

Solubility measurement method and mathematical modeling in supercritical fluids.

ABSTRACT

Supercritical fluids technology (SFT) is gaining significance application in the field of food and drug processing. Since supercritical fluid possess dual characteristic of gas and liquid, it exhibits outstanding extraction features such as high penetration ability and able to dissolve materials. To aid the design of processes including extraction, separation, purification, and synthesis, solubility data of compound of interest is required. In addition, with the solubility data, a more environmental friendly and productive operating condition can be resulted. However, there is lack of review that summarizes the method and correlation to gain this data. Thus, the review is accomplished to give concise discussion on the fundamental knowledge of solubility. This review will discuss the solubility measurement method, quantification method and mathematical correlation models for explaining the thermodynamic relationship of solubility.

Keyword: Supercritical fluid; Solubility measurement; Quantification; Mathematical correlation; Semiempirical model; Equation of state