Significant losses pneumatic different energies climatic and operational conditions lead to the fact that value costs air and performance characteristics pneumatic mechanisms and machines significantly are different from passport data. That's why there is relevant research in production conditions pneumatic economy and work characteristics pneumatic devices for the purpose of promotion efficiency production, distribution compressed air and operation pneumatic equipment, receiving actual data of costs air concrete receiver energy.

Thanks to implementation two formative shaking machines, which will be built into the automated line, this will provide us with savings costs, labor capacity labor and working conditions.

It is shown that amplitude and frequency of oscillations, height on the table, expenses air increase with increasing pressure compressed air in the range from 0.30 to 0.55 MPa. When increasing load, amplitude oscillations and height when lifting the table decreases , and the frequency of blows is growing

It is recommended exploit molding machine under pressure compressed air is not less than 0.55 MPa, which will allow p to increase energy characteristics of the machine and degree consolidation mixtures, exclude unstable mode of operation shakes mechanism for loads on the table .

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MANUFACTURING OF COMPOSITE MATERIAL OF ABRASIVES COMPOSITION – METAL BINDER USING SPS TECHNOLOGY

The production of composite materials based on abrasive-metal systems using Spark Plasma Sintering technology (SPS) is one of the modern approaches that is intensively developing. In our case, the electric current sintering technology involves the use of rectified direct current. During the production of composite materials, the presence of solid inclusions of different geometry and nature in the body of the melting metal matrix can significantly affect the mechanism of alloy formation and compaction during electroprocessing.

Now, the study of processes, for example, mass transfer between the surface of a solid particle and the layer of liquid phase (melt) surrounding it, the determination of the mechanisms of dissolution and interaction under the condition of direct passage through the pressing of an electric current is an urgent issue. The solution will significantly improve the quality of abrasive metal products and their manufacturing technology [1, 2].

Research on obtaining a diamond-containing composite on a copper-cobalt binder was carried out using a mixture of copper, tin, cobalt, chromium and diamond powders (wt. %) [(40,0 % Cu + 11,0 % Sn + 44,0 % Co + 5,0 % Cr) + 50,0 % (conditional units) of synthetic diamond AS 200, 400/315 μm].

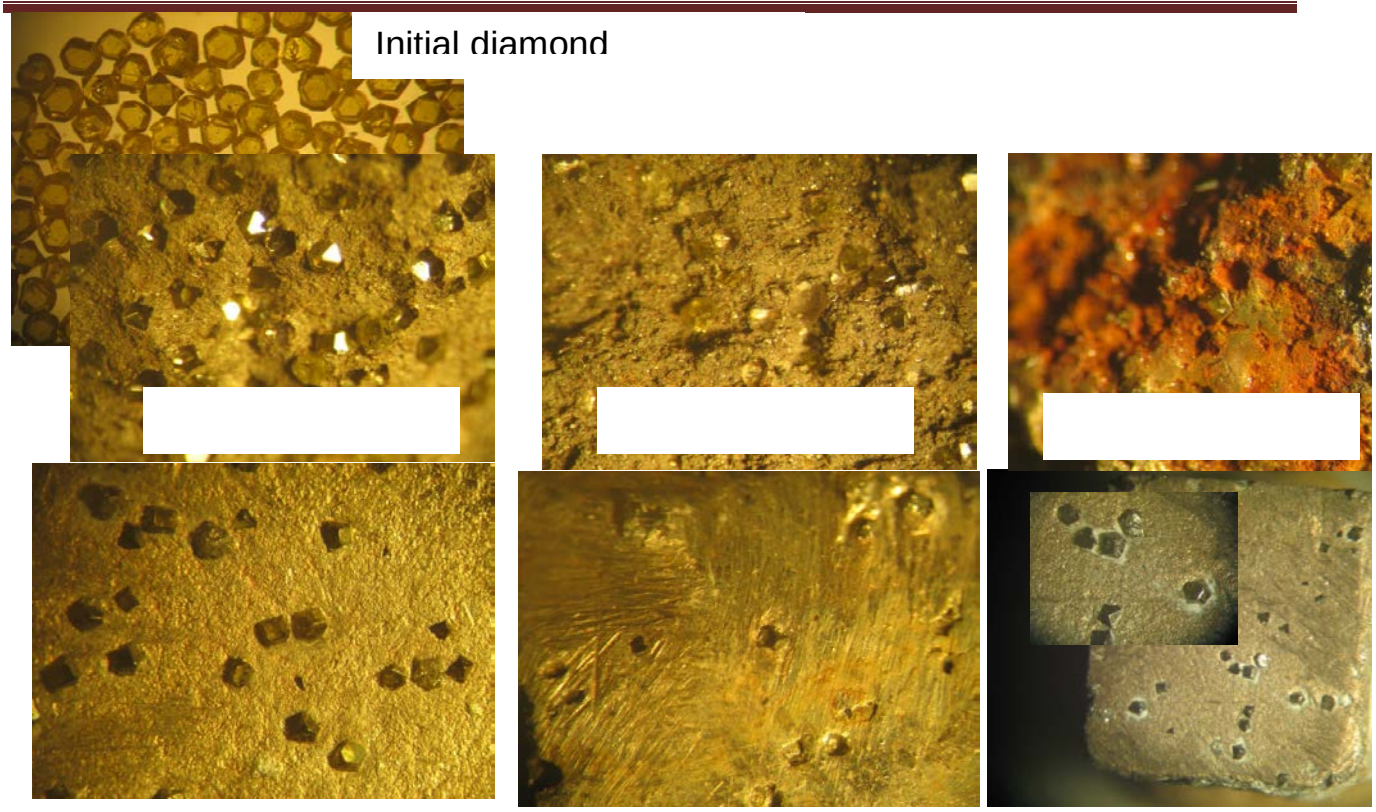
On the basis of practical experience and theoretical analysis, technological regimes of IPS for obtaining a diamond-containing composite on a copper-cobalt binder were determined. A test batch of samples (with diameter 10 mm and height 4,8 … 5,5 mm) was produced on ERAN 2/1 equipment under the action of a rectified direct electric current in a graphite mold with the technological parameters listed in Table 1.

In order to determine the quality of samples of the obtained composite material, tests were conducted to determine the workability. The appearance of the initial state of the diamond, fracture of the samples and after the tests is shown in Figure 1.

The operating characteristics of the obtained instrumental samples were compared with existing industrial analogues. The results of comparative studies showed that the average abrasive capacity for granite was 0,6931 g/(cm^2·min), and for marble 3,0806 g/(cm^2·min), which is 1,7 … 2,3 times better than analogues where the metal binder is almost pure cobalt and obtained in industrial conditions by LLC “INSTECH” and segments of the brand “TITAN” (composition: alloy M1 + 10,0 % Ti).

Table 1 – Technological parameters of obtaining samples

Technological parameter	**Technological parameter**
DC power density	$8{,}28 \times 10^6$ A/m^2
Pressing pressure	Up to 60 MPa
The duration of SPS	150 … 180 s
Sintering temperature	950 … 1050 °C



equipment (composition: alloy

Figure 1 – Condition of diamond grains (initial and in samples)

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