



[54] ACID ELECTROLYTE SOLUTION AND PROCESS FOR THE ELECTRODEPOSITION OF COPPER-RICH ALLOYS EXPLOITING THE PHENOMENON OF UNDERPOTENTIAL DEPOSITION

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[58] Field of Search ..... 205/23.9, 241, 242

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Table with 4 columns: Patent No., Date, Inventor, and Patent No. (repeated). Rows include Strauss et al., Schimkus, Willmund et al., Mey, Eckles et al., Teichmann et al., Teichmann et al., McCoy, and Wilson.

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[57] ABSTRACT

An acidic electrolytic solution for use in the electrodeposition of copper-rich alloys on a substrate, the less noble component being incorporated by underpotential deposition. The solution includes a first salt containing copper cations; a second salt containing cations of a metal less noble than copper; and an acid electrolyte (e.g., methane sulfonic acid) such that at typical current densities the potential is in the range of underpotential deposition of the less noble metal on the copper.

Also provided is a process for using the acidic electrolytic solution. The process includes the following steps: (1) selecting a copper-rich alloy having, as the minor component, a metal that is less noble than copper and can form an underpotential deposition layer on copper; (2) selecting an acid electrolyte such that at typical current densities the potential is in the range of underpotential deposition of the metal on the copper; (3) providing in the acid solution simple salts of copper and of the less noble metal; and 4) applying a current between a cathode and an anode placed in the plating solution to plate the alloy on the cathode.

20 Claims, 1 Drawing Sheet

