

Title (en)

Quasicrystalline bond coating and its use as a thermal barrier coating

Title (de)

Quasikristalline Verbindung und deren Verwendung als Wärmedämmsschicht

Title (fr)

Revêtement quasi-cristallin et son utilisation comme revêtement de barrière thermique

Publication

EP 1837484 A3 20071128 (DE)

Application

EP 06006053 A 20060323

Priority

EP 06006053 A 20060323

Abstract (en)

[origin: EP1837484A2] Compounds of formula: Al wCo xM y are new. M is Ni and/or Cr and at least 30 mass% of the compound has a quasi-crystalline structure. W = 70 - 76 and w + x + y = 100. Independent claims are included for: (A) coatings made from or containing the compounds; (B) coating systems containing a coating made from the compounds; (C) multi-layer coating systems containing two or more of the coating systems; (D) use of the compounds as heat-insulating coatings for components subjected to high temperature, especially turbine steam inlets (333) and blades (357); and (E) use of compounds containing aluminum and manganese, at least 30 mass% of the compound having a quasi-crystalline structure, for the same purpose.

IPC 8 full level

F01D 5/28 (2006.01); **C22C 21/00** (2006.01); **C23C 4/08** (2006.01); **C23C 28/00** (2006.01); **C23C 28/02** (2006.01); **C23C 30/00** (2006.01)

CPC (source: EP US)

C22C 21/00 (2013.01 - EP US); **C23C 4/08** (2013.01 - EP US); **C23C 28/321** (2013.01 - EP US); **C23C 28/3215** (2013.01 - EP US); **C23C 28/3455** (2013.01 - EP US); **C23C 30/00** (2013.01 - EP US); **F01D 5/288** (2013.01 - EP US); **F05C 2201/0466** (2013.01 - EP US); **F05D 2300/132** (2013.01 - EP US); **Y10T 428/12535** (2015.01 - EP US); **Y10T 428/31678** (2015.04 - EP US)

Citation (search report)

- [X] US 5432011 A 19950711 - DUBOIS JEAN-MARIE [FR], et al
- [X] DE 10135402 A1 20030213 - VINNOLIT GMBH & CO KG [DE]
- [X] EP 0645464 A2 19950329 - MASUMOTO TSUYOSHI [JP], et al
- [X] EP 0587186 A1 19940316 - YOSHIDA KOGYO KK [JP]
- [A] DE 10358813 A1 20050721 - ALSTOM TECHNOLOGY LTD BADEN [CH]
- [A] EP 1036857 A1 20000920 - PRAXAIR TECHNOLOGY INC [US]
- [A] US 6103023 A 20000815 - CYROT-LACKMANN FRANCOISE [FR], et al
- [X] LIU X B ET AL: "MECHANICAL PROPERTIES OF DECAGONAL QUASICRYSTAL FORMED FROM UNDERCOOLED AL72Ni12Co16 ALLOY", JOURNAL OF MATERIALS SCIENCE LETTERS, CHAPMAN AND HALL LTD. LONDON, GB, vol. 22, no. 8, 15 April 2003 (2003-04-15), pages 611 - 613, XP001168009, ISSN: 0261-8028
- [X] LIU X B ET AL: "Microstructural evolution of decagonal quasicrystal in the undercooled Al72Ni12Co16 alloy melts", JOURNAL OF NON-CRYSTALLINE SOLIDS, NORTH-HOLLAND PHYSICS PUBLISHING. AMSTERDAM, NL, vol. 333, no. 1, 1 January 2004 (2004-01-01), pages 95 - 100, XP004479771, ISSN: 0022-3093
- [X] YADAV T P ET AL: "Effect of Cu substitution in Al-Co-Ni decagonal quasicrystals", JOURNAL OF NON-CRYSTALLINE SOLIDS, NORTH-HOLLAND PHYSICS PUBLISHING. AMSTERDAM, NL, vol. 334-335, 15 March 2004 (2004-03-15), pages 39 - 43, XP004491038, ISSN: 0022-3093
- [X] YADAV T P ET AL: "Synthesis of nano-quasicrystalline Al70Ni15Co15 decagonal phase through high energy ball milling", JOURNAL OF NON-CRYSTALLINE SOLIDS, NORTH-HOLLAND PHYSICS PUBLISHING. AMSTERDAM, NL, vol. 334-335, 15 March 2004 (2004-03-15), pages 57 - 61, XP004491042, ISSN: 0022-3093

Cited by

DE102012219856A1

Designated contracting state (EPC)

AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HU IE IS IT LI LT LU LV MC NL PL PT RO SE SI SK TR

Designated extension state (EPC)

AL BA HR MK YU

DOCDB simple family (publication)

EP 1837484 A2 20070926; EP 1837484 A3 20071128; AT E514838 T1 20110715; CN 101405477 A 20090408; CN 101405477 B 20120627; EP 1996795 A2 20081203; EP 1996795 B1 20110629; JP 2009530498 A 20090827; PL 1996795 T3 20111130; US 2010227194 A1 20100909; WO 2007107602 A2 20070927; WO 2007107602 A3 20080117

DOCDB simple family (application)

EP 06006053 A 20060323; AT 07727208 T 20070322; CN 200780010370 A 20070322; EP 07727208 A 20070322; EP 2007052732 W 20070322; JP 2009500869 A 20070322; PL 07727208 T 20070322; US 22532807 A 20070322