Title (en)

Creep-resistant TiAl alloy

Title (de)

Kriechfeste TiAl - Legierung

Title (fr)

Alliage TiAl résistant au fluage

Publication

EP 2851445 A1 20150325 (DE)

Application

EP 13185280 A 20130920

Priority

EP 13185280 A 20130920

Abstract (en)

[origin: US2015086414A1] Disclosed is a TiAl alloy for high-temperature applications which comprises not more than 43 at. % of Al, from 3 at. % to 8 at. % of Nb, from 0.2 at. % to 3 at. % of Mo and/or Mn, from 0.05 at. % to 0.5 at. % of B, from 0.1 at. % to 0.5 at. % of C, from 0.1 at. % to 0.5 at. % of Si and Ti as balance. Also disclosed is a process for producing a component made of this TiAl alloy and the use of corresponding TiAl alloys in components of flow machines at operating temperatures up to 850° C.

Abstract (de)

Die vorliegende Erfindung betrifft eine TiAl - Legierung für Hochtemperaturanwendungen, die folgende chemische Zusammensetzung aufweist: maximal 43 at.% Al, 3 at.% bis 8 at.% Nb, 0,2 at.% bis 3 at.% Mo und/oder Mn, 0,05 at.% bis 0,5 at.% B, 0,1 at.% bis 0,5 at.% C, 0,1 at.% bis 0,5 at.% Si, und Rest Ti. Außerdem betrifft die Erfindung ein Verfahren zur Herstellung eines Bauteils aus dieser TiAl - Legierung und die Verwendung entsprechender TiAl - Legierungen bei Bauteilen von Strömungsmaschinen bei Betriebstemperaturen bis 850°C.

IPC 8 full level

C22C 14/00 (2006.01); **C22F 1/18** (2006.01)

CPC (source: EP US)

C22C 1/02 (2013.01 - EP US); **C22C 14/00** (2013.01 - EP US); **C22F 1/002** (2013.01 - EP US); **C22F 1/183** (2013.01 - EP US); F05D 2300/133 (2013.01 - US)

Citation (applicant)

- US 2011189026 A1 20110804 - SMARSLY WILFRIED [DE], et al
- US 2011277891 A1 20111117 - CLEMENS HELMUT [AT], et al

Citation (search report)

- [XA] WO 2012041276 A2 20120405 - MTU AERO ENGINES GMBH [DE], et al
- [XA] EP 2620517 A1 20130731 - MTU AERO ENGINES GMBH [DE]
- [IDA] US 2011189026 A1 20110804 - SMARSLY WILFRIED [DE], et al
- [A] WO 2013110260 A1 20130801 - MTU AERO ENGINES GMBH [DE]
- [A] WO 2013020548 A1 20130214 - MTU AEREO ENGINES GMBH [DE], et al
- [AD] US 2011277891 A1 20111117 - CLEMENS HELMUT [AT], et al
- [A] EP 2423340 A1 20120229 - UNITED TECHNOLOGIES CORP [US]
- [A] US 2011219912 A1 20110915 - ACHTERMANN DIPL-ING MATTHIAS [DE], et al
- [A] CLEMENS H ET AL: "In and ex situ investigations of the beta-phase in a Nb and Mo containing gamma-TiAl based alloy", INTERMETALLICS, ELSEVIER SCIENCE PUBLISHERS B.V, GB, vol. 16, no. 6, June 2008 (2008-06-01), pages 827 - 833, XP022691290, ISSN: 0966-9795, [retrieved on 20080513], DOI: 10.1016/J.INTERMET.2008.03.008
- [A] GUETHER VOLKER ET AL: "Microstructure and corresponding tensile properties of as-cast, . beta .-solidifying, . gamma .-TiAl based TNM alloys", GAMMA, TITANIUM, ALUMINIDES, PROCEEDINGS OF A SYMPOSIUM, XX, XX, 9 March 2008 (2008-03-09), pages 249 - 256, XP009110850

Cited by

EP3266889A1; CN110512116A; CN104878452A; EP3266888A1; EP3269838A1; US10590520B2

Designated contracting state (EPC)

AL AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HR HU IE IS IT LI LT LU LV MC MK MT NL NO PL PT RO RS SE SI SK SM TR

Designated extension state (EPC)

BA ME

DOCDB simple family (publication)

EP 2851445 A1 20150325; **EP 2851445 B1 20190904**; ES 2747155 T3 20200310; US 2015086414 A1 20150326; US 9994934 B2 20180612

DOCDB simple family (application)

EP 13185280 A 20130920; ES 13185280 T 20130920; US 201414481295 A 20140909