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TECHNOLOGICAL PROCESS OF WIRE TIEING WITH COPPER ALLOY POIN-52

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Abstract. Factory “Chuvashkabel” which is a modern, highly mechanized, equipped with advanced equipment, an enterprise that produces a wide range of cable and wire products, strives to improve the research base as a tool to increase its own competitiveness. The management of the organization realizes that the release of science-intensive products makes it possible to create a foundation for further systemic development and is the basis for attracting new consumers. The object of research tests of experimental samples is a round copper wire with a POIN-52 coating for use as electrodes in solar modules, the results of which determine the optimal parameters of the wire tinning technological process. The developed technology must provide the values of the indicators that meet the requirements.

The controlled parameters of the POIN-52 coated round copper wire also include the appearance, from the point of view of which the wire should have a smooth surface and a continuous coating along the entire length of the wire. Research tests were carried out on 40 samples with a total weight of 32 kg with 5 parallel measurements for each wire sample.

To determine the optimal parameters of the technological mode of manufacturing round copper wire with POIN-52 coating, “Chuvashkabel” proposed to produce experimental wire samples based on variations in the POIN-52 alloy melt temperature, linear speed, diamond wire diameter and flux grade.

Based on the results of the studies performed, i.e. studies of 40 experimental samples obtained with different parameters of the technological process of tinning, the most optimal mode is the use of the following parameters:

• melt temperature – 140 oC ± 5 C;
• linear speed – 55 ± 5 m / min;
• the diameter of the diamond die - 0.345, 0.400 mm.

Thus, during the tests it was found that the samples of the experimental round copper wire with the POIN-52 coating meet the established requirements for consumer properties.