Svetlana Rudyk, J Pet Environ Biotechnol 2014, 5:4
http://dx.doi.org/10.4172/2157-7463.S1.008

OMICS Group Conferences
Accelerating Scientific Discovery

2nd World Congress on
Petrochemistry and Chemical Engineering
October 27-29, 2014 Embassy Suites Las Vegas, USA

Application of consistency test to the analysis of supercritical carbon dioxide extraction of crude oil

Svetlana Rudyk
Sultan Qaboos University, Oman

Consistency test based on the Gibbs–Duhem equation, which is used to analyse experimental phase equilibrium data, show that, for the simple symmetric binary systems, the natural logarithm of the ratio of the activity coefficients of both species ranges from 1 to −1 throughout the entire concentration range so that the sum of areas above and below the zero line is equal to null. The consistency test was applied for the analysis of the crude oil extraction obtained by pure supercritical carbon dioxide and modified with the additions of various co-solvents. The unique combinations of saturation vapor pressures that satisfied the consistency tests were determined for the investigated systems using the criterion of the even distribution of the data about zero line in the plots of area test. The P_1^{sat} decreased with increase of boiling temperature.The quality of the co-solvents was estimated based on the deviations of the experimental graphs from the ideal line: negative deviations characterized good solvent while positive indicated poor solvency. The modified consistency test was suggested to distinguish the effect of each co-solvent on the vapor phase extraction.

Biography

Svetlana Rudyk has completed his PhD from State Academy of Oil and Gas, Moscow, Russia. She is a Shell Chair in Petroleum Geoscience at Oil and Gas Research Center of Sultan Qaboos University, Oman.

snr@squ.edu.om