

Title (en)

Bond coat for a thermal barrier coating system

Title (de)

Haftbeschichtung für wärmedämmendes Beschichtungssystem

Title (fr)

Couche de liaison pour système de revêtement de barrière thermique

Publication

EP 0985745 B1 20060712 (EN)

Application

EP 98307244 A 19980908

Priority

- EP 98307244 A 19980908
- JP 26927098 A 19980924

Abstract (en)

[origin: EP0985745A1] A thermal barrier coating system (20) for the surface of an article (22) designed for use in a hostile thermal environment, such as turbine, combustor and augmentor components of a gas turbine engine. The thermal barrier coating system (20) employs a bond coat (24) of a nickel aluminide alloy over which a thermal-insulating ceramic layer (26) is deposited. The nickel aluminide bond coat (24) contains zirconium, but is otherwise predominantly of the beta (beta) NiAl phase. The bond coat (24) is preferably deposited by a physical vapor deposition process (PVD), such as by magnetron sputtering, electron beam physical vapor deposition (EBPVD), jet vapor deposition (JVD) and plasma spray. The NiAl bond coat (24) with zirconium additions of between 0.05 and 0.5 atomic percent have been shown to exhibit drastically improved thermal fatigue life over prior art bond coats, with optimal results appearing to be obtained at or near 0.1 atomic percent zirconium. <IMAGE>

IPC 8 full level

B23P 9/00 (2006.01); **C23C 28/00** (2006.01); **C23C 4/10** (2016.01); **C23C 8/20** (2006.01); **C23C 14/14** (2006.01)

CPC (source: EP)

C23C 28/00 (2013.01)

Citation (examination)

- EP 0792948 A1 19970903 - SNECMA [FR], et al
- US 3450512 A 19690617 - MAXWELL DOUGLAS H

Cited by

US7264887B2; EP1600518A3; EP1260602A1; EP1541714A1; CN115198271A; US6607789B1; US7838083B1; US7371426B2; WO2009053992A1; US7070866B2; US7094444B2; US7078073B2; US8168261B2

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