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## **A Comparative Study of Wear Effect on the Microstructures Behavior of CoNiCrAlY Coatings fabricated by APS, HVOF and CGDS Coatings**

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This work focuses on the micro-abrasion wear and microstructural properties of CoNiCrAlY coatings fabricated on nickel based super alloy substrates by using the atmospheric plasma spraying (APS), high-velocity oxygen fuel (HVOF), cold gas dynamic spraying (CGDS) methods. Tribological tests were performed on the samples in order to understand the wear mechanism of thermally sprayed coatings and influence of the coating microstructure on wear mechanism. The microstructures of as sprayed and worn coatings were investigated by scanning electron microscopy and EDX. The constituent phases of the TBCs were analyzed by X-ray diffractometry, and initial surface topography was also examined by atomic force microscopy (AFM). Coating hardness measurements were performed with a micro-hardness tester. The micro-abrasion tests were carried out with some different durations. The lateral fracture was observed as wear mechanism on the specimens. The wear surface topographies have changed with coating process and surface features of specimens depending on the coating process.

### **Keywords**

Wear

MCrAlY

Surface roughness

Thermal Spray Coatings

Bond Coat