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عنوان مقاله:

Solubility of Carbon Dioxide in Benzene, Toluene and normal Heptane at high-pressures

محل انتشار:

یازدهمین کنگره ملی مهندسی شیمی ایران (سال: 1385)

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نویسندگان:

Pahlavanzade - *Chem. Eng. Dept. of Tarbiat Modarres University, Tehran, Iran*

Ghotbi - *Chem. Eng. Faculty of Sharif University of Technology, Tehran, Iran*

Taghikhani - *Chem. Eng. Faculty of Sharif University of Technology, Tehran, Iran*

Sattari - *Chem. Eng. Dept. of Tarbiat Modarres University, Tehran, Iran*

خلاصه مقاله:

The distinguished properties of Supercritical Fluids have been noticed to produce small-sized, nano and micro, particles. One of the most common fluid in such researches has been CO2. It is essential to predict the amount of solubility of CO2 in the solvents which often are industrially used. In this work the amount of solubility of CO2 at high pressures (400-1020 psig) in Benzene, Toluene, normal.Heptane and the mixture of Toluene-normal.Heptanes has been studied. Using the experimental results, the adjustable parameter (Kij) of Peng- Robinson(1976)EOS for each pair of materials has been adjusted. The tests has been done at 20’C and 32.50’C and Kij is adjusted for each pair of CO2-solvent. The maximum error for this adjusted PR-Model is 3.42%. Thus the Adjusted PRModel based on experimental data, can be used in order to predict the solubility of CO2 in those organic solvents. The results have shown that increasing pressure for each system increases the solubility of CO2 in organic solvent. For the region above than nearly 600 psig the solubility is strictly increased for all the experimented systems; in these regions the composition of liquid phase is mostly CO2.

کلمات کلیدی:

Solubility, Supercritical, high pressure CO2, Peng-Robinson, Toluene, Benzene, n.Heptane

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