

Estimation of the parameters of critical points of some metals

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Using the Cailletet–Mathias linear diameter rule, the parameters of the critical points of some alkaline (K, Na, Cs, Rb) and refractory (Ir, Re) metals are estimated. For the estimates, three equations of state were used: the van der Waals equation of state, the equation of state for the model task of charged hard spheres [1], and the equation of state of interacting point centers [2]. The estimates were carried out on the basis of experimental data on the dependence of the density of the liquid phase on temperature near the melting curve. The results of the estimates are compared with the available experimental data on the temperature dependence of the saturated vapor density of the studied metals. It is shown that the estimates by the equation of state of interacting point centers agree with the experimental data better than the estimates by the van der Waals equation of state and by the equation of state for the model task of charged hard spheres.

[1] Likalter A A 2000 *Phys. Usp.* **43** 777–797

[2] Petrik G G and Gadzhieva Z R 2010 *Monitoring. Science and Technologies* **2** 67–78