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Supplementary Information

Corrosion Protection of Aluminum by Hydrophobization Using Nanoparticle Polymer Coatings Containing Plant Oil

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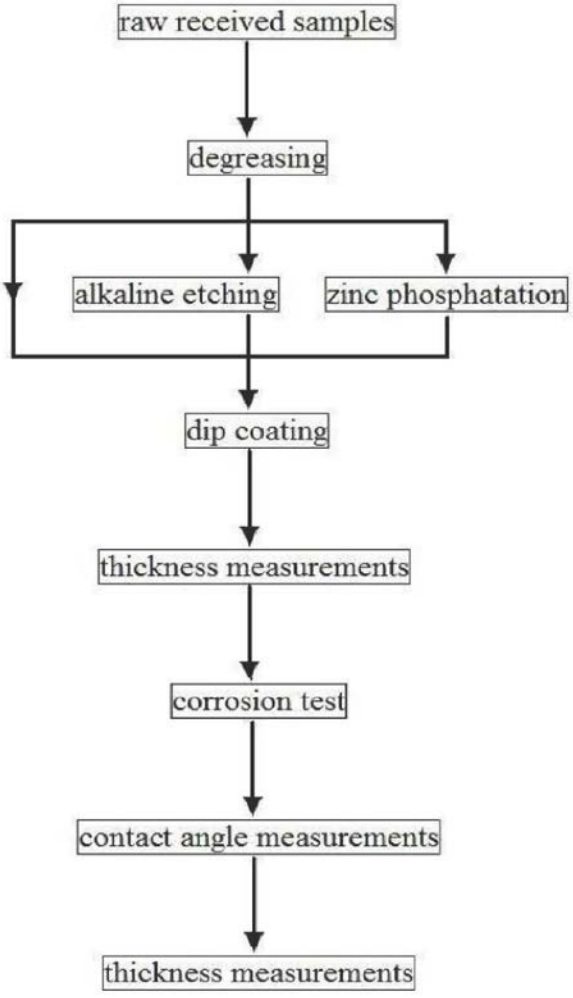

Figure S1. Experimental flow-diagram for sample preparation, coating and characterization.

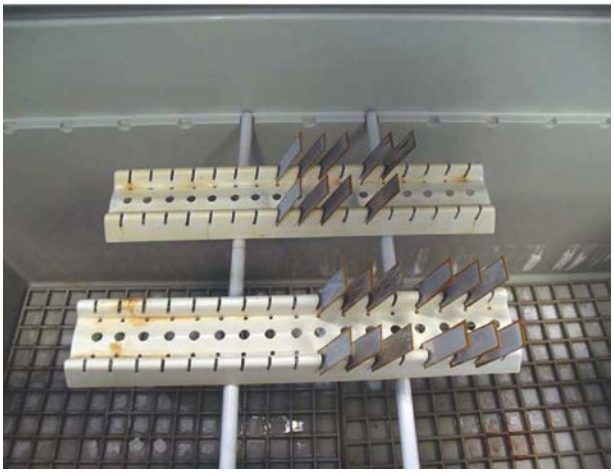

Figure S2. Positioning of (coated) aluminum samples in the salt spray testing chamber.

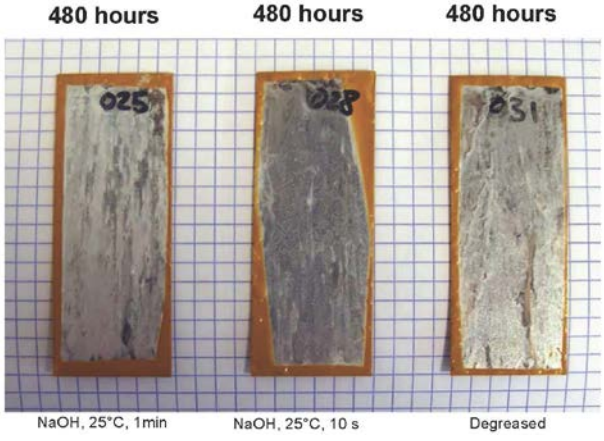

Figure S3. Corrosion test results for uncoated reference samples (final time of 480 h exposure).

