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Erratum to: Mitigation of Intergranular Stress Corrosion Cracking in Al–Mg by Electrochemical Potential Control

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The highlighted values in Table I pertaining to the corrected test in 0.6 M NaCl at −0.8 V_{SCE} pertain to the data shown in Fig. 2 and are illustrated graphically in Fig. 3. These corrected K_{TH} and da/dt_{II} values should be considered by the reader when reading pertinent "Results" and "Discussion" sections, which will further support conclusions drawn in this publication.

A typo in the data analysis shown in Fig. 3 performed on the −0.8 V_{SCE} test in 0.6 M NaCl was corrected, yielding a slightly different da/dt versus K trend than published originally. The corrected data further support this publication's conclusions, and fractographic analyses for this test remain valid (Fig. 4a).

Table I. Critical electrochemical and fracture mechanical results

	0.6 M NaCl		Saturated NaCl		2 M $MgCl_2$		Saturated $MgCl_2$	
EC								
$OCP_{(\alpha)}$ (V_{SCE})	−0.78		−0.89		−0.95		−1.01	
$E_{pit(\alpha)}$ (V_{SCE})	−0.70		−0.85		−0.82		−0.90	
$E_{pit(\beta)}$ (V_{SCE})	−0.95		−1.02		−1.00		−1.05	
	K_{TH}	da/dt_{II}	K_{TH}	da/dt_{II}	K_{TH}	da/dt_{II}	K_{TH}	da/dt_{II}
LEFM								
−0.8 V_{SCE}	5.0	1.0×10^{-3}	3.0	4.0×10^{-3}	2.5	5.0×10^{-3}	2.0	1.0×10^{-3}
−0.9 V_{SCE}	17.0	1.0×10^{-4}	4.0	2.0×10^{-3}	6.0	2.0×10^{-3}	4.0	1.0×10^{-3}
−1.0 V_{SCE}	N/A	N/A	12.0	3.5×10^{-4}	9.0	3.0×10^{-4}	6.5	9.0×10^{-4}
−1.1 V_{SCE}	N/A	N/A	13.0	1.5×10^{-4}	9.0	2.0×10^{-4}	9.0	1.5×10^{-4}

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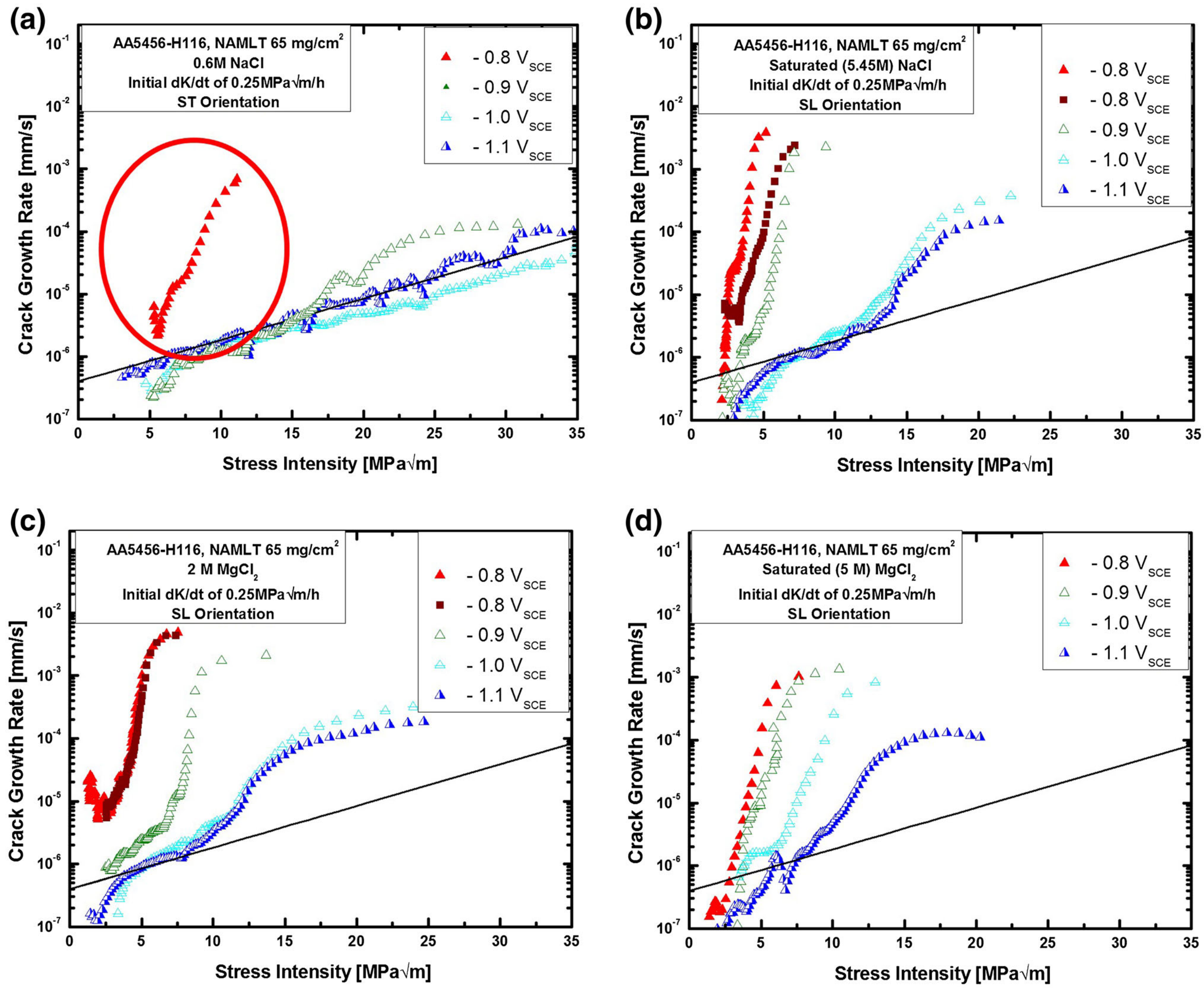

