

Economic considerations for stripping precious metals coatings

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Abstract:

Electroplating is a surface treatment technique to enrich the aesthetic appearance of the product and protect it from corrosion that leads to distortion of metal surfaces and to achieve these requirements in the product uses precious metals coatings such as silver, gold, platinum and others to cover the metal surface and maintain it from various environmental factors by taking advantage of the unique characteristics of these metals. Hence, the Electroplating process has some problems and defects that occur to the coating such as surface roughness and poor adhesion and other defects with which it is difficult to perform the surface of the plated product for its functions, whether it is useful or aesthetic, Forcing Electroplater to strip the coating and replace it with other properties better and free from defects. This may have an economic impact on the production processes because of the loss of time, energy and effort as a result of the repetition of some operations. Stripping precious metal coatings from the surface of any product is a difficult and challenging process that most Electroplater do not like. However, some engineering and metallic products (such as jewelry) may need to be removed for some unsuccessful coatings, to correct errors or to improve the appearance of the product. **Statement of problem.** Therefore, the problem of research is determined by the need to avoid the economic effects resulting from the waste of precious metals, especially gold and silver when replating metal products, whether for defects appear after the completion of the coating process or improve the appearance of the product. **Objectives:** Identify the most important chemical and electrochemical methods to remove the layers of metallic coatings from the surfaces of painted products, whether new or unpainted to improve the appearance and acknowledge the methods of extracting metals from removal solutions to preserve them, especially precious ones such as gold and silver. In addition to the determination of economic values to remove paint layers. **Research Methodology:** The research uses the descriptive analytical and experimental method. **Results.** 1. The Electroplating process has some problems and defects that occur to the coating layer such as surface roughness, poor adhesion and other defects with which it is difficult to perform the surface product for its functions, whether it is useful or aesthetic, which causes stripping of the coating and replace it with other properties better and free from defects. 2- The actual utilization of metals used in electroplating processes shall not exceed 30% to 40% of the total metals used in this process. 3 - Stripping of metal coating, especially precious from the surface of any product is a difficult process and a challenge not preferred by most workers in the field of plating. 4 - There are several methods of mechanical, chemical and electrochemical to strip the metal coating where it depends on the friction or immersion in solutions (chemical) or anodic units (electrically) deposition of metal ions on cathodes. 5- After successful strip coatings must take advantage of the metals that have dissolved in the stripping solutions because its large economic value, especially when stripping precious metals such as gold and silver, and the most common methods in the application, which relied on research in practical experiments, the method of chemical deposition and the method of Electrowinning 6 - The processes of stripping coating of metal plated several economic values,

Keywords

Economic Considerations, Coatings Stripping, Precious Metals

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