Supporting Information

Corrosion-Resistant Crosslinked Cyanate Ester Coatings Doped by Graphene Oxide for Use in High-Temperature Marine Environments

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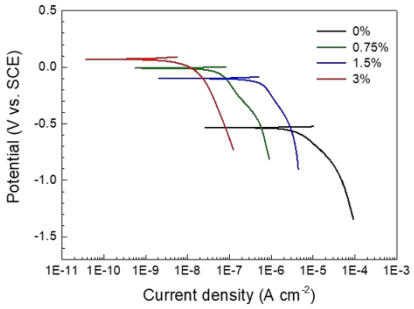

Figure S1. Potentiodynamic polarization curves for pristine CE coating, 0.75 wt.%, 1.5 wt.% and 3 wt.% GO/CE coatings on Q235 steel after immersion in 3.5 wt.% NaCl solution for 1320 h.

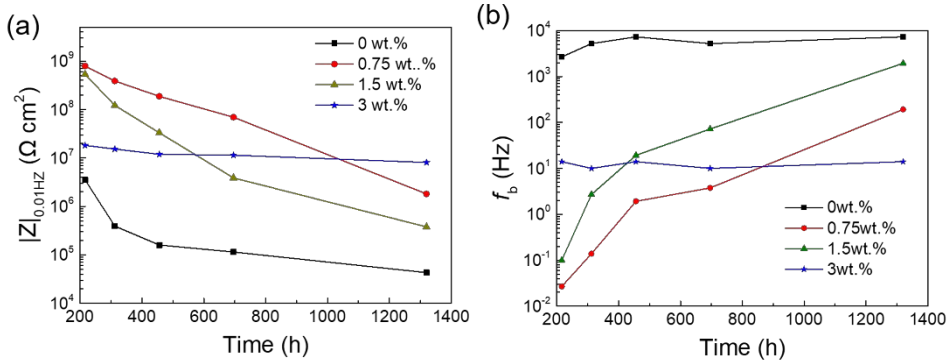

Figure S2. Low frequency impedance modulus at 0.01 Hz (a) and breakpoint frequency (b) of pristine CE coating, 0.75 wt.%, 1.5 wt.% and 3 wt.% GO/CE coatings with immersion time prolonging.

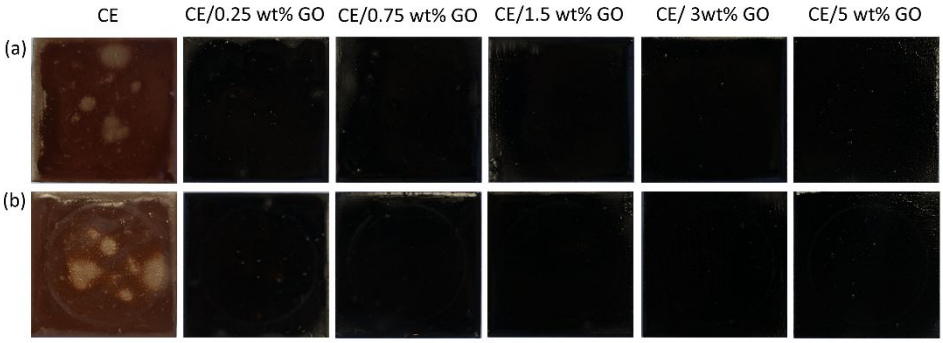

Figure S3. Photo-digital images of different CE or GO/CE coated specimens before (a) and after (b) immersion in 3.5 wt.% NaCl solutions.

