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**THE ROLE OF THREE DIMENSIONS IN THE FORMATION
OF STRUCTURE AND PHYSICAL-MECHANICAL PROPERTIES
OF VANADIUM AND ALLOY OF THE SYSTEM
OF VANADIUM-CYRICONIUM–CARBON**

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***Research Methodology.*** *The objects of the study are vanadium of technical purity and alloy V-2,6Zr-0,37mass.% C in which the atomic ratio Zr / C = 1,68 / 1,57 = 1,07 is provided.*

*The method of applying the previous (non-destructive) load has been applied, which allows to reveal the regularities and interconnections of processes of deformation, chan­ges of physical and chemical properties and structural transformations, the analysis of which allows to predict the boundary state of a material before destruction. Small samp­les have been used.*

*Multi-positional installations have been applied, where 60 models were simul­ta­neous­ly under the static loading.*

***Results.*** *On the basis of the analysis of experimental results, it has been established that in a vacuum, a prolonged load of up to 1000 h and its level at 1073 K does not significantly affect the mechanical properties of vanadium of technical purity.*

*In the process of exposure, metal absorption of impurities from the residual atmos­phere is possible, which is accompanied by the growth of a constant lattice and TEDF. Their values increase with the time and load levels.*

*The maximum sensitivity to the state of the metal has been detected by the application of the thermoelectric method.*

***Novelty.*** *For the first time a complex of material researches of vanadium and an alloy on its basis has been conducted.*

***Practical Significance.*** *The obtained results allow us to expand the use of vanadium alloys and predict their behavior at certain time intervals.*