

Title (en)

HEAT-RESISTANT AND HIGHLY TOUGH ALUMINUM ALLOY AND METHOD FOR PRODUCTION THEREOF AND ENGINE PARTS

Title (de)

HITZEBESTÄNDIGE UND HOCHZÄHE ALUMINIUMLEGIERUNG UND HERSTELLUNGSVERFAHREN DAFÜR UND MOTORENTEILE

Title (fr)

ALLIAGE D'ALUMINIUM THERMO-RESISTANT, TRES ROBUSTE, PROCEDE DE FABRICATION ET PIECES POUR MOTEUR

Publication

EP 1690953 A4 20080213 (EN)

Application

EP 04819899 A 20041202

Priority

- JP 2004017949 W 20041202
- JP 2003403082 A 20031202

Abstract (en)

[origin: EP1690953A1] This invention provides a heat-resistant, high-toughness aluminum alloy which has a good balance between strength and ductility at a temperature from room temperature to around 300 degrees C and has a high fracture toughness, a method of manufacturing the same, and engine parts. The heat-resistant, high-toughness aluminum alloy of this invention contains 10 to 16 mass % of silicon, 1 to 3 mass % of iron, 1 to 2 mass % of nickel, 0.5 to 2 mass % in total of one or more selected from the group consisting of titanium, zirconium, chromium and vanadium, 0.6 to 3 mass % of copper, and 0.2 to 2 mass % of magnesium, the balance being essentially aluminum, and is obtained by densifying aluminum alloy powder prepared by gas atomizing. The silicon has an average grain diameter of 4 µm or less.

IPC 8 full level

B21C 23/00 (2006.01); **B21J 1/02** (2006.01); **B21J 5/00** (2006.01); **B21J 5/06** (2006.01); **B21K 1/18** (2006.01); **B22F 3/12** (2006.01); **B22F 3/16** (2006.01); **B22F 3/17** (2006.01); **B22F 3/20** (2006.01); **B22F 9/08** (2006.01); **C22C 1/04** (2006.01); **C22C 21/02** (2006.01); **C22F 1/043** (2006.01); **F02F 3/00** (2006.01)

CPC (source: EP US)

B22F 3/162 (2013.01 - EP US); **C22C 1/0416** (2013.01 - EP US); **C22C 21/02** (2013.01 - EP US); **C22F 1/043** (2013.01 - EP US); **B22F 2003/208** (2013.01 - EP US); **B22F 2998/00** (2013.01 - EP US); **B22F 2998/10** (2013.01 - EP US)

Citation (search report)

- [A] JP H11293374 A 19991026 - SUMITOMO ELECTRIC INDUSTRIES
- [A] JP S6283444 A 19870416 - ALUMINUM POWDER MET RES ASS
- [A] JP 2003277867 A 20031002 - NIPPON LIGHT METAL CO, et al
- [A] EP 0924310 A1 19990623 - FEDERAL MOGUL BRADFORD LIMITED [GB]
- [A] WO 9725449 A1 19970717 - NORSK HYDRO TECHNOLOGY [NL]
- See references of WO 2005054529A1

Designated contracting state (EPC)

DE IT

DOCDB simple family (publication)

EP 1690953 A1 20060816; **EP 1690953 A4 20080213**; **EP 1690953 B1 20091028**; DE 602004023872 D1 20091210; JP 2005163100 A 20050623; JP 4312037 B2 20090812; US 2007158003 A1 20070712; WO 2005054529 A1 20050616

DOCDB simple family (application)

EP 04819899 A 20041202; DE 602004023872 T 20041202; JP 2003403082 A 20031202; JP 2004017949 W 20041202; US 58155304 A 20041202