Title (en)

GRAIN-REFINED COPPER CASTING ALLOY WITH IRON AND BORON

Title (de)

KORNGEFEINTE KUPFER-GUSSLEGIERUNG MIT EISEN UND BOR

Title (fr)

ALLIAGE DE FONDERIE EN CUIVRE À GRAINS AFFINÉS COMPRENANT DU FER ET DU BORE

Publication

EP 3024956 B1 20180627 (DE)

Application

EP 14735475 A 20140703

Priority

- DE 102013012288 A 20130724
- EP 2014001832 W 20140703

Abstract (en)

[origin: WO2015010768A1] The invention relates to a copper alloy with the following composition [in % by weight]: Cu from 70.0 to 97.0%; Si from 2.0 to 4.5%; B from 0.002 to 0.03%; Fe from 0.01 to 1.0%; if desired also up to 2.0% of Sn, if desired also up to 0.4% of Ni, if desired also up to 0.2% of P, if desired also up to 0.25% of Pb, and if desired in each case also up to 0.15% of As or Sb, the remainder being Zn and unavoidable impurities. The ratio of boron content to the sum of iron content and nickel content here is at least 0.025 and at most 0.12. The invention further relates to the use of boron and iron and optionally also nickel as means for obtaining grain-refined copper-zinc-silicon alloys.

IPC 8 full level

C22C 9/04 (2006.01); **C22C 1/06** (2006.01)

CPC (source: EP)

C22C 1/06 (2013.01); **C22C 9/04** (2013.01)

Citation (opposition)

Opponent : Otto Fuchs - Kommanditgesellschaft

- CN 103114220 A 20130522 - XIAMEN LOTA INT CO LTD
- US 2006078458 A1 20060413 - STROBL HEINZ [DE], et al
- M. SADAYAPPAN: "Grain refinement of permanent mold cast copper base alloys", MATERIALS TECHNOLOGY LABORATORY, April 2004 (2004-04-01), XP009115928
- ERNST BRUNHUBER: "Schmelz- und Legierungstechnik von Kupferwerkstof- fen", 1959, article "Schmelz- und Legierungstechnik von Kupferwerkstof- fen", pages: 74 - 78, XP055576348

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)

DE 102013012288 A1 20150129; EP 3024956 A1 20160601; EP 3024956 B1 20180627; EP 3260561 A1 20171227; EP 3260561 B1 20200624; ES 2813073 T3 20210322; WO 2015010768 A1 20150129

DOCDB simple family (application)

DE 102013012288 A 20130724; EP 14735475 A 20140703; EP 17001201 A 20140703; EP 2014001832 W 20140703; ES 17001201 T 20140703