

Title (en)

HIGH-TEMPERATURE NICKEL-BASED ALLOY FOR 700 °C GRADE ULTRA-SUPERCRITICAL COAL-FIRED POWER STATION AND PREPARATION THEREOF

Title (de)

NICKELBASIERTE HOCHTEMPERATURLEGIERUNG FÜR ULTRASUPERKRITISCHES KOHLEKRAFTWERK DER 700 °C-STUFE UND HERSTELLUNG DAVON

Title (fr)

ALLIAGE À BASE DE NICKEL HAUTE TEMPÉRATURE POUR CENTRALE ÉLECTRIQUE AU CHARBON ULTRA-SUPERCRITIQUE DE NIVEAU 700 °C ET PRÉPARATION DE CELUI-CI

Publication

EP 3109331 A1 20161228 (EN)

Application

EP 14883147 A 20140416

Priority

- CN 201410054132 A 20140218
- CN 2014075474 W 20140416

Abstract (en)

The present invention provides a nickel-based superalloy for a 700 °C ultra-supercritical coal-fired power plant and a fabrication method thereof. This nickel-based alloy comprises 0.01#1/40.07wt% of C, 23#1/425.5wt% of Cr, 10#1/414.5wt% of Co, 0.3#1/43.5wt% of Mo, 0.5#1/42.5wt% of W, 0.8#1/42.2wt% of Nb, 1.0#1/42.5wt% of Ti, 1.0#1/42.5wt% of Al, 0.001#1/40.005wt% of B, 0.01#1/40.3wt% of Zr, 0.002#1/40.015wt% of Mg, less than or equal to 0.5wt% of V, less than or equal to 0.005wt% of La, and the balance of Ni and the inevitable impurity elements. The present invention can effectively prevent the propagation of intergranular cracks at high temperatures, and can improve the impact toughness and creep-rupture strength of the alloy also.

IPC 8 full level

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CPC (source: EP)

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Cited by

CN106636758A; CN113430406A; US2022325382A1; CN111378847A; CN111534713A; EP4023779A4; US11859262B2; US11542575B2

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