

Electroless Co-B-P-W deposition using DMAB as reducing agent

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Co-B-P-W alloy films were deposited by the electroless plating method on Cu foil and on Si wafer with a sputtered PVD TaN/Ta barrier and Cu seed substrate. The effects of the various diamines (diethylenetriamine, triethylenetetramine, prophenetriamine, tetraethylenepentamine, pentaethylene-hexamine), pH, concentration of the reactants and temperature on the deposition rate were investigated. By variation of electroless plating solution composition, Co-B-P-W coatings containing different amounts of boron, phosphorus and tungsten can be obtained under slightly acid conditions. Using operating conditions selected Co-B-P-W coatings containing 0.5-10.0 at. % W, 0.5-16.0 at. % B and 1.5-6.0 at. % P can be obtained. The induction period depends on solution composition, but can be effectively shortened by elevation of the temperature of working solution.

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