

## CONCLUSIONS

In this work, a composite material, based on boron carbide, produced by a permeating the porous framework of B<sub>4</sub>C particles by metallurgical silicon, was obtained.

It was proposed methods of introducing carbon ceramic frame with B<sub>4</sub>C particles, which is added to the initial boron carbide powder, starch paste, which ensures exact dosage and uniform distribution of carbon particles refractory component.

It was established that the increase of carbon content leads to the increase of SiC in the composite. Moreover, the formation of SiC, with a low content of carbon, mainly occurs on boron carbide grains, whereas with increasing C, silicon carbide begins to form in the matrix volume component.

It is shown that with increasing the residence time during permeation, by dissolves of grains of boron carbide the matrix phase strengthens. The microhardness of this phase increases by 2-3 GPa from the initial values.

Steps to ensure healthy working conditions and principles of emergency security have been developed.