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Formation of Composition, Macro- and Microstructures of SHS Cast Composite Materials Based on Carbides with an Intermetallic Binder

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The specific features of the formation of chemical and phase compositions, macro- and microstructures of composite materials (chromium carbide-nickel aluminide, (titanium, chromium) carbide-nickel aluminide) were studied for various ratios of the carbide to intermetallide phases. It was shown that under the optimum synthesis conditions, chromium, titanium, and carbon were localized in the carbide grains and nickel and aluminum formed an intermetallide matrix. Cr_3C_2, TiC-Cr_3C_2, Cr_7C_3, and NiAl were structural components of the composite materials. We found that the synthesized materials can be used in the production of protecting coatings.