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### Spin-Coated vs. Electrodeposited Mn Oxide Films as Water Oxidation Catalysts

This is the author's accepted version of the contribution published as:

*Original*

Spin-Coated vs. Electrodeposited Mn Oxide Films as Water Oxidation Catalysts / HERNANDEZ RIBULLEN, SIMELYS PRIS; OTTONE MELIS, CARMINNA SOPHIA; Varetti, Sara; Fontana, Marco; Pugliese, Diego; Saracco, Guido; Bonelli, Barbara; Armandi, Marco. - In: MATERIALS. - ISSN 1996-1944. - 9:4(2016), p. 296. [10.3390/ma9040296]

*Availability:*

This version is available at: 11696/77299 since:

*Publisher:*

MDPI

*Published*

DOI:10.3390/ma9040296

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## Supplementary Materials: Spin-Coated *vs.* Electrodeposited Mn Oxide Films as Water Oxidation Catalysts

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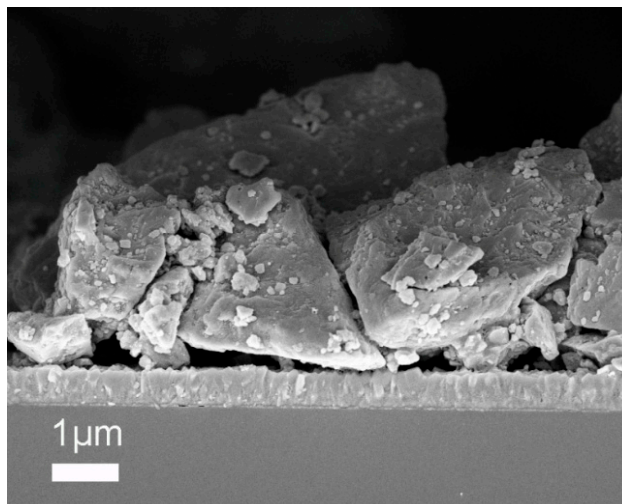


Figure S1. Cross-section FE-SEM image of a spin-coated film made with a non-ball-milled  $\text{Mn}_2\text{O}_3$  powder.

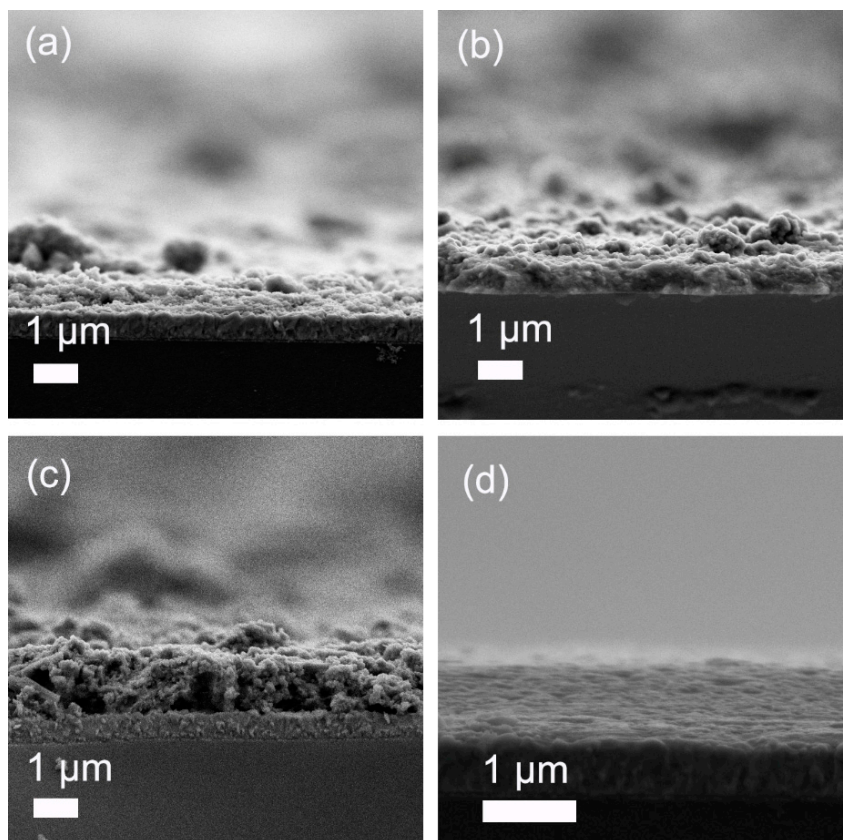
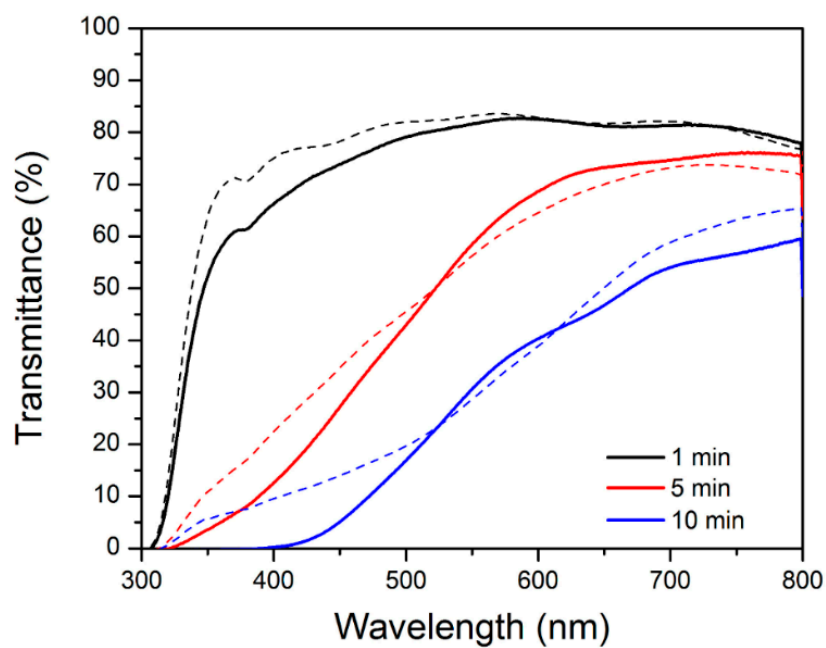
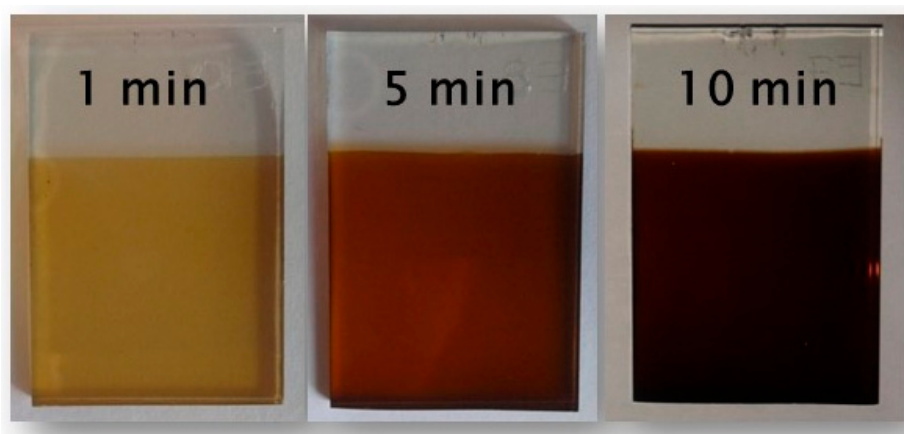


