

Title (en)

METHOD FOR PRODUCING AN ALUMINUM-TITANIUM-BORON PREALLOY FOR USE AS A GRAIN REFINER

Title (de)

VERFAHREN ZUR HERSTELLUNG EINER ALUMINIUM-TITAN-BOR-VORLEGIERUNG ALS KORNFEBINUNGSMITTEL

Title (fr)

PROCEDE DE FABRICATION D'UN PREALLIAGE D'ALUMINIUM-TITANE-BORE EN TANT QUE MOYEN D'AFFINAGE DU GRAIN

Publication

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Application

**EP 00983193 A 20001130**

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Abstract (en)

[origin: WO0142521A1] The invention relates to a method for producing a grain refiner on the basis of an aluminum-titanium-boron prealloy. According to the inventive method, starting materials that contain Ti and B are introduced into an aluminum melt while TiB<sub>2</sub> particles are formed, and the prealloy melt produced is allowed to solidify. The prealloy is set in motion at a temperature between the liquidus temperature (T<L>Al<sub>3</sub>Ti) of the Al<sub>3</sub>Ti phase and the solidus temperature (T<S>V) of the prealloy for a period ( DELTA td) sufficient to disperse the TiB<sub>2</sub> particles in the melt. The melt is simultaneously cooled off at a first rate of cooling (v<sub>1</sub>) so that the TiB<sub>2</sub> particles function as the nuclei for the Al<sub>3</sub>Ti phase that is formed below the liquidus temperature (T<L>Al<sub>3</sub>Ti) and the surface of the TiB<sub>2</sub> particles is at least partially covered by an Al<sub>3</sub>Ti coating. The prealloy is then cooled off to a temperature below the solidus temperature (T<S>V) of the prealloy at a second rate of cooling (v<sub>2</sub>) that is higher than the first rate of cooling (v<sub>1</sub>). The inventive method is especially useful in the production of grain refiners for the grain refinement of aluminum and aluminum alloys.

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Citation (search report)

See references of WO 0142521A1

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