

SUPPLEMENTARY INFORMATION

Zinc polyaleuritate ionomer coatings as a sustainable, alternative technology for bisphenol A-free metal packaging

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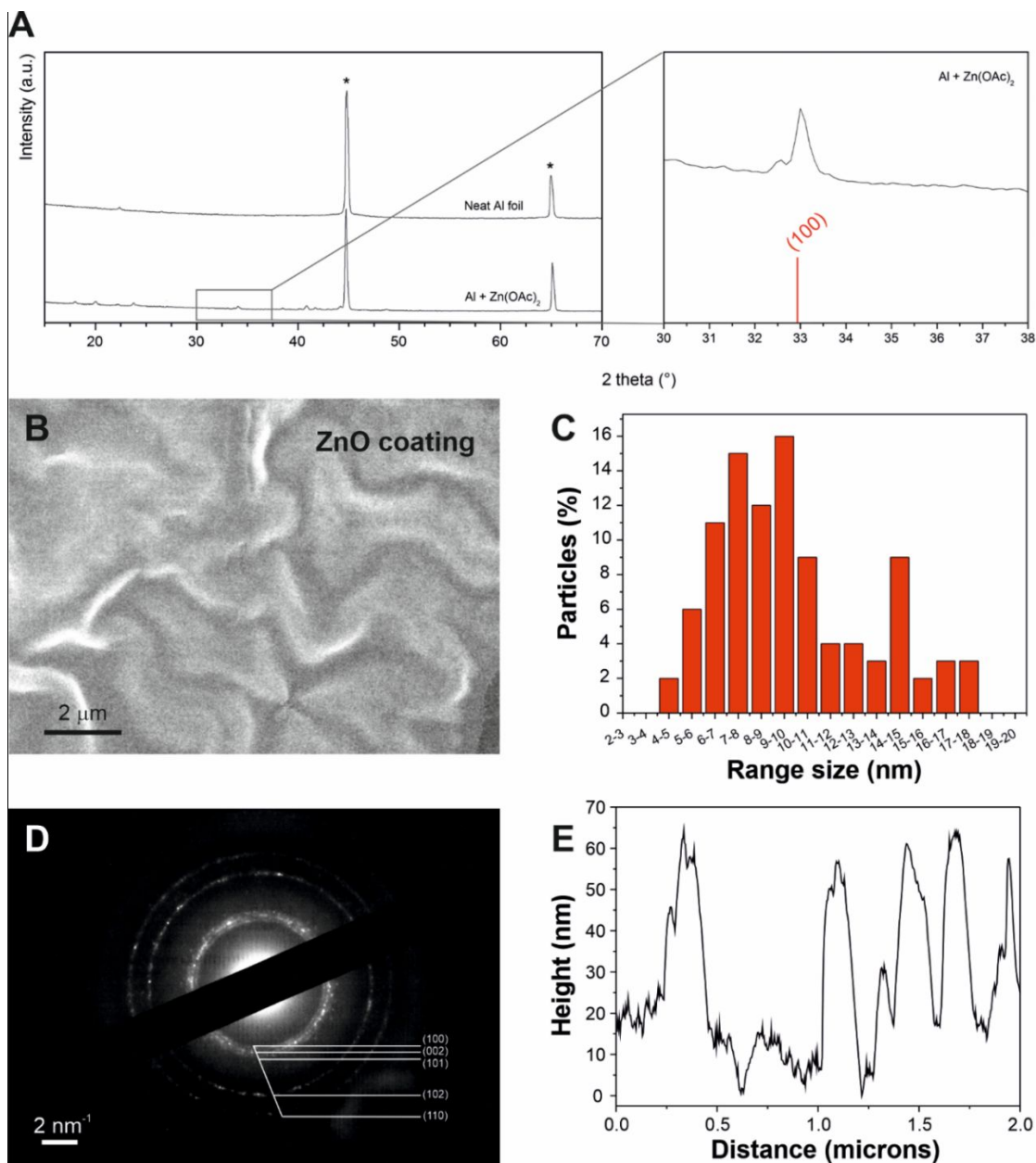


Figure S1. **A**, XRD diffractogram of the bare Al foil and Al/zinc acetate sample before the thermal treatment. (*) indicates the reflections due to the aluminum foil used as substrate. On the right, the magnification of the range 30-38° (2θ) and the associated zinc acetate database pattern (JCPDS file 00-056-0569, in red) are shown. **B**, HR-SEM top-view image of the ZnO layer, fully covering the underneath aluminum substrate. **C**, particle size distribution of the synthesized ZnO NPs. **D**, electron diffraction (SEAD) patterns of the ZnO NPs observed by TEM. The assignment of main crystalline planes are included **E**, AFM height profile of the ZnO nanoparticles covering the aluminum substrate.