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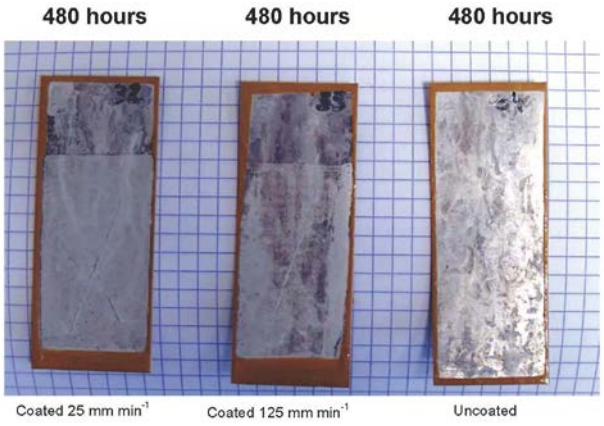

Figure S4. Corrosion test results for "worse" phosphatized samples (final time of 480 h exposure), including an uncoated reference sample and samples with a polymer coating deposited at low and high speed.

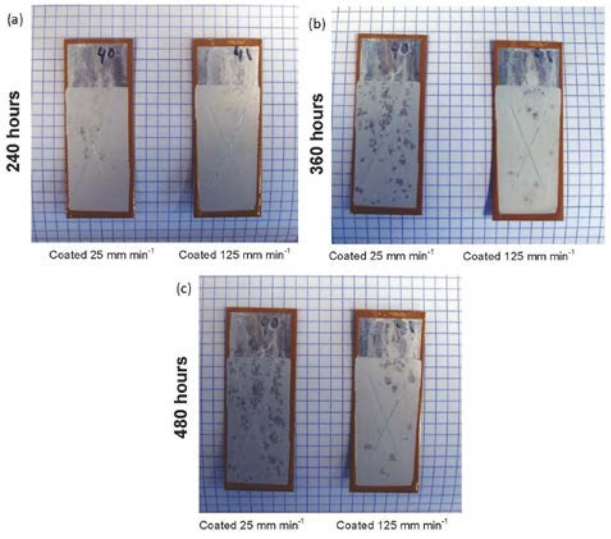

Figure S5. Corrosion test results for "worse" alkaline etched samples (25 °C, 1 min) coated at slow speed and high speed, after different exposure times, (a) 240 h, (b) 360 h, (c) 480 h.

Table S1. Water contact angles (°) on alkaline-etched aluminum surfaces with different coating compositions including SMI/SoyO, SB latex and carnauba wax, immediately after coating and after three months ageing

Coating composition (wt.%)			Contact angle θ_{stat} / degree	
SMI/SoyO	SB latex	*Carnauba wax*	Immediately after coating	After ageing
100	0	0	88 ± 0.6	90 ± 0.8
80	20	0	85 ± 1.0	88 ± 0.3
60	40	0	80 ± 0.8	82 ± 0.2
50	50	0	77 ± 0.5	79 ± 0.6
30	70	0	79 ± 1.2	78 ± 0.3
10	90	0	77 ± 0.9	78 ± 0.1
75	20	5	96 ± 0.3	97 ± 0.2
60	20	20	98 ± 0.3	98 ± 0.5
50	20	30	100 ± 2.3	96 ± 1.1
40	20	40	103 ± 1.3	95 ± 1.5
45	50	5	92 ± 0.5	93 ± 0.5
40	50	10	99 ± 0.2	98 ± 0.5
30	**50**	**20**	**109 ± 0.5**	**107 ± 0.3**
20	50	30	105 ± 0.3	97 ± 1.4
25	70	5	83 ± 0.2	80 ± 0.1
20	70	10	85 ± 0.5	82 ± 0.5
10	70	20	88 ± 0.6	86 ± 0.5
0	100	0	60 ± 0.1	60 ± 0.1
0	0	100	80 ± 0.5	78 ± 0.2
0	65	35	78 ± 0.2	77 ± 0.3