

## OXIDATION BEHAVIOR OF TWO-PHASE ( $\gamma'+\beta$ ) Ni-Al COATINGS DOPED WITH Dy AND Hf

Shixing Wang, Institute of Surface Engineering Technology, Chinese Academy of Agriculture Mechanization Sciences; School of Materials Science and Engineering, Beihang University (BUAA), China

Qing He, Institute of Surface Engineering Technology, Chinese Academy of Agriculture Mechanization Sciences, China

Hongbo Guo, School of Materials Science and Engineering, Beihang University (BUAA), No. 37 Xueyuan Road, China

Weiping Wang, Institute of Surface Engineering Technology, Chinese Academy of Agriculture Mechanization Sciences, China

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Dy/Hf co-doped two-phase ( $\gamma'+\beta$ ) Ni-Al coatings were prepared by electron beam physical vapour deposition (EB-PVD). Cyclic oxidation behaviour of the coatings were investigated at 1100°C. The addition of 0.1at% Dy or 0.05at% Dy +0.3at% Hf to two-phase ( $\gamma'+\beta$ ) Ni-Al coating significantly improved cyclic oxidation resistance, while addition of 0.5at% Hf to ( $\gamma'+\beta$ ) Ni-Al coating no obvious effect on scale adhesion. The 0.1at% Dy doped and 0.05at% Dy +0.3at% Hf co-doped two-phase ( $\gamma'+\beta$ ) Ni-Al coatings yielded mass gain of 1.24 mg/cm<sup>2</sup> and 1.04 mg/cm<sup>2</sup> after 100h cyclic oxidation. The Dy/Hf co-doped coating showed even further lower oxidation rate as compared to the corresponding Dy doped. In order to sufficiently exert reactive element effect (REE), extremely low solubility of the reactive element in each phase of the coatings should be guaranteed.