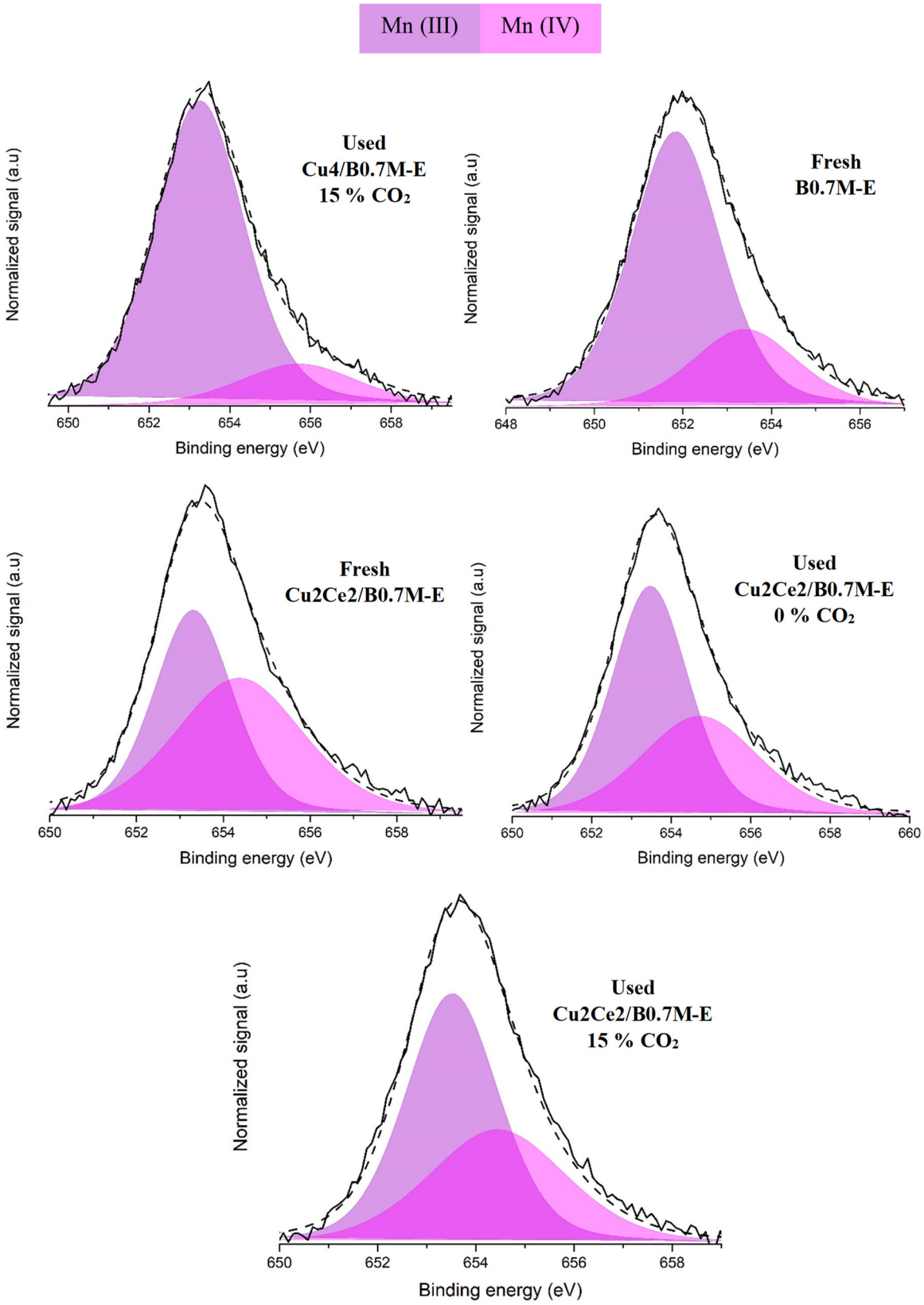


Figure S1 (part 2). Deconvoluted Mn $2p^{1/2}$ profiles.

Table S2. Data for the deconvolution of Cu, Cu_2O and CuO references.

