عنوان مقاله:
Hot Corrosion Behavior of Functional Graded Material Thermal Barrier Coating

محل انتشار:
ماهنامه بین المللی مهندسی, دوره 30, شماره 1 (سال: 1395)

تعداد صفحات اصل مقاله: 8

نویسندگان:
M Rahnavard - *Mechanical and Industrial Engineering, Islamic Azad University Semnan Branch, Semnan, Iran*

M.J Ostad Ahmad Ghorabi - *Faculty of Mechanical and Industrial Engineering, Islamic Azad University Semnan Branch, Semnan, Iran*

خلاصه مقاله:
In this paper a functional graded material (FGM) thermal barrier coating (TBC) is prepared using Atmospheric Plasma Spraying (APS) method. The FGM layers were deposited by varying the feeding ratio of CYSZ/NiCrAlY and conventional CYSZ on a NiCrALY-coated Inconel 738 substrates. Hot corrosion behavior, bonding strength and the related failure mechanisms of a conventional TBC and a FGM TBC are investigated. Hot corrosion studies were conducted in presence of 45% Na2SO4+ 55% V2O5 molten salt at 1000 ◦C temperature. The as-sprayed coatings and heat-treated coatings were characterized by X-ray diffraction (XRD) and scanning electron microscopy (SEM). Exposing to hotcorrosion test, the FGM TBC showed better chemical stability and higher life service in comparison to the conventional TBC. As a result, functional graded material thermal barrier coating exhibited very promising potential as a novel TBC material

کلمات کلیدی:
Thermal Barrier Coating,Functional Grade Material,Plasma Spray,Hot Corrosion,Molten Salt