

Title (en)  
RARE-EARTH BASED MAGNETIC MATERIALS, PRODUCTION PROCESS AND USE

Publication  
**EP 0453270 A3 19911127 (EN)**

Application  
**EP 91303442 A 19910417**

Priority  
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Abstract (en)  
[origin: EP0453270A2] A new magnetic material of the general formula:  $R_xFe_yX_{min}aZ_b$  is derived from an intermetallic compound of rhombohedral or hexagonal crystal structure wherein R is one or more rare earth elements, X min is an element of groups IIIA, IIIB, IVA or IVB of the periodic table, Z is one or more elements of group VA of the periodic table, x is a value from 1 to 2, y is a value from 11 to 19, a is a value from 0 to 3, b is a value from 0.5 to 3 and Fe is unsubstituted or partly, substituted with the proviso that if the component Z is antimony or bismuth the element X min is not boron. These new materials exhibit increased Curie temperatures, magnetic strength and easy uniaxial anisotropy and are therefore suitable for fabricating into permanent magnets. Processes for preparing materials  $R_xFe_yX_{min}aZ_b$  are also described.

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**H01F 1/053**

IPC 8 full level  
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Citation (search report)  
• [A] US 4402770 A 19830906 - KOON NORMAN C [US]  
• [X] PATENT ABSTRACTS OF JAPAN, vol. 10, no. 11 (E-374)[2068], 17th January 1986; & JP-A-60 176 202 (HITACHI KINZOKU K.K.) 10-09-1985  
• [X] PATENT ABSTRACTS OF JAPAN, vol. 11, no. 117 (E-498)[2564], 11th April 1987; & JP-A-61 263 201 (HITACHI METALS LTD) 21-11-1986  
• [X] PATENT ABSTRACTS OF JAPAN, vol. 14, no. 41 (E-879)[3984], 25th January 1990; & JP-A-1 274 401 (TDK CORP.) 02-11-1989  
• [XD] IEEE TRANSACTIONS ON MAGNETICS, vol. 23, no. 5II, September 1987, pages 3098-3100; S. HIGANO et al.: "Magnetic properties of RE-TM-N system"  
• [A] PATENT ABSTRACTS OF JAPAN, vol. 9, no. 310 (E-364)[2033], 6th December 1985; & JP-A-60 144 909 (DAIDO TOKUSHUKO K.K.) 31-07-1985  
• [XP] NRC HANDELSBLAD, 4th April 1991, NL; "Nieuwe legering ontwikkeld voor permanente magneten"

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