

Title (en)

MULTILAYER BOND COAT FOR A THERMAL BARRIER COATING SYSTEM AND PROCESS THEREFOR

Title (de)

MEHRSCHICHTIGE HAFTBESCHICHTUNG FÜR WÄRMEDÄMMSCHICHT UND VERFAHREN DAZU

Title (fr)

REVETEMENT DE LIAISON MULTICOUCHE POUR SYSTEME DE REVETEMENT A BARRIERE THERMIQUE ET PROCEDE Y RELATIF

Publication

EP 1076727 A1 20010221 (EN)

Application

EP 99908549 A 19990226

Priority

- US 9904339 W 19990226
- US 7639198 P 19980228
- US 25964999 A 19990226

Abstract (en)

[origin: WO9943861A1] A method of depositing a bond coat (16) of a thermal barrier coating (TBC) system (14) for components designed for use in a hostile thermal environment, such as turbine, combustor and augmentor components (10) of a gas turbine engine. The method yields a dense, bi-layer bond coat (16) having an adequate surface roughness for adhering a plasma-sprayed ceramic layer (18). The method generally entails depositing a first bond coat layer (16a) using a high velocity oxy-fuel (HVOF) technique employing a relatively fine metallic powder having a relatively narrow size distribution. Following heat treatment, a second bond coat layer (16b) is deposited on the first bond coat layer (16a) by air plasma spraying (APS) a relatively coarser metallic powder of particles having a relatively broader size distribution. The resulting second bond coat layer (16b) is characterized by a macro-surface roughness of about 450 to about 750 microinches Ra. Following a second heat treatment, the ceramic layer (18) is deposited that adheres to the bond coat (16) through mechanical interlocking with the rough surface of the second coat layer (16b).

IPC 1-7

C23C 4/02; **C23C 28/00**

IPC 8 full level

C23C 4/02 (2006.01); **C23C 28/00** (2006.01)

CPC (source: EP)

C23C 4/02 (2013.01); **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)

Citation (search report)

See references of WO 9943861A1

Cited by

CN107740024A; CN110835755A; US2022112611A1; CN108603275A; US8722144B2; US9051879B2; DE102016002630A1; WO2017152891A1

Designated contracting state (EPC)

CH DE FR GB IT LI SE

DOCDB simple family (publication)

WO 9943861 A1 19990902; CZ 20004537 A3 20020116; CZ 300909 B6 20090909; DE 69925590 D1 20050707; DE 69925590 T2 20060427; EP 1076727 A1 20010221; EP 1076727 B1 20050601

DOCDB simple family (application)

US 9904339 W 19990226; CZ 20004537 A 19990226; DE 69925590 T 19990226; EP 99908549 A 19990226