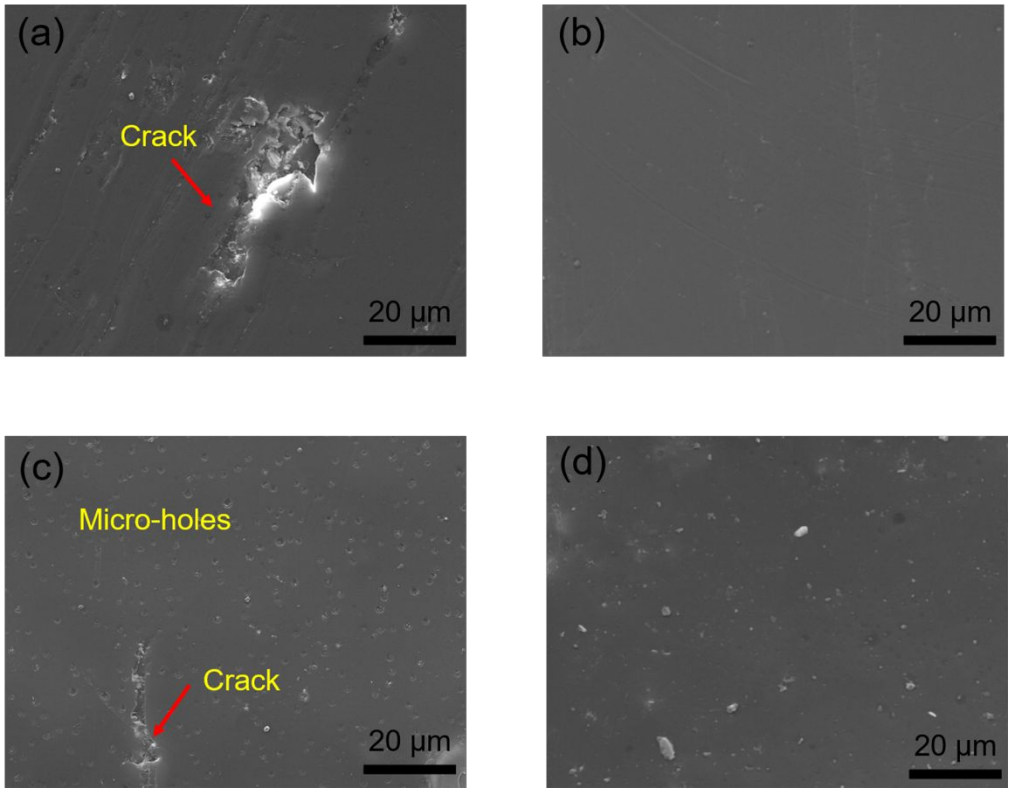

Figure S4. Surface morphology. Top-view SEM images of pristine CE coating (a), 0.75 wt.% (b), 1.5 wt.% (c) and 3 wt.% (d) GO/CE coating immersed in 3.5 wt.% NaCl solution for 1320 h.

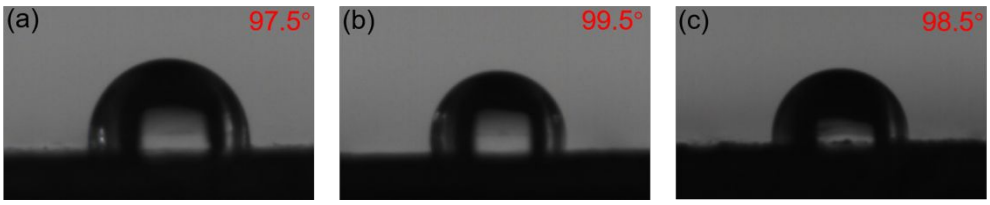

Figure S5. Contact angle of pristine CE coating (a), 1.5 wt.% GO/CE coating (b) and 3 wt.% GO/CE coating (c).

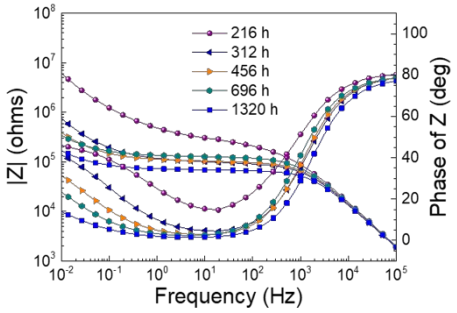

Figure S6. Bode modulus and phase angle diagrams of 0.75 wt.% GO/CE coatings on Q235 steel immersed in 3.5 wt.% NaCl solution from 216 h to 1320 h.

