

Supporting Information

Enhancing the anti-corrosion performance of ZIF-8-based coatings via microstructural optimization

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SI-1 Comparison of the anti-corrosion performance of ZIF-8-based coatings with those of other inorganic coatings

Table S1 Anti-corrosion performance of diverse inorganic coatings.

Films	$I_{\text{corr bare}}$	$I_{\text{corr modified}}$	$I_{\text{corr modified}}/I_{\text{corr bare}}$
	($\text{A}\cdot\text{cm}^{-2}$)	($\text{A}\cdot\text{cm}^{-2}$)	
MgAl-CO ₃ LDH ¹	5.9×10^{-5}	4.5×10^{-6}	7.6×10^{-2}
MgAl-CO ₃ LDH ²	6.3×10^{-6}	1.5×10^{-6}	2.4×10^{-1}
ZnAl-NO ₃ LDH ³	10^{-6}	10^{-8}	10^{-2}
ZnAl-laurate LDH ³	10^{-6}	10^{-9}	10^{-3}
M-rGO-ZnAl-LDH ⁴	2.3×10^{-5}	7.3×10^{-8}	3.2×10^{-3}
MFI ⁵	10^{-5}	10^{-9}	10^{-4}
Ag(qox)(4-ab) ⁶	4.13×10^{-3}	6.5×10^{-4}	1.6×10^{-1}
SBA-15 ⁷	2.14×10^{-7}	8.9×10^{-8}	4.2×10^{-1}
EP+PDMS@SiO ₂ ⁸	10^{-4}	10^{-6}	10^{-2}
AEL(AlPO-11) ⁹	10^{-6}	10^{-8}	10^{-2}
Mg-MOF-74/MgF ₂ ¹⁰	2.18×10^{-4}	6.46×10^{-6}	3.0×10^{-2}
bio-MOF-1 ¹¹	2.18×10^{-4}	7.52×10^{-6}	3.4×10^{-2}
CTAB@HKUST-1/Cu ¹²	10^{-3}	10^{-4}	10^{-1}
ZIF-8/EP ¹³	3.2×10^{-6}	5.4×10^{-8}	1.7×10^{-2}
ZnG@ZIF-8/EP ¹³	3.2×10^{-6}	4.0×10^{-9}	1.2×10^{-3}
This work	10^{-4}	10^{-7}	10^{-3}

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SI-2 Evaluation of the scratch depth

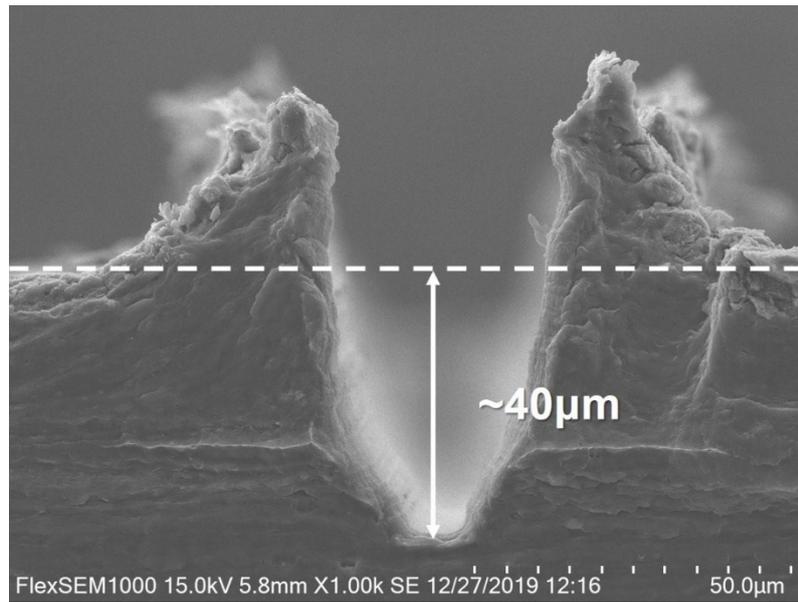


Figure S1 Cross-section SEM image of scratched ZIF-8-ZnAl-NO₃ LDH composite coatings.

SI-3 Thermal stability of ZIF-8-ZnAl-NO₃ LDH composite coatings

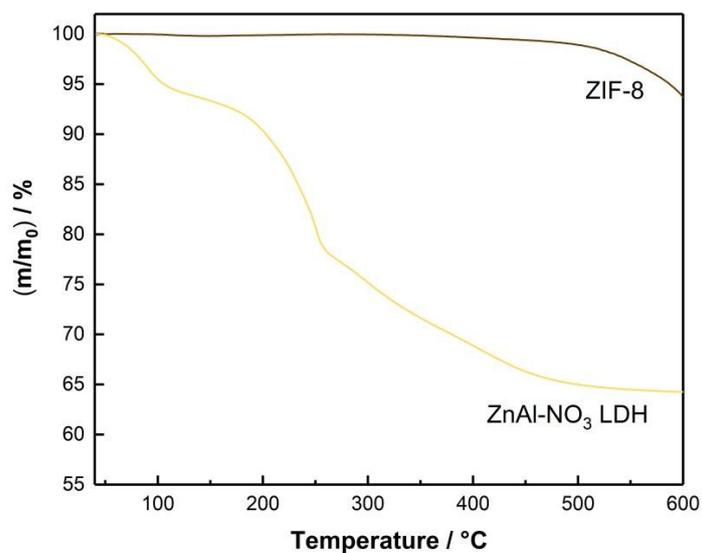


Figure S2. TG curves of ZnAl-NO₃ LDH and ZIF-8 powders.

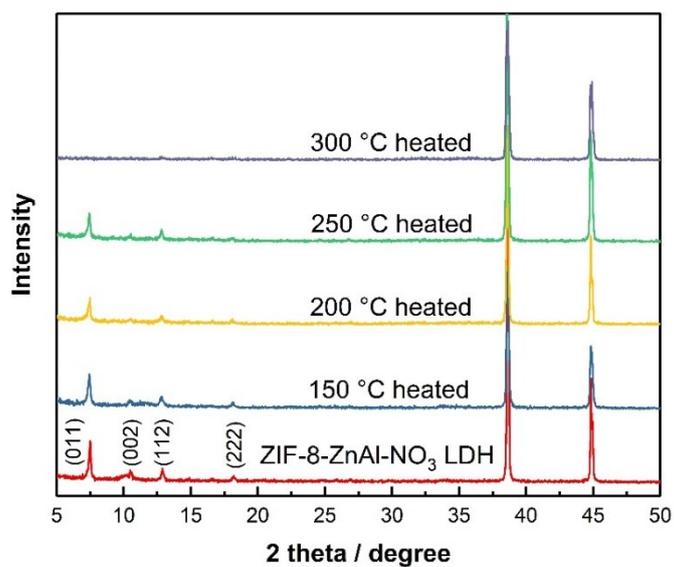


Figure S3. XRD of prepared ZIF-8-ZnAl-NO₃ LDH composite films after heating in air at different temperature for 1 hour.