INFLUENCE OF ANODIC SPARK MODE PARAMETERS ON THE PROPERTIES OF MAO-COATINGS

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It is known that MAO coatings can have a set of properties. The work of many researchers is aimed at studying the properties of MAO coatings [1-4].

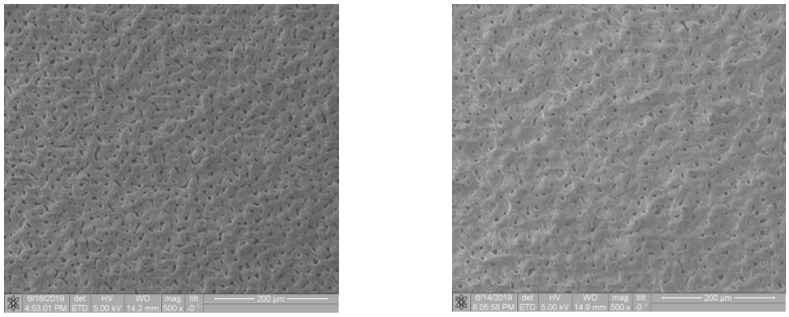
By controlling the parameters of the MAO process, materials with new properties are formed. Therefore, it is relevant to study the influence of the parameters of the MAO process — pulse duration, pulse frequency, voltage on the composition, structure of the coatings.

In this study, results of investigation of influence of duration, frequency, voltage on the structure, composition, morphology of MAO coatings are presented

Table 1. MAO parameters and characteristics of the coatings

Number of Sample	Condition of the Coating	Coating thickness, μm	Porosity,%	average size of pores, μm
1	600V, 100Hz, 100μs	30	13,4	16,2
2	600V, 100Hz, 200μs	30	9,8	6,1

It was found that with the same coating thickness of 30 μm, its porosity decreases with increasing pulse duration from 100 μs to 400 μs (Fig. 1). An increase in the pulse frequency from 50 Hz to 100 Hz does not affect the porosity, but changes the size and shape of the pores. Changing the voltage from 350 V to 600 V reduces the porosity from 9% to 4%, while the pore size decreases from 22.5 μm to 10.6 μm.



Sample 1 Sample 2

Fig.1 Effect of pulse duration on the morphology of MAO coatings

Thus, it is shown that when we control the parameters of the MAO process, coatings of the required composition and structure are created.

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