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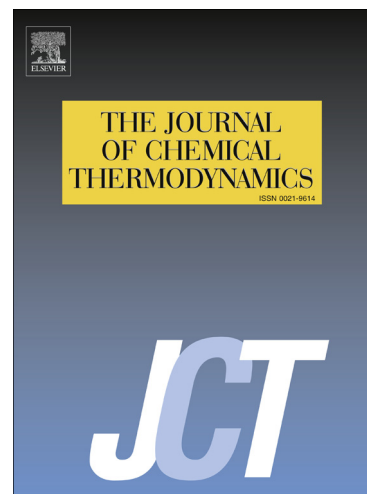
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Phase behaviour of the pseudo-ternary system carbon dioxide + ethanol + fish oil at high pressures

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ABSTRACT

This work provides experimental fluid phase equilibrium data of the pseudo-ternary mixture CO₂ + ethanol + fish oil, a system of interest in pharmaceutical and food-industry applications such as the production of omega-3-enriched lipid derivatives at mild, non-oxidative conditions. Experimental tie-lines were obtained by means of an analytical isothermal method with recirculation of the vapour phase. Measurements were carried out in the temperature range 323.15 K-343.15 K and at pressures from 10 MPa to 30 MPa. The Peng-Robinson equation of state coupled with the conventional van der Waals mixing rules with two adjustable parameters was used for experimental data correlation.

Keywords

Phase equilibrium, Supercritical carbon dioxide, Ethanol, Fish oil, Thermodynamic modelling, Peng-Robinson equation of state.

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