

Title (en)
HYDROGEN-PERMEABLE MEMBRANE MADE OF A METAL COMPOSITE MATERIAL

Title (de)
WASSERSTOFFPERMEABLE MEMBRANEN AUS METALLISCHEM VERBUNDWERKSTOFF

Title (fr)
MEMBRANES PERMÉABLES À L'HYDROGÈNE, EN UN MATÉRIAU COMPOSITE MÉTALLIQUE

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Application
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Abstract (en)
[origin: WO2009036905A1] The invention relates to a metal matrix material made of a hydrogen-permeable metal 1 and a chemically stable metal 2 that is also hydrogen permeable, said matrix material having a structure comprised of a plurality of centers made of the metal 2 surrounded by the metal 1. The invention further relates to a method for the production of said matrix material, having the following steps: a. optionally pretreating the metal 1 and/or 2 b. coating metal 1 with a metal 2 to form a composite metal powder c. pressing the composite metal powder into the metal matrix material according to the invention in the form of a pressed body d. optionally deforming the pressed body thus obtained to form a molded body. The metal matrix material has a greater mechanical stability as compared to a conventionally coated metal film by virtue of a more homogeneous stress distribution during the change in volume of the metal phases as a result of hydrogen absorption and thermal expansion. At the same time, said material is considerably more chemically stable than conventional coated metal membranes. The metal matrix material is particularly suitable for producing hydrogen-permeable membranes that separate hydrogen from gas mixtures by selective diffusion.

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EP
1. **B22F 2999/00 + B22F 3/02 + B22F 3/15**
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3. **B22F 2999/00 + B22F 1/17 + B22F 9/26 + B22F 9/24**
4. **B22F 2999/00 + B22F 1/17 + B22F 9/24 + B22F 9/26**
5. **B22F 2998/10 + B22F 1/14 + B22F 1/17 + B22F 3/02 + B22F 3/17**
US
1. **B22F 2998/10 + B22F 1/14 + B22F 1/17 + B22F 3/02 + B22F 3/17**
2. **B22F 2999/00 + B22F 3/02 + B22F 3/15**
3. **B22F 2999/00 + B22F 1/17 + B22F 9/24 + B22F 9/26**
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