

Title (en)

Corrosion resistant permanent magnet alloy and method for producing a permanent magnet therefrom.

Title (de)

Korrosionsbeständige Dauermagnetlegierung und Verfahren zur Herstellung eines Dauermagneten daraus.

Title (fr)

Alliage magnétique permanent résistant à la corrosion et procédé pour la fabrication d'un aimant permanent à partir de cet alliage.

Publication

EP 0517355 A1 19921209 (EN)

Application

EP 92302851 A 19920401

Priority

US 71187991 A 19910607

Abstract (en)

A permanent magnet alloy of a Nd-Fe-B composition having a major Nd₂Fe₁₄B permanent magnet phase, with alloying additions of cobalt, aluminum and zirconium, in combination. The permanent magnet alloy may be produced as prealloyed particles by inert gas atomization. The particles are magnetically aligned and consolidated, as by cold isostatic pressing, and then sintered within the temperature range of 950-1100 DEG C to produce a fully dense alloy article. After heating at a temperature within the range of 850 to 950 DEG C for 30 to 120 minutes, the article is cooled at a cooling rate of 5-50 DEG C/min. to a temperature of 400-550 DEG C and thereafter aged at a temperature within the range of 500-750 DEG C, preferably 550 to 700 DEG C. Prior to consolidating, the particles may be blended with zinc stearate and comminuted to reduce the size thereof.

IPC 1-7

C22C 38/10; **C22C 38/14**; **H01F 1/053**; **H01F 1/08**

IPC 8 full level

B22F 1/00 (2006.01); **B22F 3/14** (2006.01); **C22C 1/04** (2006.01); **C22C 38/00** (2006.01); **H01F 1/053** (2006.01); **H01F 1/057** (2006.01); **H01F 1/08** (2006.01); **H01F 41/02** (2006.01)

CPC (source: EP)

C22C 1/0441 (2013.01); **H01F 1/057** (2013.01); **H01F 1/0574** (2013.01); **H01F 1/0577** (2013.01)

Citation (search report)

- [A] CHEMICAL ABSTRACTS, vol. 109, no. 18, October 31, 1988, Columbus, Ohio, USA FUKUNO AKIRA et al. "Permanent magnet with improved corrosion resistance and its manufacture" pages 878,879, abstract-no. 162 176h
- [A] CHEMICAL ABSTRACTS, vol. 110, no. 16, April 17, 1989, Columbus, Ohio, USA AKIOKA KOJI et al. "Rare earth-iron-boron system alloy anisotropic magnets" page 785, abstract-no. 146 467u
- [A] CHEMICAL ABSTRACTS, vol. 110, no. 16, April 17, 1989, Columbus, Ohio, USA KOBAYASHI OSAMU et al. "Rare earth-iron-boron system alloy anisotropic magnets" page 785, abstract-no. 146 468v

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CN105206416A; EP1460653A4; EP0680054A1; US5480471A; US5589009A; WO2015096583A1; WO0213209A3; WO9401877A1; US7192493B2; US10340064B2

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