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Supplementary Material

Inhibitor mixture for reducing bacteria growth and corrosion on marine steel

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Supplementary Information

Multifunctional inhibitor mixture for reducing bacteria growth and corrosion on marine grade steel

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Table S1: The main alloying elements of the 80HLES used in this work.

Element	Fe	C	Mn	Si	S	P	Ni	Cr	Mo	Cu	Al
Composition (%wt)	Bal	0.14	0.48	0.17	0.01	0.01	4.30	0.45	0.27	0.22	0.01

Table S2: Composition of artificial sweater in 1 litre of deionised water.

Salt	NaCl	$MgCl_2$	$MgSO_4$	$CaCl_2$	KCl
Mass (g)	26.52	2.44	3.30	1.14	0.73
Concentration (M)	0.45	0.03	0.03	0.01	0.01
Concentration (ppm)	26524.0	2440.7	3300.6	1140.4	725.5

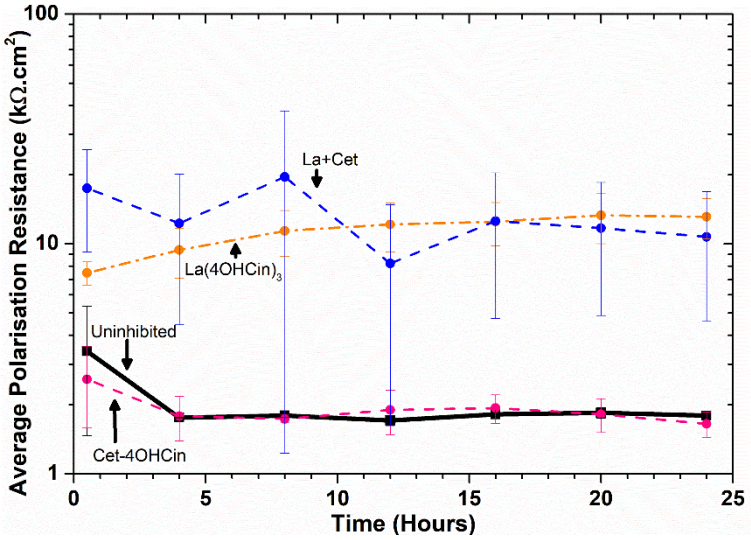

Fig. S1: Polarisation resistance measurements at 30 minutes and at 4 hour intervals for each inhibitor.

