

Abstract

Electroplating in mechanical engineering. Designing of technological process of electroplating of satin nickel coating on steel details.

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This paper discusses the technology of obtaining of protective satin nickel coating on steel details to enhance their ability to be pressed in due to outstanding elasticity of the coating. Actually, the project is aimed at designing of the electrolyzer capable of obtaining the demanded amount of coating on steel surface. For this purpose appropriate calculations were maintained and the suitable electrolyte was chosen. The coating is obtained from sulfamate electrolyte under the temperature 55...60 °C, current density 12 A/dm² and 10.48 V voltage. As for electrolyzer, the process is held in stationary galvanic cell. It is essential to note that the process is automatized. For this purpose, there was designed scheme of automatic regulating of the electrolysis. In addition, the paper contains economical calculations to evaluate profitability of applying of the designed cell to meet demand in satin nickel coating. The project also argues for ecological issues and safety measures. Particularly, there was designed reagent-method-based wastewater treatment scheme to minimize harmful impact on environment. Eventually, there were designed safety measures to minimize risks within the working environment.

Keywords: nickel, stationary bath, elastic thick coating, sulfamate electrolyte

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