

A Nonrandom Lattice Equation of State

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A nonrandom lattice–fluid equation of state is presented that has no temperature dependence of energy parameters and segments of pure systems.

The non–random lattice fluid (NLF) model and the multi–fluid non–random lattice fluid(MF–NLF) model were capable of describing properties for complex systems. However, these models have strong temperature dependence of energy parameters and segment numbers of pure systems, thus empirical correlations as functions of temperature were represented for the reliable and convenient use in engineering practices. If temperature dependence of these parameters were eliminated in both models, these models could not predict thermodynamic properties accurately.

This nonrandom lattice–fluid equation of state is now rigorously and accurately applicable to describe mixture properties with no temperature dependence of energy parameters and segments of pure systems.