

عنوان مقاله:

An Analytical Equation of State for Saturated Liquid Refrigerant Ternary Mixtures

محل انتشار:

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نویسنده:

خلاصه مقاله:

In this work an analytical equation of state has been employed to calculate the PVT properties of ternary refrigerant mixtures. The theoretical EoS is that of Ihm, Song and Mason, which is based on statistical-mechanical perturbation theory, and the two constants are enthalpy of vaporization ΔH_{vap} and molar density ρ_{nb} , both at the normal boiling temperature. The following three temperature-dependent parameters are needed to use the EoS: the second virial coefficient, $B_2(T)$, an effective van der Waals covolume, $b(T)$, and a scaling factor, $\alpha(T)$. The second virial coefficients are calculated from a correlation based on the heat of vaporization, H_{vap} , and the liquid density at the normal boiling point, ρ_{nb} . $\alpha(T)$ and $b(T)$ can also be calculated from second virial coefficients by scaling rules. This procedure predicts liquid densities of ternary mixtures at saturated state with a temperature range from 173 K to 373 K and pressure up to 4.0 MPa, with very good results.

کلمات کلیدی:

Equation of state, Liquid Densities, Ternary Mixtures, Heat of Vaporization

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