ARC-RESISTANT METAL-CERAMIC MATERIAL FOR ELECTRIC TERMINALS

Description
The material is designed for soldering high-current contactors used in power ac and dc circuits with a voltage up to 1500 V and higher onto worn terminals. It is supplied in the form of sintered plates of an arbitrary size (at customer's request). The plates are easily cut into cut-to-length pieces of a required size by any metal-working instrument. The plate pieces are soldered onto worn contacts by the electric-contact method or by the burner flame. The use of copper-phosphorous solders (PF07, PMF7, PMF9, PMF0Tsr6-4-0.03) for soldering by the electric-contact method without fluxing agents are recommended. Soldering is also possible with brass or Cu–Ag-based solders.

Technical appraisal and economic benefits
The material exceeds Ag-based electric-contact materials in terms of arc resistance and is 3 to 5 times less expensive.

Application area
The material is recommended to be used on contactors in power circuits of hoisting cranes, excavators, mine trucks, and other motor cars, where frequent current breaking in power circuits is required by operating conditions.

Development stage
Large-scale testing of the arc-resistant electric-contact material was performed in 2000 in Kuzbass open-cast coal mines and in river ports of Siberia and European region of Russia. The testing resulted in vendor contracts to deliver the material in pilot lots. In 2001, the delivered volume reached approximately 60 kilograms (equivalent to 150,000 roubles).

Patent situation
Not available.

Commercial offers
Services on the development of optimal compositions and sintering technologies of arc-resistant electric-contact materials on the basis of specifications of potential customers with subsequent transfer of the developed compositions and sintering technologies. Supply of pilot lots of previously developed materials for large-scale testing on customer’s equipment is also possible. Based on the test results, both composition and know-how transfer and further supply of the material in required volumes are possible at customer’s option.

Estimated cost
The cost of material development by customer’s specifications is to be discussed. The cost of the developed arc-resistant electric-contact material in the form of plates for soldering onto contacts is 2,500 roubles per kilogram.

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