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The significance of the isochoric heat capacity at the critical point of phase equilibrium gas-liquid

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Abstract

The popular viewpoint is that the speed of sound at the critical point of phase equilibrium gas-liquid of one-component material is zero, which is a consequence of the treatment in the infinity of isochoric heat capacity on the critical isochore at the critical temperature. Still there is no experimental proof of the latter, since nobody managed to obtain experimentally the infinite value of the specific heat at the critical point. We have shown that the behavior of isochoric heat capacity at the critical point can be described by nonanalytic function критической точки может быть описано неаналитической функцией, having a finite value at the critical point, so that the sound speed at the critical point is not zero. This function gives a finite value for the jump of isochoric heat capacity at the critical density of the transition through the critical point.