

Estimations of the Thermodynamic and Transport Properties of R-1234yf Using a Cubic Equation of State and Group Contribution Methods

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Estimates are provided for temperature, pressure, density, specific enthalpy, specific entropy, specific heat at constant pressure, thermal conductivity, viscosity, and surface tension for saturated mixtures and slightly superheated vapors of R-1234yf (2,3,3,3-tetrafluoropropene; $\text{CF}_3\text{CF}=\text{CH}_2$). The property values are estimated using an approach based on a cubic equation of state for the thermodynamic properties and group contribution methods for the transport properties. To provide the reader with some sense of the predictive capability of these estimation techniques, data for R-134a generated by these methods are compared to those from REFPROP 8.0. Moreover, data generated by these predictive methods for R-1234yf are compared, where possible, to data in the open literature.