

Title (en)  
ALUMINIUM-BASED GRAIN REFINER

Title (de)  
AUF ALUMINIUM BASIERENDES KORNERFEINERUNGSMITTEL

Title (fr)  
AFFINEUR DE GRAIN À BASE D'ALUMINIUM

Publication  
**EP 2295608 A4 20120808 (EN)**

Application  
**EP 09765942 A 20090610**

Priority  
• ES 2009000326 W 20090610  
• ES 200801768 A 20080611

Abstract (en)  
[origin: EP2295608A1] ALUMINIUM-BASED GRAIN REFINER, which contains zinc, titanium and carbon, synthesized by means of aluminium fusion and the subsequent addition of titanium, zinc and carbon. The microstructure of the master alloy is comprised by an alpha-aluminium matrix, intermetallic phase of TiAl<sub>3</sub> and fine particles of a ternary compound of titanium-zinc-carbide. The titanium content is at least 1% and at the most 20%, the carbon content is at least 0.01% (100 ppm) and at the most 3% and the zinc content is equal to or over 1%.

IPC 8 full level  
**C22C 1/02** (2006.01); **C22C 21/00** (2006.01)

CPC (source: EP ES US)  
**C22C 1/02** (2013.01 - EP ES US); **C22C 1/026** (2013.01 - EP US); **C22C 21/00** (2013.01 - EP ES US); **C22C 21/10** (2013.01 - EP US)

Citation (search report)  
• [X] US 2005238529 A1 20051027 - LIN JEN C [US], et al  
• [A] YU L ET AL: "Instability of TiC and TiAl<sub>3</sub> compounds in Al-10Mg and Al-5Cu alloys by addition of Al-Ti-C master alloy", JOURNAL OF UNIVERSITY OF SCIENCE AND TECHNOLOGY BEIJING, MINERAL, METALLURGY, MATERIAL., vol. 13, no. 2, 1 April 2006 (2006-04-01), pages 144 - 148, XP022934593, ISSN: 1005-8850, [retrieved on 20060401], DOI: 10.1016/S1005-8850(06)60032-7  
• See also references of WO 2009153369A1

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 MK MT NL NO PL PT RO SE SI SK TR

DOCDB simple family (publication)  
**EP 2295608 A1 20110316; EP 2295608 A4 20120808; EP 2295608 B1 20150107**; BR PI0915361 A2 20151103; CN 102066593 A 20110518; CN 102066593 B 20130807; ES 2330713 A1 20091214; ES 2330713 B2 20100419; US 2011165014 A1 20110707; WO 2009153369 A1 20091223

DOCDB simple family (application)  
**EP 09765942 A 20090610**; BR PI0915361 A 20090610; CN 200980122128 A 20090610; ES 200801768 A 20080611; ES 2009000326 W 20090610; US 99724309 A 20091006