Phenomenological and Theoretical Analysis of Phase Equilibrium in Relativity

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A 0ne-component thermodynamic system with two phases in equilibrium was analyzed. Phenomenologically, it was shown that it must remain in equilibrium during movement. Theoretically, starting from the Clapeyron equation it was shown that the slopes (dp/dT) of the phase boundaries are Lorenz invariant. The molar effective volumes of the phases must be Lorenz invariant, for the phases to remain in equilibrium. The Clapeyron equation is valid in relativistic thermodynamics, if effective volume is taken into consideration.