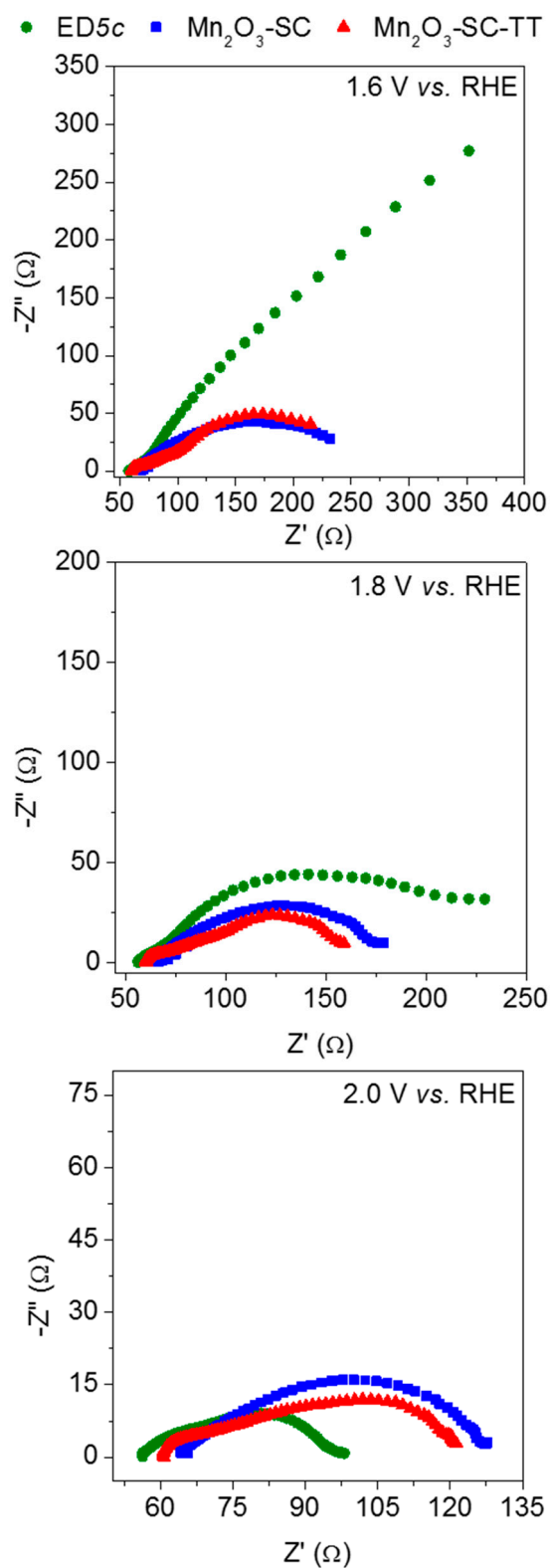
Figure S2. FE-SEM cross-section images of the films prepared by spin-coating of  $\text{MnO}_2$  (a);  $\text{Mn}_2\text{O}_3$  (b) and  $\text{Mn}_3\text{O}_4$  (c) powders; as-made electrodeposited 5-min film (d).



**Figure S3.** UV-Vis transmittance spectra of the electrodeposited films: as-made (continuous line) and calcined at 500 °C (dotted line).



**Figure S4.** Photographs of the as-made films prepared by electrodeposition at different deposition times.



**Figure S5.** Nyquist plots of the EIS measurements acquired using the  $\alpha$ -Mn<sub>2</sub>O<sub>3</sub>-based electrodes at 1.6, 1.8 and 2.0 V vs. RHE.