

Title (en)

CRYSTAL GRAIN REFINING AGENT FOR CASTING AND METHOD FOR PRODUCING THE SAME

Title (de)

KRISTALLKORNVERFEINERUNGSMITTEL ZUM GIESSEN UND VERFAHREN ZU SEINER HERSTELLUNG

Title (fr)

AGENT D'AFFINAGE DE GRAIN CRISTALLIN POUR COULAGE ET SON PROCÉDÉ DE PRODUCTION

Publication

EP 2669028 A1 20131204 (EN)

Application

EP 12738824 A 20120119

Priority

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Abstract (en)

[Object] To provide a grain refiner for casting; and a method for producing the same. The grain refiner contains heterogeneous nucleator particles having a smaller degree of mismatching ' with respect to pure aluminum or an aluminum alloy than those of customary grain refiners. [Solution] The grain refiner is produced by rapid and low-temperature sintering through spark plasma sintering. The grain refiner contains heterogeneous nucleator particles that have a small degree of mismatching and originally fail to exist in equilibrium with aluminum. Typically spark plasma sintering gives a grain refiner for casting which includes an aluminum matrix; and particles of an L1 2 structure Al 5 CuTi 2 intermetallic compound dispersed in the matrix. The grain refiner, when added to a molten metal, gives a pure-aluminum or aluminum-alloy cast material having a refined and uniformized microstructure.

IPC 8 full level

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Cited by

CN109420765A; CN111020248A; CN104439206A; CN109136599A; CN107419135A; CN105648251A; WO2021083385A1; TWI801846B

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