

Title (en)

Multiphase permanent magnet of the Fe-B-MM type.

Title (de)

Fe-B-MM-Typ-Dauermagnet mit verschiedenen Phasen.

Title (fr)

Aimant permanent du type Fe-B-MM à phases multiples.

Publication

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Application

EP 88303018 A 19880405

Priority

US 3486287 A 19870406

Abstract (en)

A method is disclosed for producing a permanent magnet of the Fe-B-MM type, comprising: (a) preparing a metallic powder having a mean particle size of 2-5 microns and having a composition comprising, by atomic weight percent: 60-80% Fe, 1-8% Al, 6-10% B, .1-.43% oxygen, 0-5% Dy and/or 0-10% Ni, and 12-22% MM, where MM is a misch metal (preferably having at least four naturally occurring insoluble cerium earth metals with a least 20% of the misch metal consisting of cerium and lanthanum), the powder having essentially a multiphase crystalline structure dominated by at least two R2Fe14B phases; (b) aligning such powder in a magnetic field; (c) compacting the aligned powder into shapes; (d) sintering such shapes at a temperature and for a period of time (i.e., in the range of 1000-1100 DEG C for .5-9 hours) to fuse the powder and increase the proportion of said R2Fe14B phases to at least 70% by volume of the shapes; and preferably (e) annealing the sintered shapes at a temperature (i.e., in the range of 550-650 DEG C for 1-4 hours) to cause the shapes to consist essentially of at least two R2Fe14B phases comprising the matrix and the phase RFe4B4 and the R-rich phase residing essentially in the grain boundaries.

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CPC (source: EP KR)

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Cited by

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