

A Crossover Cubic Equation of State for Mixtures

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In this research, we use the Patel-Teja (PT) cubic equation of state and develop a crossover cubic model near to and far from the critical region which incorporates the scaling laws asymptotically close to the critical point. It's transformed into the classical cubic equations of state far away from the critical point. And this equation of state is used to calculate thermodynamic properties of mixture systems. We show that, over a wide range of states, the equation of state yields the vapor-liquid equilibrium data with a much better accuracy than the original PT equation of state.