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(54) **Process for producing Fe-B-R based permanent magnet having a corrosion-resistant film**

(57) An Fe-B-R based permanent magnet and metal pieces are placed into a treating vessel, where they are vibrated and/or agitated, whereby a metal film is formed on the surface of the magnet. A sol solution produced by the hydrolytic reaction and the polymerizing reaction of a metal compound which is a starting material for a metal oxide film is applied to the metal film and subjected to a heat treatment to form a metal oxide film. Therefore, it is possible to form, on the surface of the magnet, a corrosion-resistant film which can be produced easily and at a low cost without carrying-out of a plating treatment or a treatment using hexa-valent chromium and which has an excellent adhesion to the surface of the magnet and can exhibit a stable high magnetic characteristic which cannot be deteriorated even if the magnet is left to stand for a long period of time under high-temperature and high-humidity conditions of a temperature of 80°C and a relative humidity of 90 %. Thus, it is possible to provide an Fe-B-R based permanent magnet having an excellent corrosion resistance.

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EUROPEAN SEARCH REPORT

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