

Title (en)

HEAT RESISTANT AND HIGH STRENGTH ALUMINUM ALLOY AND METHOD FOR PRODUCING THE SAME

Title (de)

HITZBESTÄNDIGE UND HOCHFESTE ALUMINIUMLEGIERUNG UND VERFAHREN ZU IHRER HERSTELLUNG

Title (fr)

ALLIAGE D'ALUMINIUM RÉSISTANT À LA CHALEUR ET À HAUTE RÉSISTANCE ET PROCÉDÉ DE PRODUCTION DE CE DERNIER

Publication

EP 2646585 A2 20131009 (EN)

Application

EP 12713793 A 20120313

Priority

- JP 2011074726 A 20110330
- JP 2012001742 W 20120313

Abstract (en)

[origin: WO2012132280A2] A heat resistant and high strength aluminum alloy is provided to have significantly excellent high temperature strength and other properties. The heat resistant and high strength aluminum alloy according to the present invention is characterized by having an alloy composition, with the whole 100 mass% (referred simply to as "%" hereinafter), of 3% to 6% iron (Fe), 0.66% to 1.5% zirconium (Zr), 0.6% to 1% titanium (Ti), and the balance aluminum (Al) with inevitable impurities and/or modifying element, the mass ratio of Zr to Ti (Zr/Ti) being 1.1 to 1.5. The heat resistant and high strength aluminum alloy according to the present invention is comprised primarily of a matrix phase and an Al-Fe series intermetallic compound phase (first compound phase), and an Al-(Zr, Ti) series intermetallic compound of L12 structure (second compound phase) is possible to precipitate in the matrix phase in the vicinity of the boundary with the first compound phase so as to be in a matching manner. This second compound phase is stable even in a high temperature environment, and it is considered that the second compound phase inhibits the coarsening etc. of the first compound phase associated with the high temperature strength etc, thereby allowing the heat resistant and high strength aluminum alloy according to the present invention to achieve an excellent heat resistance.

IPC 8 full level

C22C 1/04 (2006.01)

CPC (source: EP)

B22F 3/20 (2013.01); **C22C 1/0416** (2013.01); **C22C 1/047** (2023.01); **C22C 21/00** (2013.01); **B22F 2998/10** (2013.01)

Citation (search report)

See references of WO 2012132280A2

Cited by

EP3351338A1

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

DOCDB simple family (publication)

WO 2012132280 A2 20121004; WO 2012132280 A3 20121206; EP 2646585 A2 20131009; EP 2646585 B1 20161221; JP 2012207283 A 20121025; JP 5556723 B2 20140723

DOCDB simple family (application)

JP 2012001742 W 20120313; EP 12713793 A 20120313; JP 2011074726 A 20110330