

Title (en)

METHOD FOR MOLDING ALUMINUM ALLOY POWDER, AND ALUMINUM ALLOY MEMBER

Title (de)

VERFAHREN ZUM FORMEN EINES ALUMINIUMLEGIERUNGSPULVERS UND ALUMINIUMLEGIERUNGSTEIL

Title (fr)

PROCÉDÉ DE MOULAGE DE POUDRE D'ALLIAGE D'ALUMINIUM ET ÉLÉMENT EN ALLIAGE D'ALUMINIUM

Publication

**EP 2799165 A4 20151111 (EN)**

Application

**EP 13800173 A 20130528**

Priority

- JP 2012131428 A 20120608
- JP 2013064735 W 20130528

Abstract (en)

[origin: EP2799165A1] A method for forming an aluminum alloy powder is provided which allows a formed body of high properties to be obtained. The method for forming an aluminum alloy powder according to the present invention is characterized by comprising: a compacting step that applies a first pressure (P1) to an aluminum alloy powder to obtain a sparsely compact material, the aluminum alloy powder comprising microparticles of aluminum alloy, the sparsely compact material being such that the microparticles are intertangled and in contact with one another by plastic deformation while leaving spaces therebetween; and a forming step that applies a second pressure (P2) to the sparsely compact material at a forming temperature to obtain a dense formed body in which the microparticles are metallicity bonded to one another, the forming temperature being a temperature at which no liquid phase occurs at surfaces of the microparticles, the pressure ratio of the second pressure (P2) to the first pressure (P1) (P2/P1) being 1.2 or more. Surface oxide films on the microparticles that constitute the sparsely compact material are broken by the forming step to expose new surfaces, so that the microparticles are metallicity bonded. Consequently, it has become possible to obtain a formed body that has excellent strength and ductility and is dense and homogeneous.

IPC 8 full level

**B22F 3/02** (2006.01); **B22F 1/00** (2006.01); **B22F 3/14** (2006.01); **B22F 3/16** (2006.01); **C22C 1/04** (2006.01); **C22C 21/00** (2006.01)

CPC (source: EP)

**B22F 3/16** (2013.01); **C22C 1/0416** (2013.01); **C22C 21/00** (2013.01); **B22F 2998/10** (2013.01); **B22F 2999/00** (2013.01)

C-Set (source: EP)

1. **B22F 2998/10** + **B22F 3/02** + **B22F 2003/145** + **B22F 3/10**
2. **B22F 2999/00** + **B22F 3/02** + **B22F 2201/20**

Citation (search report)

- [XA] US 5372775 A 19941213 - HAYASHI TETSUYA [JP], et al
- [XA] US 4244738 A 19810113 - STORCHHEIM SAMUEL
- [A] US 3954458 A 19760504 - ROBERTS SIDNEY G
- [A] US 2002012606 A1 20020131 - HASHIKURA MANABU [JP], et al
- [A] US 2008310989 A1 20081218 - TSCHOFEN JACQUES [FR]
- [A] JP 2011042861 A 20110303 - TOYOTA CENTRAL RES & DEV
- [A] US 2967351 A 19610110 - ROBERTS SIDNEY G, et al
- [XI] JP H0261021 A 19900301 - FURUKAWA ALUMINIUM
- [XI] JP H04323342 A 19921112 - SUMITOMO ELECTRIC INDUSTRIES
- [XI] JP H06264170 A 19940920 - SUMITOMO ELECTRIC INDUSTRIES
- See references of WO 2013183488A1

Cited by

US10668538B2; CN108796256A; FR3103123A1; CN114728340A; US2022389543A1; WO2021099735A1

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)

**EP 2799165 A1 20141105**; **EP 2799165 A4 20151111**; **EP 2799165 B1 20160629**; JP 2013256678 A 20131226; JP 5772731 B2 20150902; WO 2013183488 A1 20131212

DOCDB simple family (application)

**EP 13800173 A 20130528**; JP 2012131428 A 20120608; JP 2013064735 W 20130528