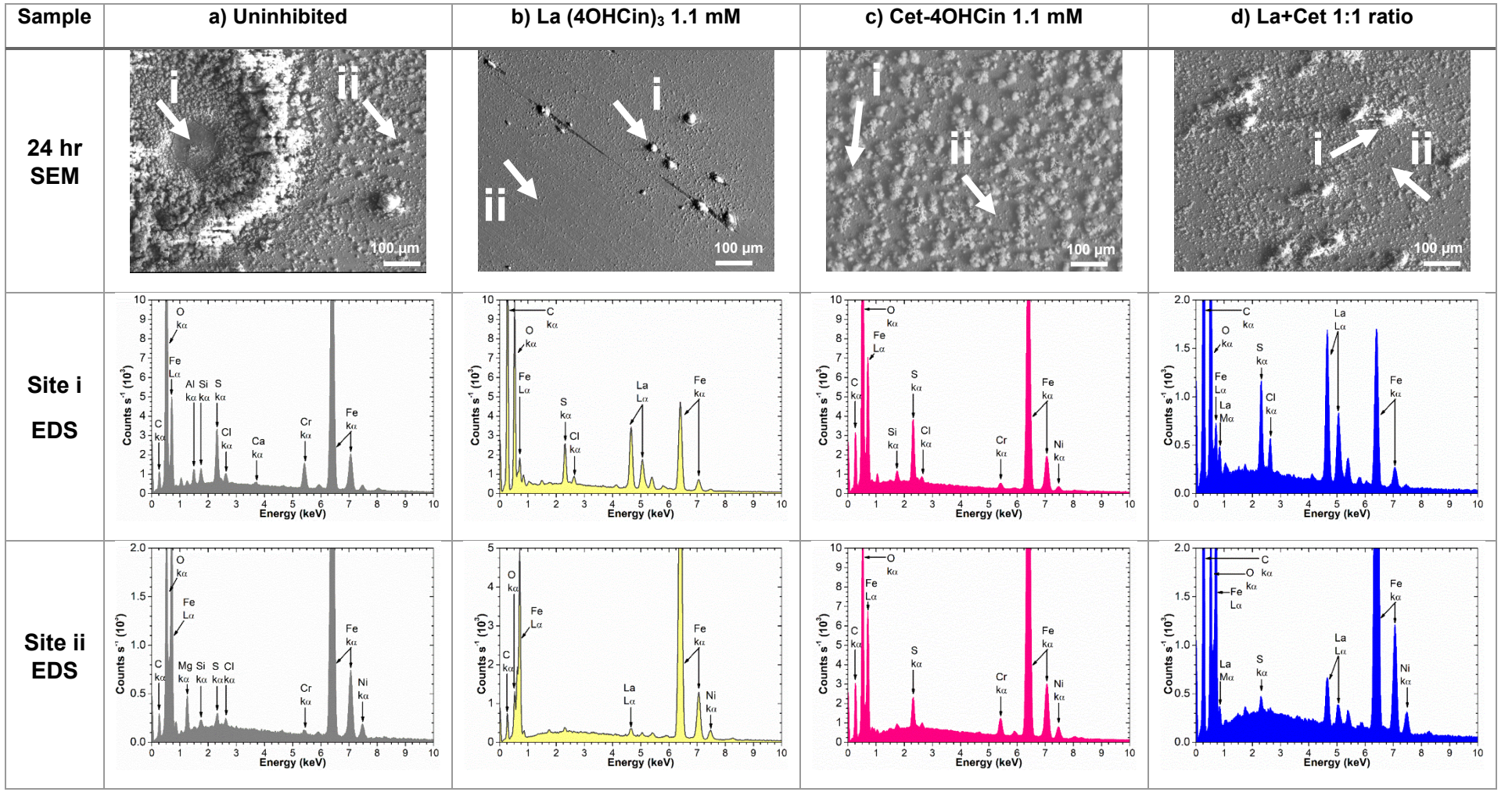

Fig. S2: Secondary electron micrographs and EDS spectra of each sample immersed after 24 hours.

