

Title (en)

BULK AMORPHOUS ALLOY MADE OF NICKEL-FREE ZIRCONIUM

Title (de)

MASSIVE AMORPHE LEGIERUNG AUF DER BASIS VON ZIRCONIUM OHNE NICKEL

Title (fr)

ALLIAGE AMORPHE MASSIF À BASE DE ZIRCONIUM SANS NICKEL

Publication

EP 3128035 B1 20200304 (FR)

Application

EP 15179473 A 20150803

Priority

EP 15179473 A 20150803

Abstract (en)

[origin: JP2017031504A] PROBLEM TO BE SOLVED: To provide methods for producing zirconium-based and/or hafnium-based bulk amorphous alloys that are either nickel-free or nickel- and beryllium-free, for timepiece applications. SOLUTION: A nickel-free bulk amorphous alloy is formed, in atomic percent, of: a zirconium and/or hafnium base, forming the balance, with the total content of zirconium and hafnium value being 52.0 to 62.0; copper of 16.0 to 28.0; iron of 0.5 to 10.0; aluminum of 7.0 to 13.0; at least two additional metals (X) taken from the group including Ti, V, Nb, Y, Cr, Mo, Co, Sn, Zn, P, Pd, Ag, Au, Pt, Ta, Ru, Rh, Ir, Os, and Hf when the base contains none of them, and Zr when the base does not contain Zr, with the total atomic percentage of these additional metals being greater than 6.0 and less than or equal to 10.0. SELECTED DRAWING: Figure 1

IPC 8 full level

C22C 1/00 (2006.01); **C22C 45/10** (2006.01)

CPC (source: CN EP US)

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