

Title (en)

Thermal barrier coating system and methods

Title (de)

Wärmeschutz-Beschichtung und Herstellungsverfahren

Title (fr)

Système et procédés de revêtement formant barrière thermique

Publication

EP 0995817 B1 20070516 (EN)

Application

EP 99308241 A 19991019

Priority

US 17486498 A 19981019

Abstract (en)

[origin: EP0995817A1] Disclosed is a noble metal bond coat of a thermal barrier coating system useful for enhancing adhesion of a ceramic topcoat to a superalloy substrate. The bond coat includes about 10 to 30 weight percent aluminum, about 2 to 60 weight percent noble metal, between trace amounts and about 3 weight percent of a reactive element selected from the group consisting of yttrium, zirconium, hafnium, scandium, all the lanthanides, and mixtures thereof, and balance selected from the group consisting of nickel, cobalt, iron and mixtures thereof, wherein the bond coat is further characterized by absence of added chromium. One method includes plasma spraying a prealloyed powder of the bond coat composition on the substrate followed by alumina formation and ceramic topcoat deposition. Uses include thermal barrier coating systems on gas turbine engine hot section components such as turbine blade and vane airfoils, combustors, and exhaust nozzles.

IPC 8 full level

C23C 28/00 (2006.01)

CPC (source: EP)

C23C 28/321 (2013.01); **C23C 28/3215** (2013.01); **C23C 28/325** (2013.01); **C23C 28/345** (2013.01); **C23C 28/3455** (2013.01)

Cited by

EP1801257A3; EP1321541A3; US10443447B2

Designated contracting state (EPC)

AT BE CH CY DE DK ES FI FR GB GR IE IT LI LU MC NL PT SE

DOCDB simple family (publication)

EP 0995817 A1 20000426; **EP 0995817 B1 20070516**; AT E362555 T1 20070615; DE 69936088 D1 20070628; DE 69936088 T2 20080124; ES 2288002 T3 20071216

DOCDB simple family (application)

EP 99308241 A 19991019; AT 99308241 T 19991019; DE 69936088 T 19991019; ES 99308241 T 19991019