

PHASE COMPOSITION  
AND STRUCTURE OF CONDENSATES  
OF LOW SUPERSATURATED Ti-C VAPORS

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S u m m a r y

The results of investigations of the interrelation between the chemical composition and the structure of Ti-C layers obtained by magnetron sputtering of composite targets are reported. The layers were deposited at low vapor supersaturations and investigated by a transmission electron microscope using electron microdiffraction method. The chemical composition was determined by calculations and energy dispersion analysis. It has been found that, at certain concentrations of C, the deposited layers consist of a new TiC<sub>2</sub> carbide and a diamond phase. The TiC<sub>2</sub> condensate has a bcc lattice with a period about 0.3 nm, being metastable with respect to diamond. A decisive role of the low supersaturation degree of vapors in the formation of porous structures (at C concentration above 70 at.%), as well as the epitaxial layers of TiC, has been shown.