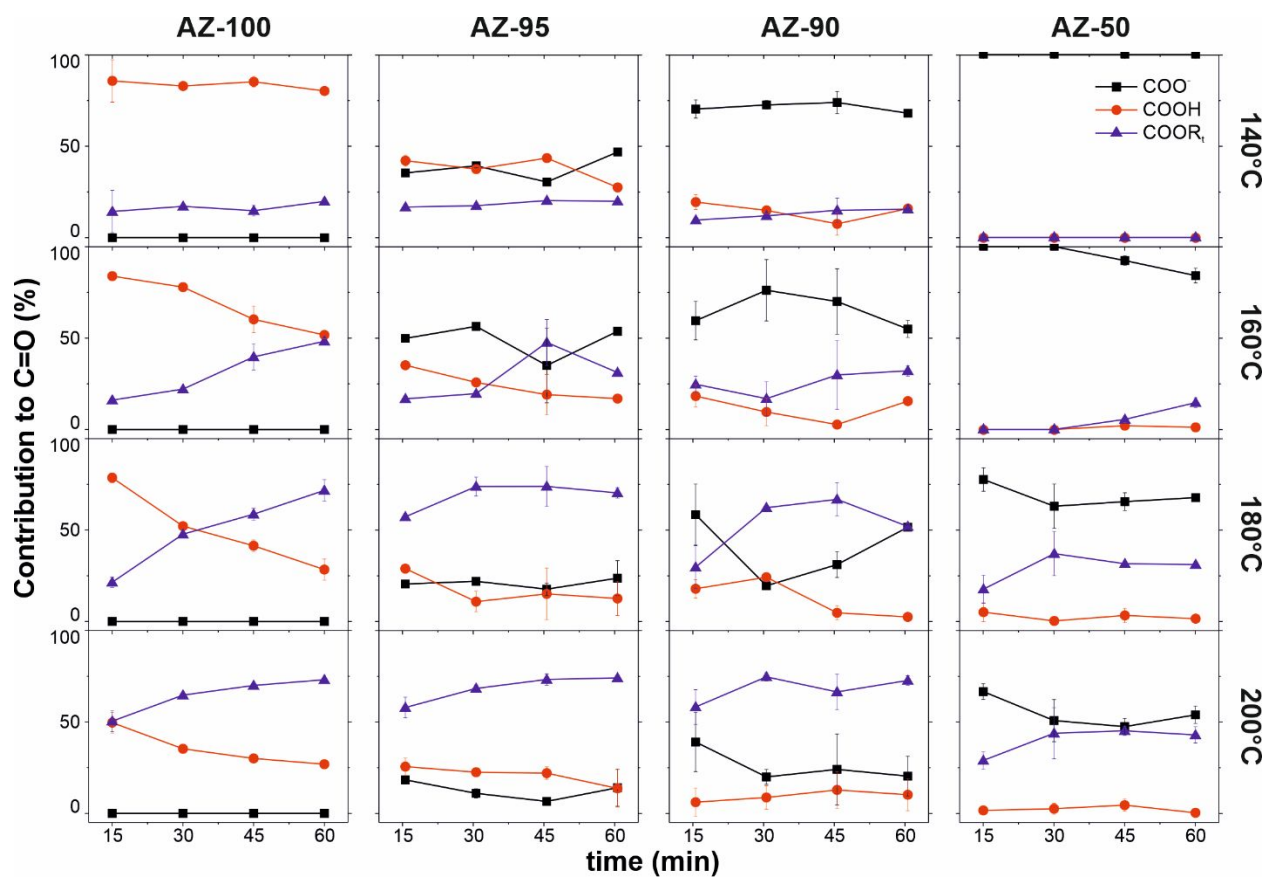


Figure S2. Contribution to the C=O stretching mode of carboxylate, carboxyl, and total ester groups of AZ-100 (first column), AZ-95 (second column), AZ-90 (third column), and AZ-50 (fourth column) at 140 (first row), 160 (second row), 180 (third row), and 200 (fourth row).

