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DETERMINATION OF OPTIMAL PARAMETERS TECHNOLOGICAL PROCESS OF POOLING WIRE WITH COPPER ALLOY POS-61

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Abstract. Chuvashkabel Plant JSC is not an exception. The plant management and personnel are focused on the production of innovative and high technology products [1], in particular, wire with unique characteristics used as a braid in cable products for various purposes.

The research tests object of experimental samples is an round copper wire coated with POS61 alloy. This wire is used as shielding elements in cable and wire products, according to the results of which the optimal technological process parameters of tinning the wire are determined. The developed technology must provide the values of the indicators that are indicated in table 1. Round copper wire samples with POS-61 coating are considered to have passed the tests if their indicators meet the requirements specified in the table.

Table 1

List of determined indicators copper round coated wire POS -61

Options	Values
Wire diameter, mm	$0.15^{+0.005}_{-0,003}$
Coating thickness, microns	$1.0^{+0.2}_{-0.5}$
Tensile strength wire, N/mm^2	Not less 196
Elongation at break,%	0,15 mm – 10–25%;
Resistivity Ohm×m×10^{-6}	No more 0.0180

Chuvashkabel Plant JSC proposed to produce experimental wire samples to determine the optimal parameters of the technological mode of manufacturing round copper wire coated with POS-61 alloy. It is based on variations in the temperature of the POS-61 alloy melt, linear velocity, diamond wire diameter and flux grades (Table 2).

Table 2

Technological modes of obtaining round copper wire with POS-61 coating

Nominal diameter of copper wire, mm	Melt temperature, °C	Linear speed, m / min	Diamond die diameter, mm
$0.150^{+0.005}_{-0.003}$	215	125	0.238

Thus, during the tests it turned out that samples of experimental round copper wire with a coating POS61 E-MT-0.15-POS61-30 and E-MT-0.15-POS61-32 meet the established requirements 075-11-2019-047-TT on consumer properties.

References

1. Danilov, I.P. Sistema kachestva predpriyatiya i ee osnovnye cherty / I.P. Danilov, V.L. Semenov // Kachestvo i konkurentosposobnost' v XXI veke: materialy II vseros. nauch.-prakt. konf. 2003. pp. 63–67.