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The method to define the critical compressibility factor of one-component substance using Boyle temperature and the low temperature parameters of liquid

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Abstract

The relation between the compressibility factor and temperature at the critical point of the gas-liquid phase transition of one-component substance and the Boyle temperature is obtained on the basis of the Van-der-Waals equation of state. It is shown that the relation is valid with a good accuracy for many substances. It is shown that the Van-der-Waals equation of state is useful to obtain the new relations between thermodynamic parameters.