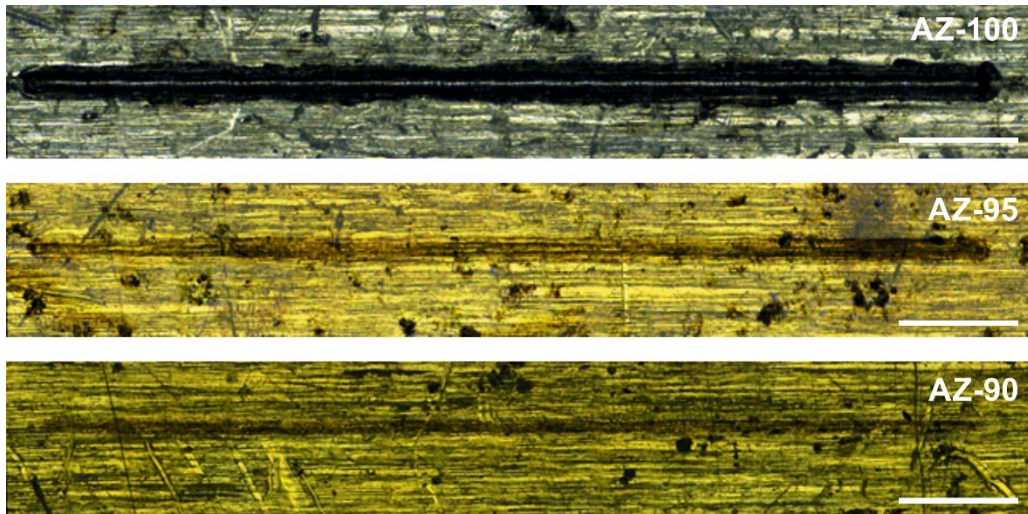


Figure S3. Scratch hardness scars of AZ-100, AZ-95, and AZ-90. Scale bar: 625 μm .

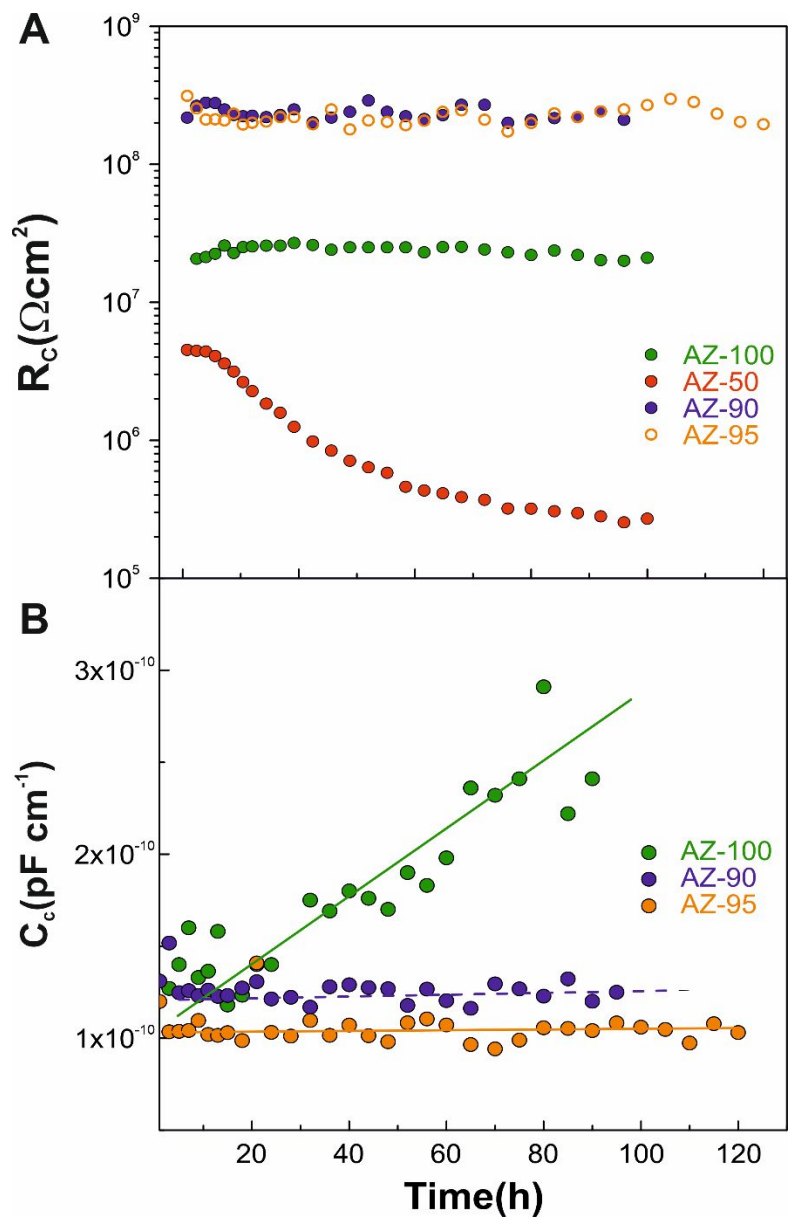


Fig. S4. A, B, variation of coating resistance and coating capacitance, respectively, over time.