

عنوان مقاله:

Role of Electroless Plating in the Production of W-Cu EDM Electrodes

محل انتشار:

دومین کنفرانس بین المللی و هشتمین کنفرانس ملی مهندسی ساخت و تولید (سال: 1386)

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خلاصه مقاله:

Tungsten - copper (W-Cu) electrodes have been used widely to machine die steel and tungsten carbide work-pieces owing to high thermal conductivity of Cu, and the better spark erosion resistance, low thermal expansion coefficient and high melting temperature of W. In present study, tungsten particles with average size of $8\mu\text{m}$ were used to electroless coating of Ni and Ni-P. The compacting pressure and sintering temperature were adjusted for powder to attain the desired skeleton density for producing W-15Cu. Then the skeletons were infiltrated with oxygen-free copper at 1300 C in hydrogen. As coated powder and compacts were characterized by EDS analysis, scanning electron microscopy (SEM) and optical microscopy. Also measurement of density and electrical resistivity were performed. Results showed, infiltration process improves in case of coated powders and higher values in density are observed. In case of coated powders, relative density and electrical resistivity of compacts increase as the amount of Ni in coating increases to about 1%Wt. In higher values of Ni relative density is approximately constant, but electrical resistivity increases as the amount of additive and P in composition increases.

کلمات کلیدی:

W-Cu composite, Infiltration, EDM electrode, Electroless plating

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