Title (en)

THERMALLY CONDUCTIVE COMPOSITE MATERIAL COMPRISING ALUMINUM POWDER, PROCESS FOR PRODUCING THE COMPOSITE MATERIAL AND USE OF THE COMPOSITE MATERIAL

Title (de)

WÄRMELEITFÄHIGER VERBUNDWERKSTOFF MIT ALUMINIUM-PULVER, VERFAHREN ZUM HERSTELLEN DES VERBUNDWERKSTOFFS UND VERWENDUNG DES VERBUNDWERKSTOFFS

Title (fr)

MATÉRIAU COMPOSITE THERMOCONDUCTEUR CONTENANT UNE POUDRE D'ALUMINIUM, PROCÉDÉ DE FABRICATION ET UTILISATION DU MATÉRIAU COMPOSITE

Publication

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Application

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Abstract (en)

[origin: WO2009144135A1] The invention relates to a thermally conductive composite material comprising crosslinkable or at least partly crosslinked polymer base material, and aluminum powder distributed within the polymer base material. The aluminum powder has aluminum particles with particle sizes from the range from 0.05 µm to 400 µm. A proportion of aluminum particles with a particle size of less than 1 µm in the aluminum powder is selected from the range from 1% by weight to 50% by weight. In addition, a process for producing the composite material is specified, comprising the following process steps: a) providing a starting material of the polymer base material and providing the aluminum powder and b) mixing the starting material and the aluminum powder with one another. The basic idea of the invention consists in using an aluminum powder comprising aluminum particles as a filler for the thermally conductive composite material, which have very different particle sizes. In addition, the proportion of aluminum particles with small particle sizes is high. It is thus possible to provide a composite material with high thermal conductivity. The thermal conductivity varies within a range of more than 7 W/(m*K). At the same time, the composite material can be processed very efficiently in the uncrosslinked or only partly crosslinked state. Furthermore, the composite material also features a low electrical conductivity. The composite material is thus very suitable for use in assemblies and components with high packing and power densities.

IPC 8 full level

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