	Kinetic energy (eV)	**FWHM (eV)**
Cu	911.16	3.50
	914.17	2.32
	916.25	1.54
	917.75	1.65
	918.66	0.95
	919.70	1.15
	921.38	1.50
Cu_2O	913.70	5.75
	917.00	2.10
	919.15	3.10
	922.10	2.35
CuO	911.50	2.85
	914.30	4.50
	917.90	2.20
	920.40	2.75

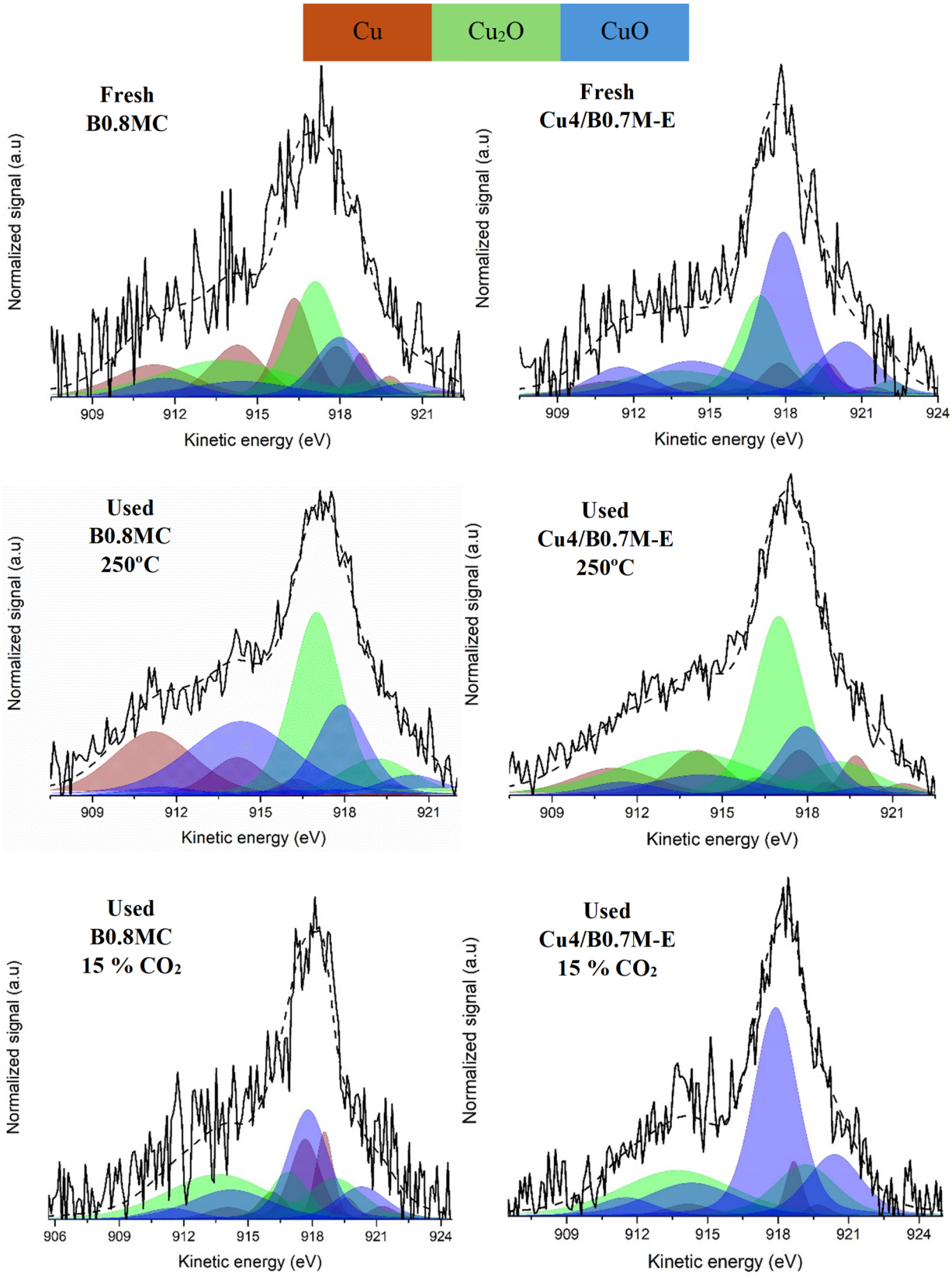


Figure S2 (part 1). Deconvoluted Cu $L_3M_{4.5}M_{4.5}$ profiles.

