Title (en)

A STRUCTURAL MATERIAL PART OF A HIGH-SI MG-CONTAINING AL ALLOY AND THE MANUFACTURE METHOD THEREOF

Title (de)

BAUSTOFFTEIL AUS SI-REICHER MG-HALTIGER AL-LEGIERUNG UND HERSTELLUNGSVERFAHREN DAFÜR

Title (fr)

PIÈCE DE MATÉRIAU DE STRUCTURE EN ALLIAGE D'AL CONTENANT MG ET À FORTE TENEUR EN SI ET PROCÉDÉ DE FABRICATION DE CELLE-CI

Publication

EP 2172572 B1 20130515 (EN)

Application

EP 08772999 A 20080630

Priority

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- CN 200710011919 A 20070629

Abstract (en)

[origin: EP2172572A1] The magnesium-contained high-silicon aluminum alloys for use as structural materials, including profiles, bars, sheets, and forgings, are manufactured by a process including the steps of: casting an alloy ingot by direct chill casting, preheating the ingot to disperse eutectic Si phase particles, and thermal-plastic processing and heat-treating to obtain the product with a final shape and a modified microstructure. The aluminum alloys contain 0.2#¼2.0wt% of Mg and 8#¼18wt% of Si, and have homogeneous and fine microstructure, wherein the aluminum matrix is equiaxed with an average grain size less than 6μm, and the silicon and second phase particles are dispersed with an average size less than 5μm. Without adding any modifiers, they are low-costly produced by incorporating the direct chill casting with thermal-plastic processing and heat treatment, which give rise to good plasticity and relatively high strength.

IPC 8 full level

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CPC (source: EP US)

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