Title (en)

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

Title (de)

HITZEBESTÄNDIGE 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

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Application

EP 12713793 A 20120313

Priority

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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

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