ROTATING CYLINDER THROWING POWER ELECTRODE

Abstract

This invention pertains to an apparatus and method for measuring throwing power of electroplating solutions. The apparatus is easy to use and gives reproducible measurements. The apparatus emulates the performance of a conventional Haring Blum cell. The major disadvantage of the standard Haring Blum cell is its limited aility to vary the solution mass transport, thus limiting its applicability to very low current density applications. Furthermore, even under low-mass transport conditions, non-uniform solution distribution is experienced leading to erroneous interpretation. This invention permits the study of throwing power of electroplating solutions under a whole variety of solution agitation. The invention embodies an instrument for and a method of measuring the throwing power of electrolytes. The instrument is in a form of an elongated cylindrical body adapted for rotation about its longitudinal axis and includes a fixed conductive anode element and at least two cathode elements, at least one of which is variably spaced from the anode element. Preferably, one cathode element is fixed relative to the anode element a first predetermined distance and another cathode element is spaced from the anode element a second variable distance which is a multiple of the first distance. The instrument also includes means for providing current to the anode element and equi-potentially to each of the cathode elements. The measuring includes providing each of the cathode elements with a pre-weighed removable metal foil, rotating the instrument which the anode and cathode elements are completely submerged in an electrolyte, applying current to the anode and the cathode elements, removing the metal foils from the cathode elements and weighing the metal foils with the deposit thereon to compare the weight of deposited metal at different cathode element positions.

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