عنوان مقاله:

Estimation of carbon dioxide solubility in pure water :Comparison of phase equilibria results from theWong-Sandler combining rule with artificial neural network

محل انتشار:

پنجمین کنگره بین المللی مهندسی شیمی (سال: 1386)

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خلاصه مقاله:

The phase behavior of the CO2+H2O system is of importance for many industrial processes. Since it is not always possible to carry out experiments at all possible temperatures and pressures, generally thermodynamic models based on equations of state are used for estimation of VLE. In this paper, the models based upon the PR and SRK equations of state with the Wong-Sandler mixture combining rule (W-S MCR) correlated phase equilibria in CO2 + H20.In each model an interaction parameter, kij , defined by minimizing the relative error between models and experimental data. Moreover, an alternate tool, i.e. the artificial neural network (ANN) technique has been applied for estimation of solubility of carbon dioxide in water. ANN was applied to the raw data of the 105 experiments were carried out in R&D sector of Iran Behnoush Co in range of 278.15–348.15K and 0.1–1MPa for temperature and pressure respectively. In comparison of performance analysis of thermodynamic models and ANN, the relative error .(RE) and R2 was studied. To sum up ANN shows the better results

کلمات کلیدی:

equation of state, W-S MCR, Artificial neural network, Carbon dioxide, Water

لینک ثابت مقاله در پایگاه سیویلیکا: