ABSTRACT

Electroplating in engineering. Designing of technological process of electroplating of nickel underlayer in three-layer coating copper-nickel-chrome on steel details.

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In the project developed the process of applying a protective and decorative coating for steel details. The coating is obtained from sulfate-chloride electrolyte under the temperature 40…55 ^{o}C, current density 2 A/dm^2 and 2.678 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, current density, voltage, sulfate-chloride electrolyte.