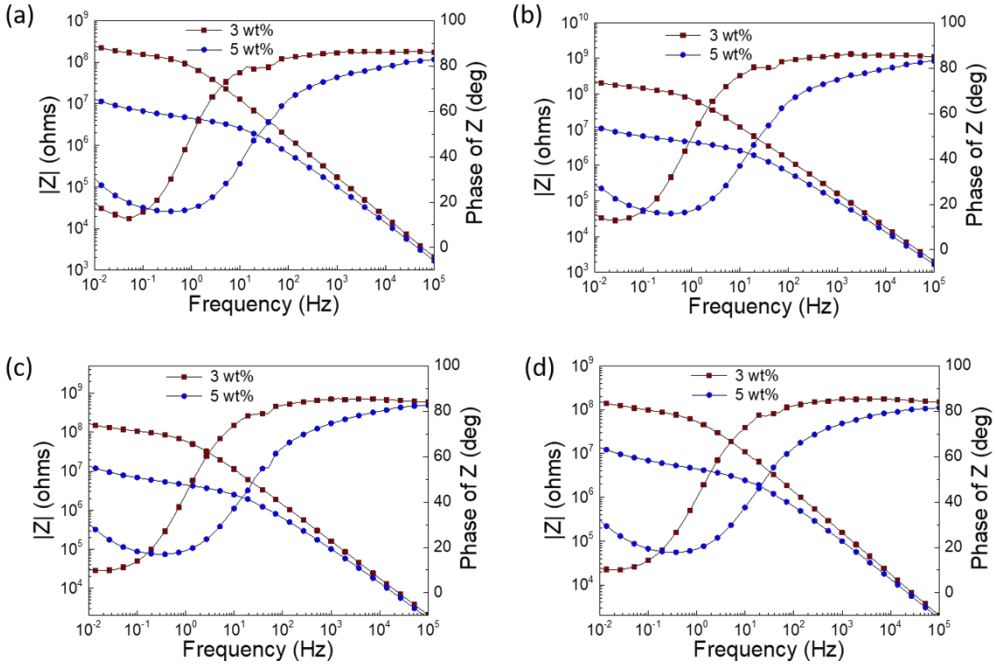

Figure S7. Bode modulus and phase angle diagrams of 3 wt.% and 5 wt.% GO/CE coatings on Q235 steel immersed in 3.5 wt.% NaCl solution for 48 h (a), 96 h (b), 144 h (c) and 216 h (d), respectively.

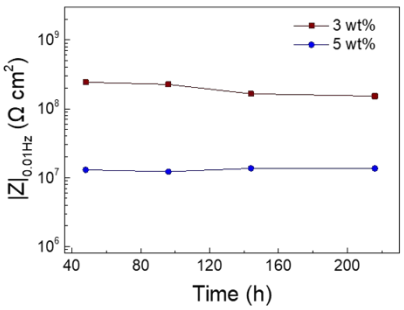

Figure S8. Low frequency impedance modulus at 0.01 Hz of 3 wt.% and 5 wt.% GO/CE coatings with different immersion time.

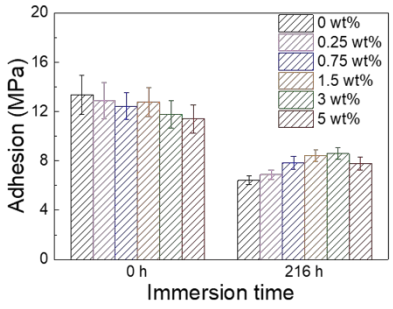

Figure S9. Adhesions of six different coatings before and after immersion in 3.5 wt.% NaCl solutions for 216 h.

Table S1. The heating temperature and corresponding heating time during the whole curing process.

Temperature (℃)	Heating time (hours)
50	2
70	1
100	1
150	1
180	2
200	2
240	1

Table S2. Polarization parameters for pristine CE coating, 0.75 wt.% ,1.5 wt.% and 3 wt.% GO/CE coatings immersed in 3.5 wt.% NaCl solution for 1320 h.

GO content	E_{corr} (mV vs. SCE)	I_{corr} (μA cm^{-2})	Corrosion rate (mm per year)
0 wt.%	-534.9	3.90	1.42×10^{-1}
0.75 wt.%	-8.24	5.63×10^{-2}	2.05×10^{-3}
1.5 wt.%	-99.94	5.30×10^{-1}	1.93×10^{-3}
3 wt.%	70.78	1.74×10^{-2}	6.33×10^{-4}

Table S3. O_2 gas permeability of pristine CE and 3 wt.% GO/CE composite membranes.

Sample	O_2 permeability coefficient ($cm^3\cdot cm/cm^2\cdot s\cdot Pa$)
pristine CE	9.95×10^{-12}
3 wt.% GO/CE	1.76×10^{-12}