

Polyvinyl alcohol/Polyaniline/Carboxylated Graphene Oxide Nanocomposites for Coating Protection of Cast Iron in Simulated Seawater

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Table S1: Level of various independent variables at coded values of response surface methodology experimental design.

Symbol	Independent variables	Coded levels		
		-1	0	1
A	Time / day	4	8	12
B	Temperature / °	25	35	45
C	NaCl solution concentration / mol L ⁻¹	0.5	1	1.5

Table S2: The Box-Behnken design matrix and results for the three variables that influenced on Inhibition efficiency (%) of PVA/PANI/GO-COOH nanocomposite coating

Trial	Time (A; day)	Temperature (B; °C)	NaCl solution concentration (C; mol L ⁻¹)	Inhibition efficiency (%)	
				Measured	Predicted
1	8	45	0.5	79	80.04
2	12	35	0.5	76	72.75
3	12	45	1	61	63.21
4	12	35	1.5	62	61.83
5	4	45	1	82	80.79
6	4	25	1	87	84.79
7	8	35	1	78	78
8	8	35	1	78	78
9	8	35	1	78	78
10	8	25	1.5	72	70.96
11	4	35	1.5	69	72.25
12	8	35	1	78	78
13	4	35	0.5	92.3	92.48
14	8	35	1	78	78
15	8	25	0.5	86	88.04
16	12	25	1	71	72.21
17	8	45	1.5	68	65.96

Table S3: ANOVA analysis for response function Y (inhibition efficiency (%)).

Source	Sum of squares	df	Mean square	F-value	p-value
Model	1081.68	9	120.19	18.96	0.0004
A-Time	454.51	1	454.51	71.70	< 0.0001
B-Temperature	84.50	1	84.50	13.33	0.0082
C- NaCl solution concentration	485.16	1	485.16	76.54	< 0.0001
AB	6.25	1	6.25	0.9860	0.3538
AC	21.62	1	21.62	3.41	0.1073
BC	2.25	1	2.25	0.3549	0.5701
A ²	18.35	1	18.35	2.89	0.1327
B ²	1.85	1	1.85	0.2915	0.6060
C ²	4.98	1	4.98	0.7856	0.4049
Residual	44.37	7	6.34		
Lack of Fit	44.37	3	14.79		
Pure Error	0.0000	4	0.0000		
Cor Total	1126.05	16			

Std. Dev.	2.52	R²	0.9606
Mean	76.19	Adjusted R²	0.9099
C.V. %	3.30	Predicted R²	0.3695
		Adeq. Precision	15.8726