Title (en)

Ni-BASED SINGLE CRYSTAL SUPERALLOY AND ALLOY MEMBER OBTAINED FROM THE SAME

Title (de)

AUF NI BASIERENDE EINKRISTALLSUPERLEGIERUNG UND DARAUS ERHALTENES LEGIERUNGSELEMENT

Title (fr)

SUPERALLIAGE MONOCRISTALLIN À BASE DE Ni ET ÉLÉMENT D ALLIAGE OBTENU À PARTIR DE CELUI-CI

Publication

EP 2305846 A1 20110406 (EN)

Application

EP 09770266 A 20090626

Priority

- JP 2009061764 W 20090626
- JP 2008167439 A 20080626
- JP 2008168488 A 20080627

Abstract (en)

Provided is an Ni-based single crystal superalloy wherein the ingredients have a composition containing, as ratio by mass, from 5.0% by mass to 7.0% by mass of Al, from 4.0% by mass to 8.0% by mass of Ta, from 0% by mass to 2.0% by mass of Mo, from 3.0% by mass to 8.0% by mass of W, from 3.0% by mass to 8.0% by mass of Re, from 0% by mass to 0.50% by mass of Hf, from 3.0% by mass to 7.0% by mass of Cr, from 0% by mass to 9.9% by mass of Co and from 1.0% by mass to 10.0% by mass of Ru, with the balance of Ni and inevitable impurities. The alloy prevents TCP phase precipitation at high temperatures, therefore having improved strength at high temperatures and having oxidation resistance at high temperatures. The above-mentioned first-generation alloy CMSX-2 and second-generation alloy CMSX-4 are, though comparable thereto in point of creep strength at low temperatures, inferior to third-generation alloys in point of creep strength at high temperatures, since a large quantity of eutectic γ'-phase remains therein even after high-temperature solution treatment.

IPC 8 full level

C22C 19/05 (2006.01); **C22F 1/10** (2006.01); **C30B 11/00** (2006.01)

CPC (source: EP US)

C22C 19/057 (2013.01 - EP US)

Cited by

CN113005379A; EP3031939A4

Designated contracting state (EPC)

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Designated extension state (EPC)

AL BA RS

DOCDB simple family (publication)

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