Title (en)

Zirconium based alloys having excellent creep resistance

Title (de)

Legierung auf der Basis von Zirkonium mit sehr guter Kriechfestigkeit

Title (fr)

Alliage à base de zirconium, présentant une bonne résistance au fluage

Publication

EP 1688508 B1 20140101 (EN)

Application

EP 05007163 A 20050401

Priority

KR 20050011362 A 20050207

Abstract (en)

[origin: EP1688508A1] The present invention relates to a zirconium based alloy composite having an excellent creep resistance and, more particularly, to a zirconium based alloy composite finally heat -treated to have the degree of recrystallization in the range of 40-70% in order to improve the creep resistance. The zirconium based alloy comprises 0.8#¼1.8 wt.% niobium(Nb); 0.38#¼0.50 wt.% tin(Sn); one or more elements selected from 0.1#¼0.2 wt.% iron(Fe), 0.0 5~0.15 wt.% copper(Cu), and 0.12 wt.% chromium(Cr); 0.10#¼0.15 wt.% oxygen(O); 0.006#¼0.010 wt. % carbon(C); 0.006~0.010 wt.% s ilicon(Si); 0.0005#¼0.0020 wt.% sulfur (S); and the balance zirconium(Zr). The zirconium alloy manufactured with the composition in accordance with the present invention has an excellent creep resistance compared to a conventional Zircaloy -4, and may effectively be used as a nuclear cladding tube, supporting lattice and inner structures of reactor core in the nuclear power plant utilizing light or heavy water reactor.

IPC 8 full level

C22C 16/00 (2006.01)

CPC (source: EP KR US)

C22C 16/00 (2013.01 - EP KR US); **C22F 1/186** (2013.01 - EP US)

Cited by

CN103290261A; FR2909798A1; EP1730318A4; US9202597B2; EP1930454A1; EP2122002A4; US8576977B2; WO2008088261A1; WO2019162876A1; WO2008090269A1; US8320515B2

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 MC NL PL PT RO SE SI SK TR

DOCDB simple family (publication)

EP 1688508 A1 20060809; **EP 1688508 B1 20140101**; CN 1818111 A 20060816; CN 1818111 B 20101222; JP 2006214001 A 20060817; JP 4099493 B2 20080611; KR 100733701 B1 20070628; KR 20060090128 A 20060810; US 2006177341 A1 20060810

DOCDB simple family (application)

EP 05007163 A 20050401; CN 200510066886 A 20050428; JP 2005161111 A 20050601; KR 20050011362 A 20050207; US 9772605 A 20050331