

Phase equilibrium of Van der Waals gas

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Abstract

Critical analysis of the literature data on phase equilibrium of Van der Waals gas is carried out. The necessity of obtaining reliable and more accurate data is substantiated. The data on the densities of the liquid and the gas, the saturation pressure was obtained for temperature interval from the absolute zero to the critical temperature. It is shown that: 1) the absolute zero temperature of this gas is an analogue of the triple point temperature of real systems; 2) the volume of fluid per particle at the triple point is equal to the parameter b of the Van der Waals equation of state; 3) the unit compressibility line is tangential to the liquid branch of phase equilibrium line at the triple point on the temperature-density plane; 4) the liquid branch of phase equilibrium line has tangent line with zero slope angle at the triple point on the density-pressure plane.