Title (en)

Aluminium-silicon alloy and method for production of same

Title (de)

Aluminium-Silizium-Gussleglerung und Verfahren zu Ihrer Herstellung

Title (fr)

Alliage de fonte, d'aluminium et de silice et son procédé de fabrication

Publication

EP 1978120 B1 20120606 (DE)

Application

EP 08075254 A 20080331

Priority

DE 102007015821 A 20070330

Abstract (en)

[origin: EP1978120A1] The main constituents are: aluminum 65 wt% or more, and silicon 5-25 wt%. Other components may also be present, together with inevitable impurities. The novel feature of the alloy is its carbon content of 0.0007 - 0.1 wt%. Up to 4 wt% of each of the following may be present, up to a total of 10 wt%: Mg, Mn, Fe, Co, Cu, Zn, Ni, V, Nb, Mo, Cr, T, Be, Pb, Li, Yt, Ce, Sc, Hf, Ag, Zr, Ti, Sr, Na, P, Ca, Sb, S, Ba, P, the remainder being at least 65 wt% aluminum, including inevitable impurities. The alloy especially contains 12.5 to 14.5 wt% silicon. In its microstructure, fine primary silicon and refined eutectic are simultaneously present. Intermetallic phases are also present as needles or small platelets up to 40 mu m in length. The carbon content is intentionally adjusted to 0.0007 to 0.1 wt%, by carbon addition in any form. The selected main components of the composition are melted, heating to a temperature in the range 720[deg] C -950[deg] C and poured into a mold. Carbon content is adjusted by addition of chemical compounds of carbon, and/or their mixtures, especially by addition of powdered carbides and carbo-nitrides, e.g. in the form of their sintered product. A carbon-containing aluminum pre-alloy is added into the melt of the normal constituents, or prior to melting them. An aluminum-titanium-carbon pre-alloy is used. In addition to carbon, the pre-alloy contains phosphorus. An independent claim IS INCLUDED FOR the method of manufacture.

IPC 8 full level

C22C 21/02 (2006.01)

CPC (source: EP)

C22C 21/02 (2013.01); **C22C 21/04** (2013.01)

Cited by

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Designated contracting state (EPC)

AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HR HU IE IS IT LI LT LU LV MC MT NL NO PL PT RO SE SI SK TR

DOCDB simple family (publication)

EP 1978120 A1 20081008; **EP 1978120 B1 20120606**

DOCDB simple family (application)

EP 08075254 A 20080331