Thermodynamic Properties of Eight Fluorinated Olefins

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Abstract - Group contribution methods are used to predict the critical temperatures, critical pressures, critical densities, acentric factors, and ideal gas specific heats at constant pressure for eight fluorinated olefins, namely: R-1225ye(E), R-1225ye(Z), R-1225zc, R-1234ye(E), R-1234yf, R-1234ze(E), R-1234ze(Z), and R-1243zf. Then, for the same eight refrigerants, the Peng-Robinson equation of state is used to predict thermodynamic properties, which are presented in pressureenthalpy and temperature-entropy state diagrams. Furthermore, to provide the reader with some sense of the predictive capability of the methodology, property predictions for R-134a are compared to known data. Finally, property predictions for R-1234yf are compared, where possible, to the open literature.