The Most Significant Troubles Caused by Disregarding Design Considerations in Plating Products Electrically

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Abstract

The main objective of the electroplating process is coverage with uniform thickness distribution without any problem on the entire surface of the product, and it is difficult to obtain uniform thickness distribution with the appearance of some defects resulting from errors in the design process. To avoid these defects, design considerations shoud be observed regarding the shape of the product, racking, The shape of the anodes and heaters, the causes of the plating problems resulting from failure to observe the design considerations should be known as well, in addition to knowing how to solve them. Furthermore, obligatory design principles and critera should be determined.

The process of electroplating is not a cheap process, especially in the case of plating with precious metals such as gold, which requires particular specifications.Good design allows the application of good coverage, and often small changes in design can be made to help greatly in simplifying the treatment process, avoid plating problems resulting from lack of observed design considerations and reduce costs.

The designer must know the principles and design considerations that affect the quality of the coating process, as well as the causes of the problems of the electroplating process in order to avoid them since the beginning of the design.

Statement of Problem

The research problem lies in the necessity for the designer to know the design considerations affecting the electroplating process, which results from not taking into account several problems, as well as to know how to treat them in order to reach a quality surface for the product at the lowest costs.

Purpose

The purpose is to conduct an analytical study to find out the causes of some of the problems of electroplating resulting from failure to observe the design considerations regarding the shape of the product, racking, the shape of the anode and heaters and how to treat them.

Research Hypotheses

Taking into account design considerations regarding the product shape, racking, and the shape of anode and heaters leads to:

- Avoiding many electroplating problems of different solutions.
- Achieving better results at the lowest costs

Keywords

Design considerations - electroplating troubleshooting- poor throwing power- anode’s shape

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