

Title (en)

METHOD FOR MANUFACTURING A COPPER-BASED COMPOSITE MATERIAL FOR ELECTRICAL CONTACTS

Title (de)

VERFAHREN ZUR HERSTELLUNG EINES VERBUNDSTOFFES AUF KUPFERBASIS FÜR ELEKTRISCHE KONTAKTE

Title (fr)

PROCÉDÉ DE PRODUCTION D UN MATÉRIAU COMPOSITE À BASE DE CUIVRE POUR CONTACTS ÉLECTRIQUES

Publication

EP 2492032 A1 20120829 (EN)

Application

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Priority

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Abstract (en)

The invention relates to methods for manufacturing a copper-based composite material for manufacturing electrical contacts that can be used in high-voltage electric apparatuses, for example as contacts in an arc-suppression vacuum chamber. Once two compression-molded briquettes have been produced from a mixture of copper and chromium powders and from copper powder, a source of alloying components is arranged between said briquettes and heating is carried out up to a temperature of 700-900 °C in a vacuum at 10⁻³ -10⁻⁵ Torr, which is maintained for 30-60 minutes, followed by agglomeration in a hydrogen atmosphere or inert gas atmosphere at a temperature of 1085-1150 °C until a copper layer of a thickness of 2.5-5.0 mm is formed above the briquette compression-molded from a mixture of copper and chromium powder. The resultant blank is cooled to a temperature of 900-920 °C at a rate equal to or exceeding 20 °C/min, and annealing is carried out at a temperature of 500-700 °C for 30-120 minutes. The proposed method makes it possible to produce a composite material containing a copper layer of the necessary thickness with a finely dispersed structure without internal tensions and to simultaneously combine three separate technological operations involved in the process of agglomerating the composite material in one batch in the vacuum chamber, thereby reducing the production cost of the material.

IPC 8 full level

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