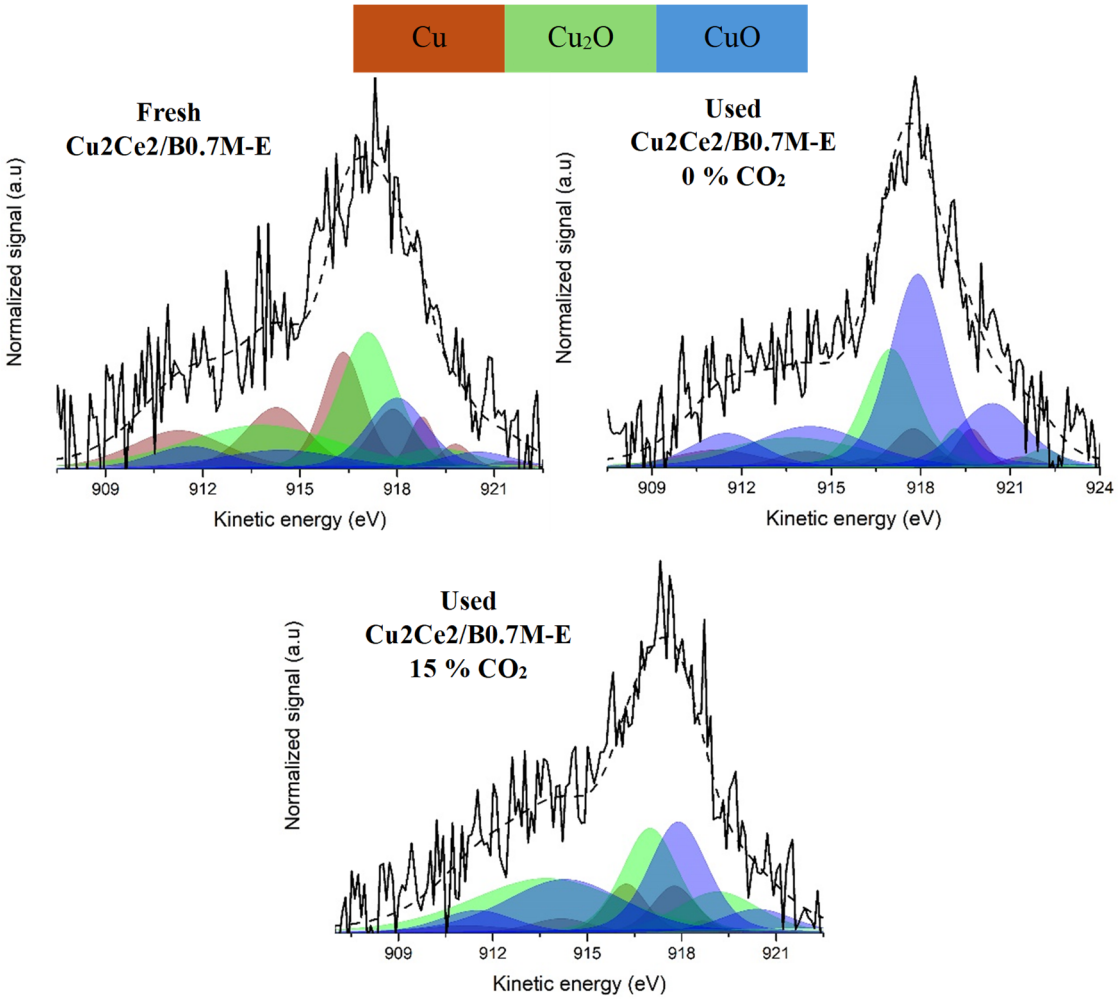


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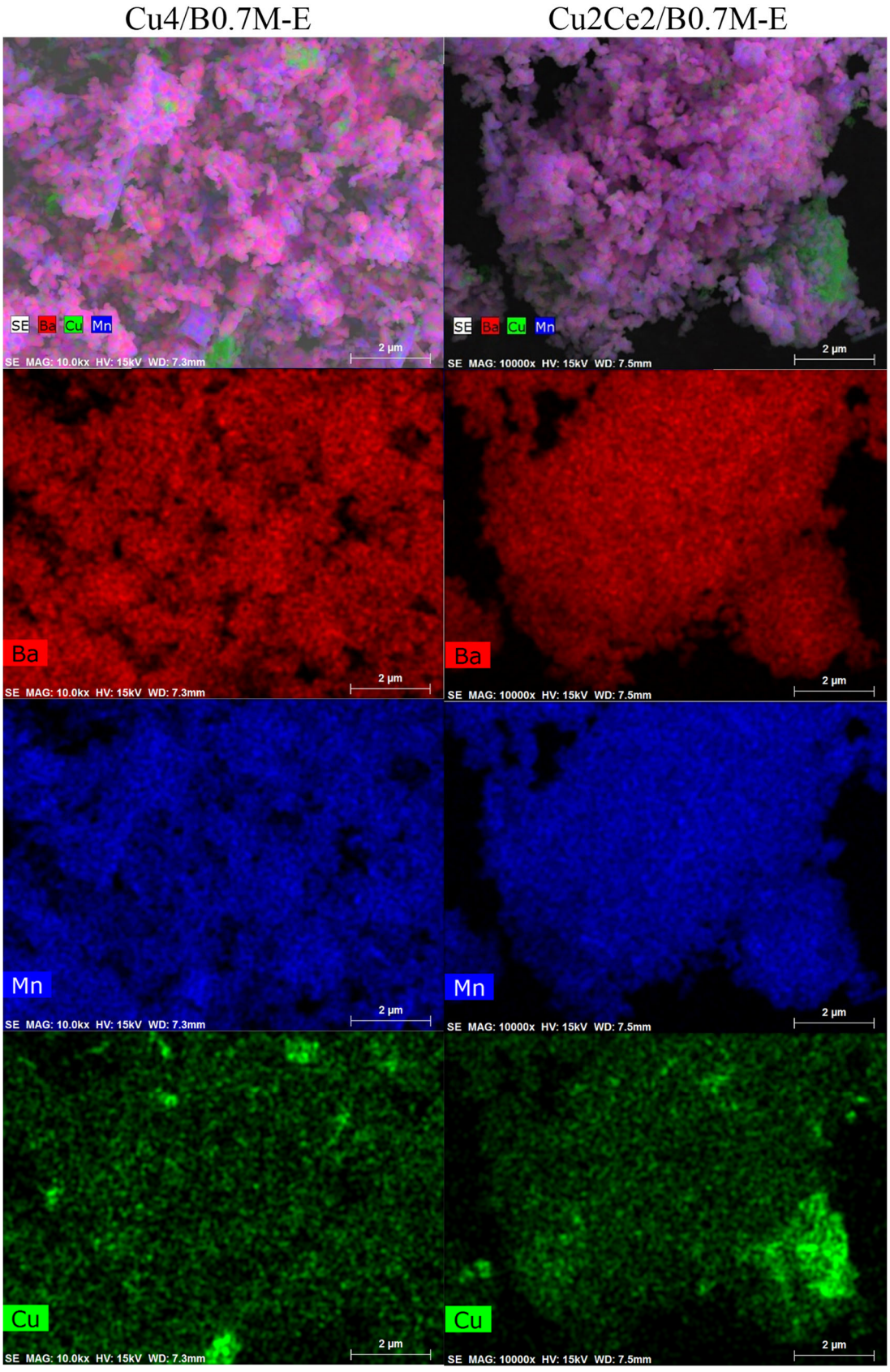


Figure S3. EDX mapping analysis (Ba, Mn and Cu) of the Cu4/B0.7M-E and Cu2Ce2/B0.7M-E samples.

