Understanding the influence of carbon addition on the corrosion behavior and mechanical properties of Al alloy “covetics”

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Supporting Figures & Tables:

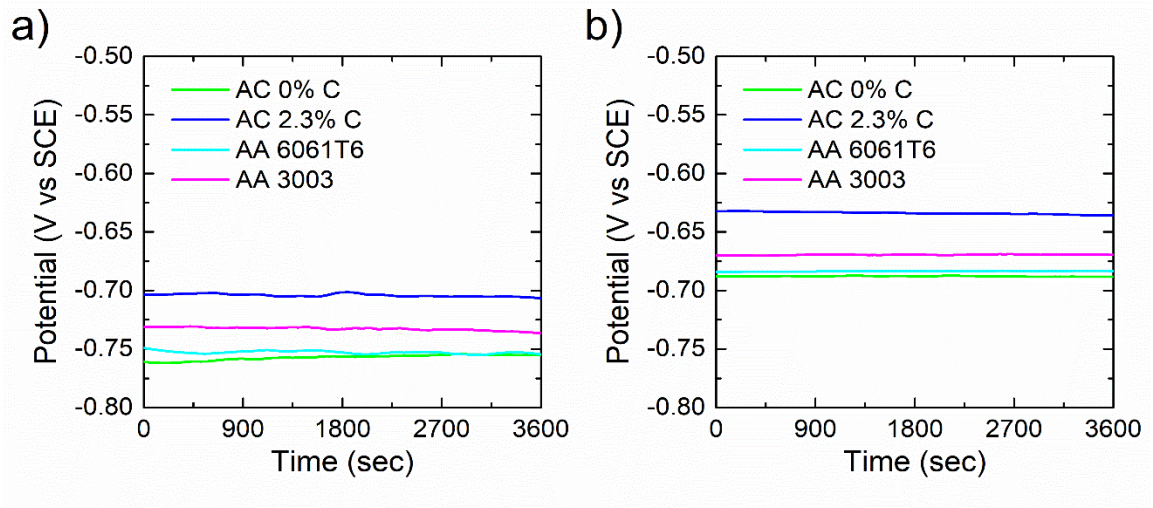

Figure S1. Open circuit potential (OCP) recorded for 60 minutes in 1M NaCl (a) and 0.1M HCl (b).

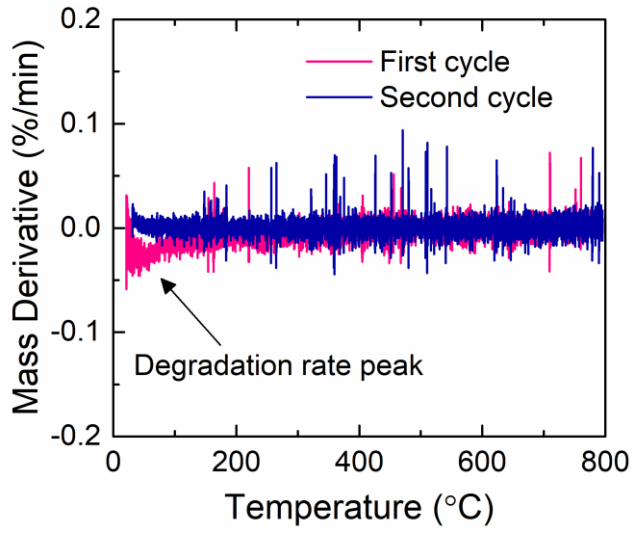

Figure S2. Degradation rate (DTG) curves for the 2.3% covetic.

Table S1. Corrosion potentials obtained from averaging OCP values over the final 30 minutes of measurement.

Aluminum Alloy Sample	**E_{OCP} NaCl (V vs SCE)**	**E_{OCP} HCl (V vs SCE)**
Al 3003	-0.74	-0.67
Al 6061 T6	-0.75	-0.68
Al Covetic 0% C	-0.75	-0.69
Al Covetic 2.3% C	-0.70	-0.64

Table S2. Comparison of corrosion potentials for reference materials obtained by averaging OCP values over the final 30 minutes of measurement and given values from literature using the same method.

Aluminum Alloy Sample	**Measured E_{OCP} NaCl (SCE)**	**Reference E_{OCP} NaCl (SCE)[1]**
Al 3003	-0.74	-0.74
Al 6061 T6	-0.75	-0.74

References:

[1] T.D. Burleigh, R.C. Rennick, F.S. Bovard, Technical note: Corrosion potential for aluminum alloys measured by ASTM G 69, CORROSION, 49 (1993) 683-685.