

Conclusion

1. The technology of molybdenum metallization of reinforced ceramics in the conditions of electron-beam evaporation-condensation has been developed. It is shown that when precipitation of a steam stream from molybdenum on a surface of ceramic plates heated to a temperature of 800-1200 ° C, it is possible to form a coating with a thickness of 25-50 microns for 2-4 minutes.

2. It was established that coatings with a thickness of up to 25 μm are formed by condensation of vapor from molybdenum to a ceramic surface consisting of boron carbide, silicon carbide, carbon fibers and silicon phases, at temperatures of 700 ° C and lower, have a low immunity to the base and when cooling is separated from the base.

3. The regularities of the formation of the microstructure of the coating from molybdenum are established. It has been shown that as the temperature of the ceramic material increases, the surface morphology of the coating varies from fine-crystalline solid to coarse-crystalline with voids between grains and coarse-crystalline solid. Patterns of formation of the structure are satisfactorily explained by an increase in the ratio of precipitation rates along the normal to the surface of the ceramic material and the tangential diffusion transfer mass on the surface of the coating.

4. The influence of the temperature of the ceramic base on the chemical and phase composition, the characteristics of the microstructure of the coating from molybdenum was investigated. It is shown that an increase in the temperature of ceramics does not affect the phase composition of the coating from molybdenum.

5. Dyrrometric analysis shows that the coating has a hardness of 4-6 GPa and does not exfoliate during indentation of the indenter, indicating a fairly strong infiltration of the molybdenum coating with the base.