

INFLUENCE OF THE ACTIVATION CONDITIONS OF THE VAPOR-GAS MEDIUM ON THE PROPERTIES OF TISICN COATINGS*

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The results of the study of the effect of the discharge current, composition and activation method of the vapor-gas mixture on the characteristics of TiSiCN coatings obtained by anodic evaporation of titanium and decomposition of hexamethyldisilazane in a hollow cathode arc discharge are presented. Figure 1 shows the electrode scheme of experimental facility. Nanocomposite coatings consisting of an amorphous phase based on SiCN with embedded nanocrystals TiN, TiC and TiCN were obtained. It is shown that an increase in the discharge current in the range of 10-50 A leads to a decrease in the hardness of nanocomposite coatings and deterioration of their adhesion, which can be explained by an increase in the proportion of the amorphous phase as a result of an increase in the decomposition degree of the precursor.

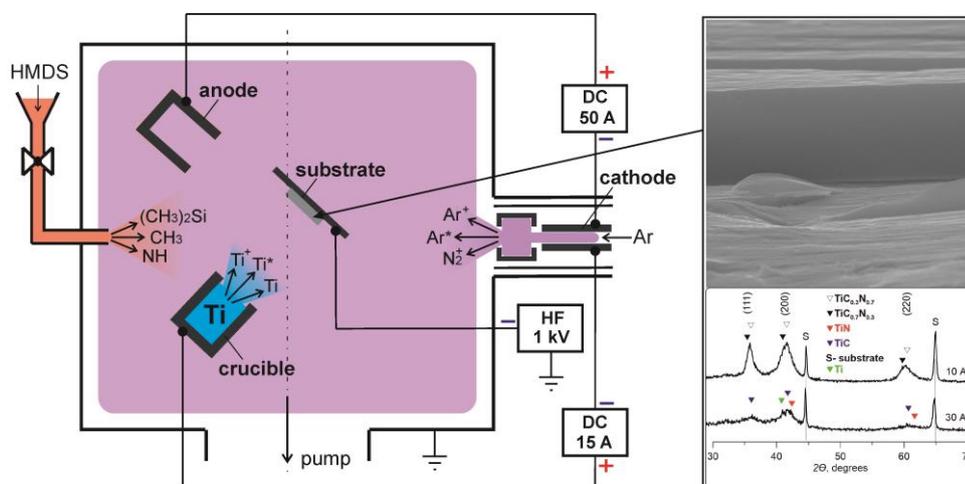


Fig.1. Electrode scheme of experimental facility

The experimental setup is based on a gas discharge system with a self-heating hollow cathode cylinder made of TiN powder. In this work, the discharge is used to ionize gases and decompose vapors of the organosilicon precursor, to heat the crucible and vaporize titanium using two independent sections of the anode (cooled hollow anode, uncooled anode - crucible).

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