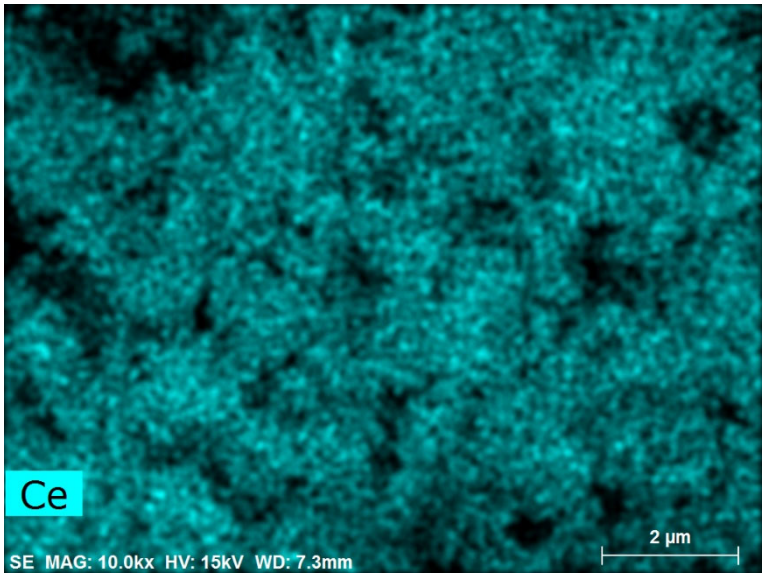


Figure S4. EDX mapping analysis (Ce) of the Cu2Ce2/B0.7M-E sample.

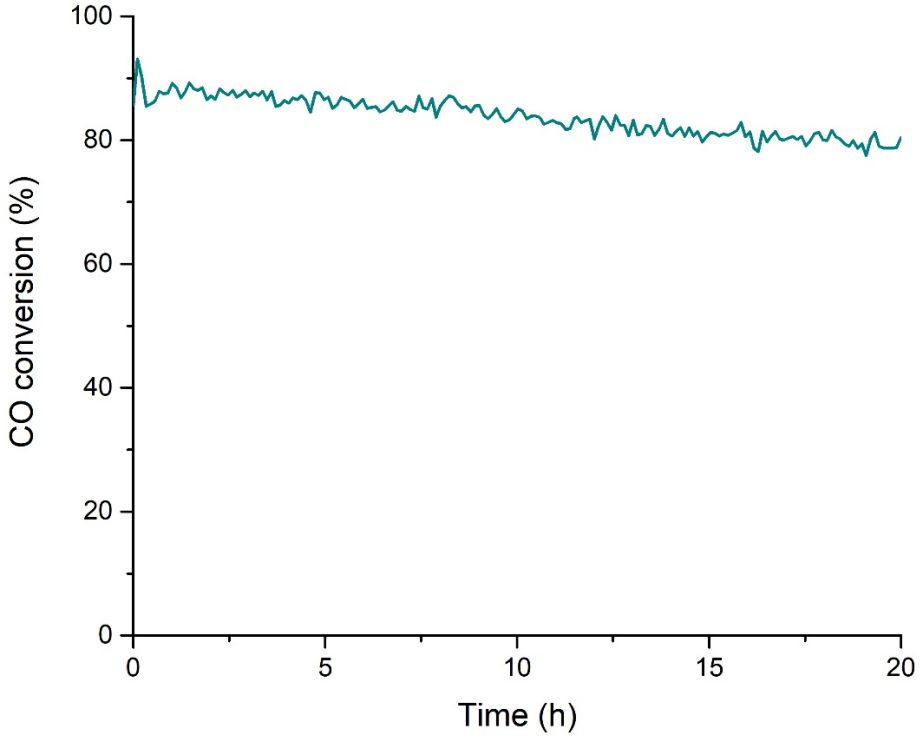


Figure S5. CO conversion profile at 300ºC of the Cu2Ce2/B0.7M-E sample in the presence of 15 % CO_2 during 20 h.