# Modeling of Solid Solubilities in Supercritical Fluid using a Qausi-chemical Nonrandom Lattice Fluid Equation of State

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Supercritical-fluid (SCF) technology has received much attention as an alternative solution for many difficult separation problems, mainly because of its enhanced transport properties and solubilizing power, and ease of solvent recovery. Recently experimental data for equilibrium solubility of solid including biochemical substances in supercritical fluid have been measured.

A quasi-chemical nonrandom lattice fluid (QLF) model with no temperature dependence of close packed volumes of a mer, segment numbers and energy parameters of pure systems has developed recently by the present authors and was capable of describing properties for pure and mixture vapor-liquid equilibrium. In this research, the QLF equation of state is rigorously tested for its applicability to model supercritical-fluid phase equilibrium for a wide range of pressure and is compared with the Peng-Robinson and the nonrandom lattice fluid (NLF) equation of state.