

# DEFECTIVE STRUCTURE OF CRYSTALLINE LATTICE OF ZIRCONIUM CARBIDE

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When analyzing the nature of the ordered equilibrium distribution of carbon vacancies in the crystal lattice of nonstoichiometric zirconium carbide  $ZrC_x$ , attention is paid to the formation of a layered structure (alternating fully filled layers and layers with "chemical" vacancies in the lattice). This allowed us to establish the mechanism for the onset of the decay of the crystal lattice and, accordingly, determine the position of the boundaries of its homogeneity region, the dependence of the concentration of "thermal" vacancies on temperature, and also determine the composition of the second phases formed. It is obtained that, for  $x = 0.5625$ , the stability boundary is vertical to  $T = 3000$  K, in the region  $x = 0.75-0.875$  the melting point is maximal and constant, in the region  $x = 0.125-2$  the melt probably has a molecular structure, and in the region  $x = 0.75-0.875$  apparently formed dome of immiscibility