

Supporting Information

Hydrophobic Antioxidant Polymers for Corrosion Protection of an Aluminum Alloy

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Supporting information contains 4 pages, 4 figures, and 4 tables

Table S1. Absorption characteristics of ethanol solutions of various additives

Additive	λ_{\max} , nm	ϵ , L mol ⁻¹ cm ⁻¹
TA	276	77300
PHex	202	4840
P2Hex	202	10500
P3Hex	204	9500

Table S2. Thicknesses of free-standing epoxy coatings used in transparency studies

Additive	TA	PHex	P2Hex	P3Hex	None
Thickness, μm	163 \pm 32	177 \pm 27	155 \pm 16	153 \pm 6	234 \pm 16

Table S3. Potentiodynamic polarization results

Coating	E_{corr} , V	E_{pit} , V	i_{corr} , A cm ⁻²
Bare AA2024	-0.71	-	4.5 \times 10 ⁻⁷
PHex	-0.77	-0.46	2.2 \times 10 ⁻⁸
P2Hex	-0.92	-0.38	2.0 \times 10 ⁻⁸
P3Hex	-0.88	-0.41	1.4 \times 10 ⁻⁸

Table S4. Characteristics of epoxy-based coatings deposited on AA2024 substrates

Additive	Abbreviation	Thickness, μm	RMS Roughness, nm
None	Ep	120 ± 12	65 ± 35
P2Hex	EpP2Hex	108 ± 7	729 ± 165
P3Hex	EpP3Hex	116 ± 11	997 ± 100
PHex	EpPHex	68 ± 6	1160 ± 473

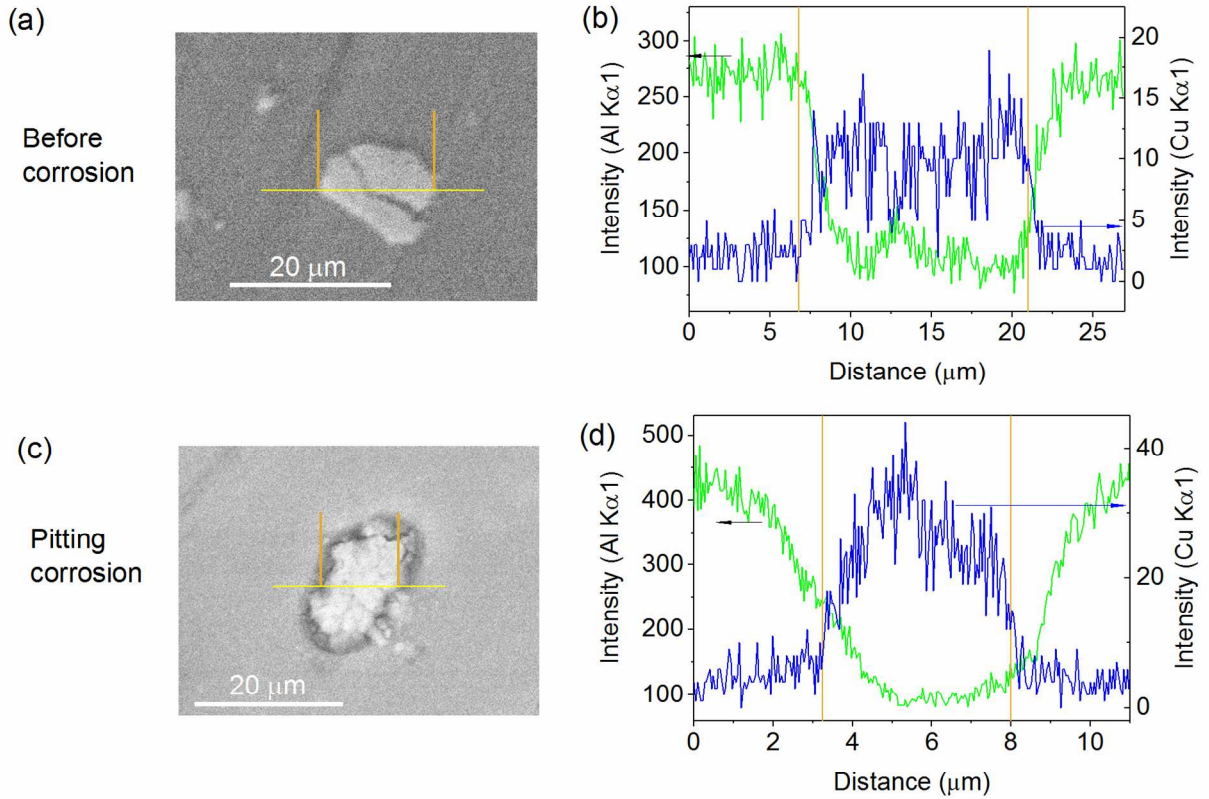


Figure S1. SEM images of copper-enriched precipitates of non-corroded (c) and corroded (b) AA2024 substrates with EDS elemental analysis along yellow lines (b and d, respectively).

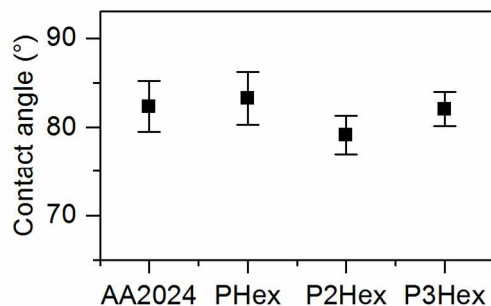


Figure S2. Contact angle of polymer-coated as well as bare AA2024 substrates.

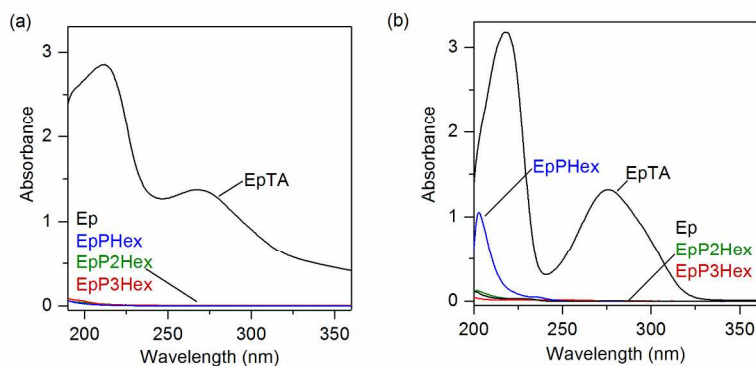


Figure S3. Absorbance of water (a) or ethanol (b) extracts from free standing epoxy coatings with different additives measured after 60 days of immersion.

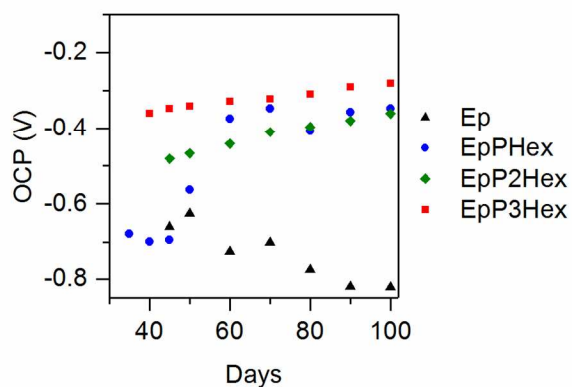


Figure S4. Time evolution of OCP for AA2024 substrates covered with the epoxy coatings and immersed in 0.6 M NaCl solution.