

ABSTRACT

Electroplating in machine manufacturing. Designing of technological process of electroplating of chrome underlayer in three-layer copper-nickel-chrome coating on steel particles.

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The process of electrodeposition of protective and decorative copper-nickel-chrome coating on steel particles in this project was developed. The coating is obtained from self-regulating electrolyte under the temperature 50 °C and current density 40 A/dm². 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 chrome coating. The project also argues for ecological issues and safety measures. Particularly, there was designed wastewater treatment scheme to minimize harmful impact on environment. Eventually, there were designed safety measures to minimize risks within the working environment.

Keywords: plating, chrome, self-regulating electrolyte, technical and economic performance, scheme of automation, wastewater.

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