Fig. 2. The effect of environment and electrochemical potential on the IG-SCC susceptibility of AA5456-H116, NAMLT 65 mg/cm^2, showing mitigated IG-SCC rates at applied E increasingly near or more negative than $E_{pit(\alpha)}$ and $E_{pit(\beta)}$ in (a) 0.6 M NaCl, (b) saturated NaCl, (c) 2 M MgCl^2, and (d) saturated $MgCl_2$. Duplicate testing is demonstrated in (b, c) for the -0.8 V_{SCE} tests.

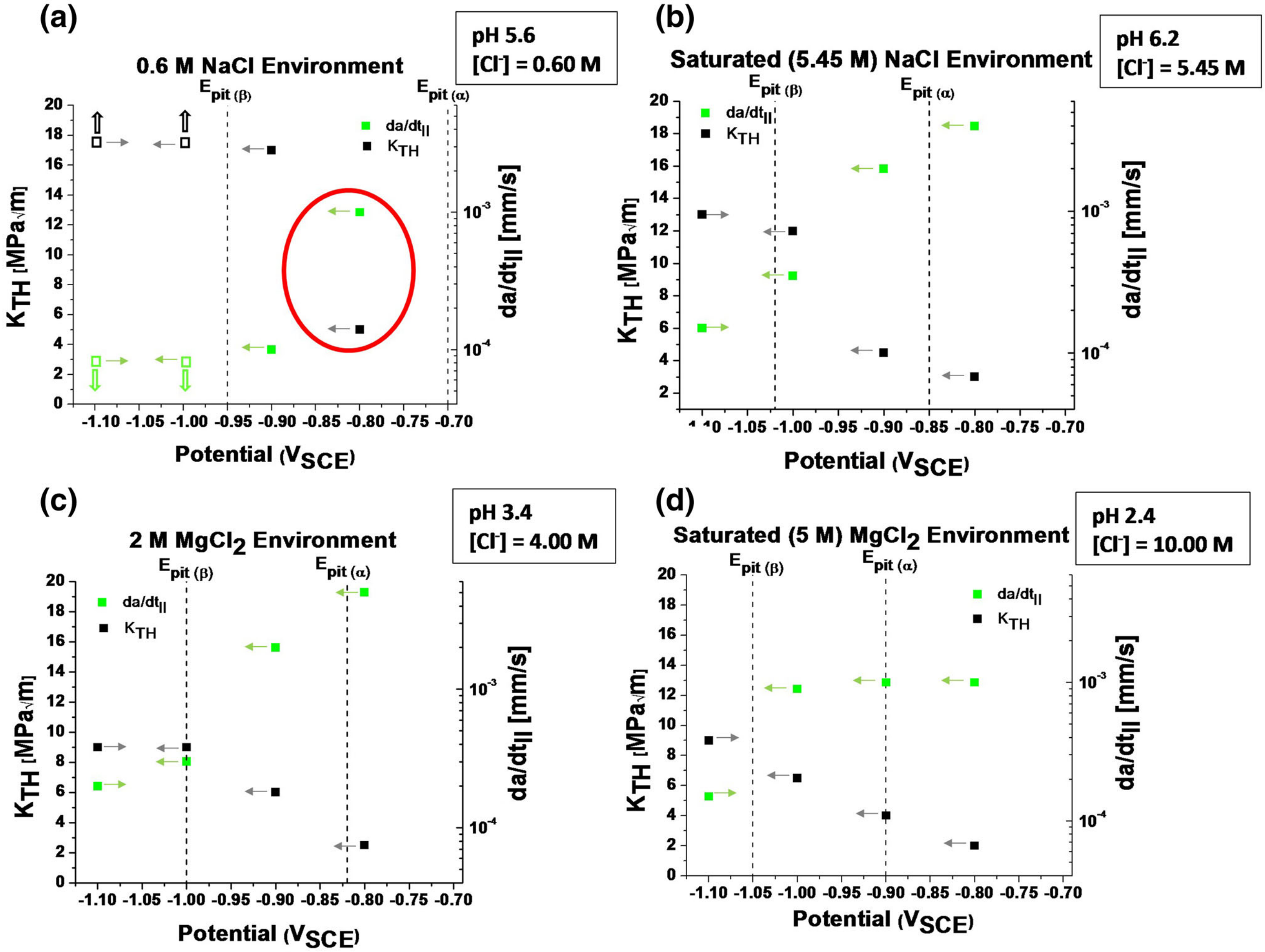

Fig. 3. Trends of K_{TH} increase and da/dt_{II} decrease with applied E_{SCE} becoming increasingly cathodic with respect to $E_{corr(\alpha)}$ and $E_{corr(\beta)}$ in (a) 0.6 M NaCl, (b) saturated NaCl, (c) 2 M $MgCl_2$, and (d) saturated $MgCl_2$. Lateral arrows indicate the effect of IR drop across the crack front, which affects the potential achieved at the crack tip by bulk environment polarization.