Supplementary Information

A Facile and Green Engineering Approach for Enhanced Corrosion Resistance of Ni-Cr-Al_2O_3 Thermal Spray Coatings

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Table S1: HVOF Spray parameters used for developing Ni-Cr-5Al_2O_3 coatings on stainless steel (SS316L)

Parameters	Value
LPG flow rate (slpm)	55-60
Oxygen flow rate (slpm)	240
Air pressure (kg/cm2)	5
Powder feed rate (g/min)	45
Spraying distance (mm)	152
Particle size Nickel (µm)	50-70
Particle size Chromium (µm)	60-90
Particle size Alumina (µm)	35-60

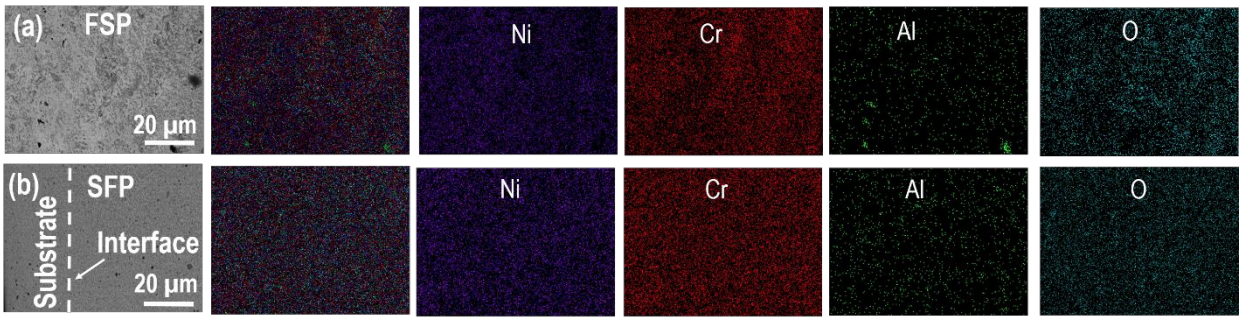

Figure S1: EDAX analysis of (a) FSP treated Ni-Cr-5Al_2O_3 coating and (b) SFP treated Ni-Cr-5Al_2O_3 coating.

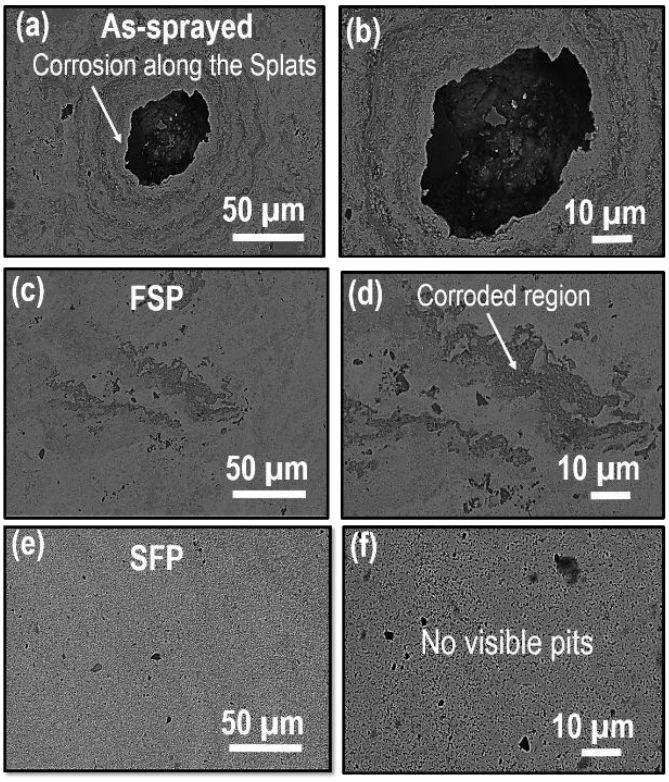

Figure S2: SEM images of top surfaces after potentiodynamic polarization testing (a) and (b) as-sprayed Ni-Cr-5Al_2O_3 coating, (c) and (d) FSP treated Ni-Cr-5Al_2O_3 coating and (e) and (f) SFP treated Ni-Cr-5Al_2O_3 coating.

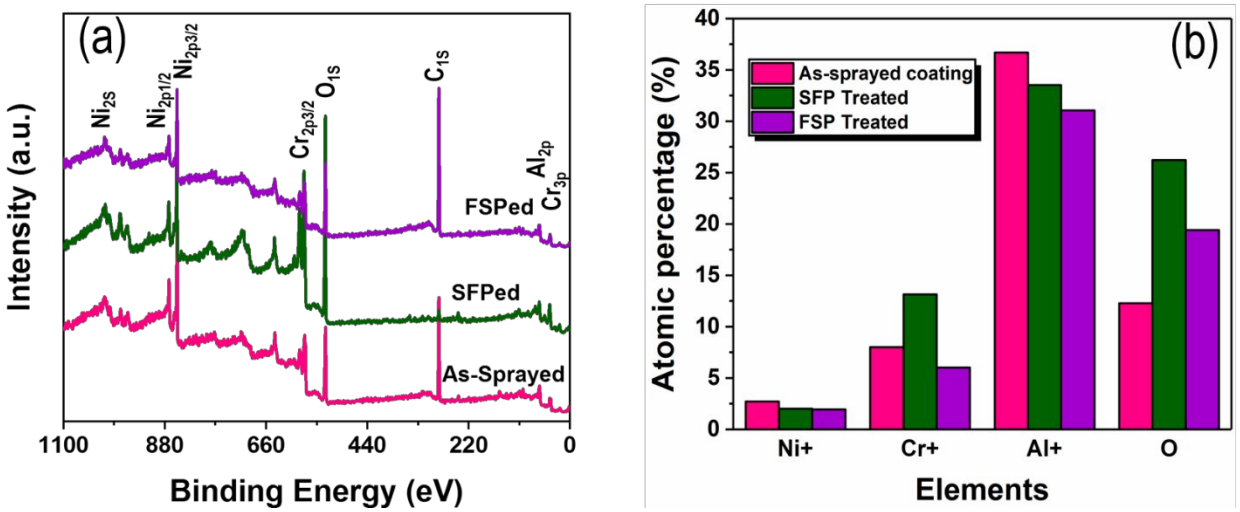

Figure S3: (a) XPS survey scan and (b) atomic percentage of different elements in the oxide layer of the as-sprayed, FSP treated and SFP treated Ni-Cr-5Al_2O_3 coating.