

Effect of the Method of Formation of Composite Ti–TiC Coatings on Their Composition, Microstructure, and Strength Properties

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Abstract—In the present work, the results of study of the composition, microstructure, and strength properties of composite coatings based on titanium and titanium carbide obtained using two different surface treatment methods—electric arc method in an electrolyte and laser method—are presented. It is shown that the coating parameters affecting the strength properties of samples, such as the morphology and size of carbide grains in the coating composition along with the coating thickness, are significantly easier to adjust using the laser cladding method.

Keywords: titanium alloys, titanium carbide, composites, wear-resistant coatings, electric arc treatment, laser treatment

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