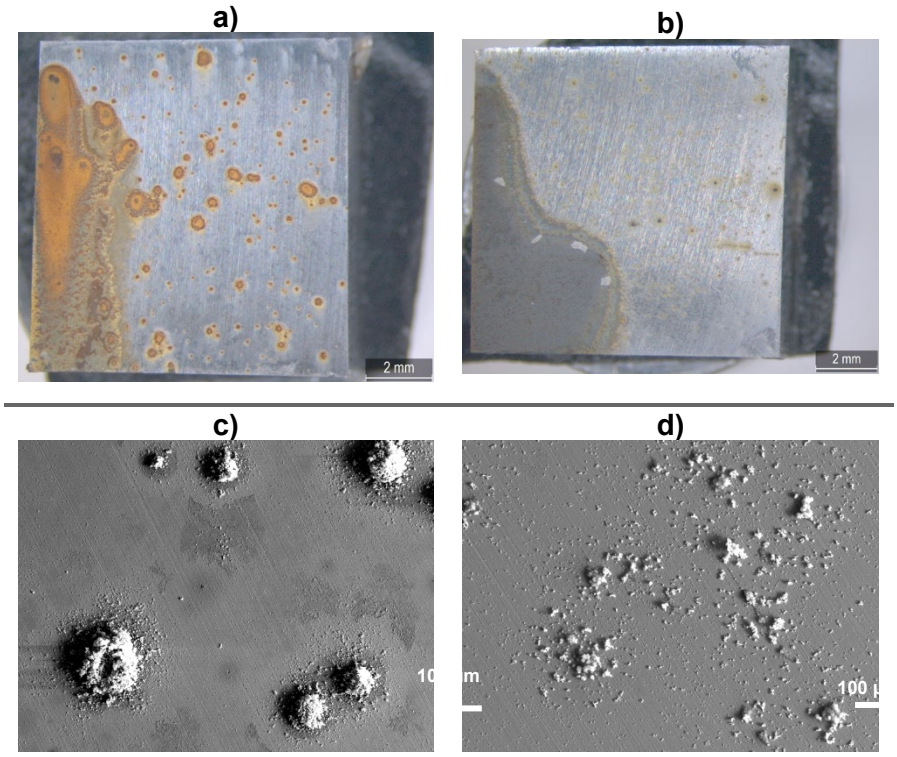

Fig. S3: Optical microscopy images showing at least two areas of varied corrosion product deposition for a) uninhibited and b) Cet-4OHCin. The SE micrographs for the orange/darker regions were presented in Fig. 8**. The SE micrographs for the areas of reduced corrosion product deposit are presented in c) uninhibited and d) Cet-4OHCin.**

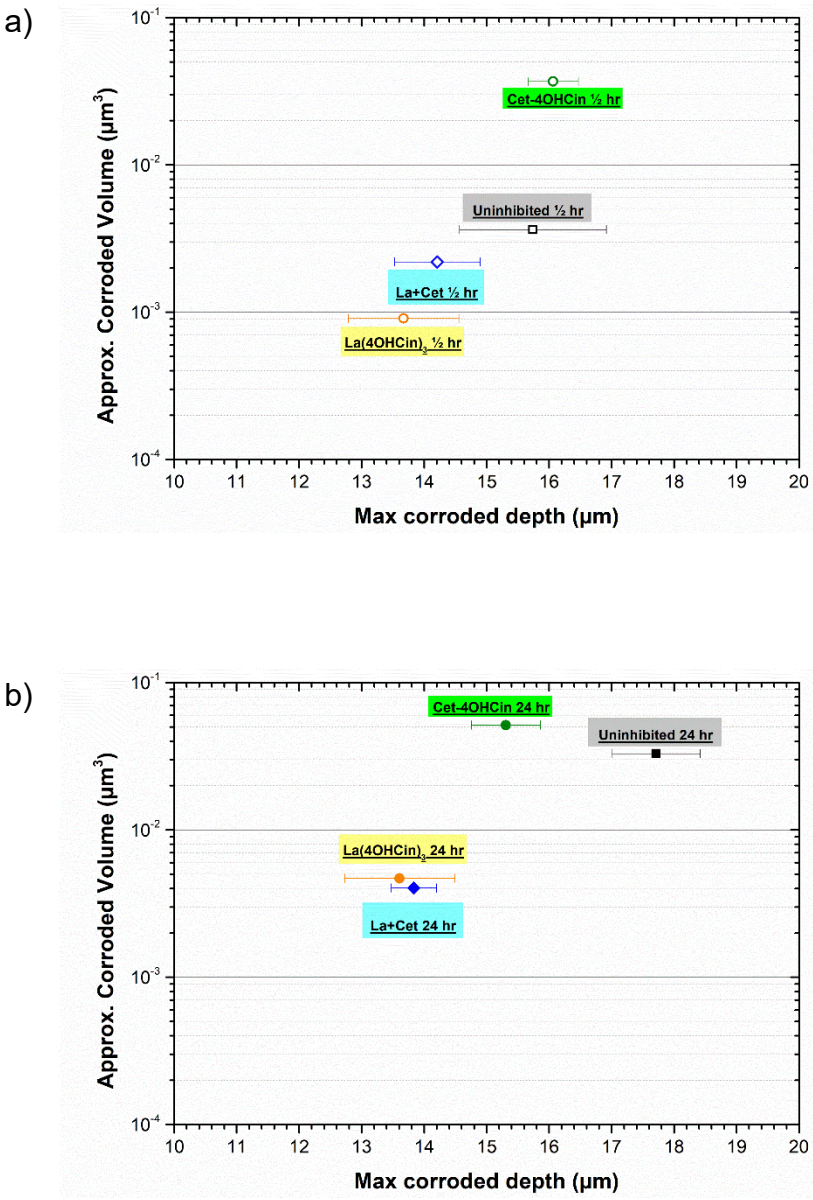

Fig. S4: Average corroded volume for each inhibitor after 30 minutes (a) and 24 hour (b) immersion periods.