REFPROP - Reference Fluid Thermodynamic and Transport Properties

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Version 8.1 of the REFPROP software will be demonstrated. This update to version 8.0 adds several new features, including better convergence of VLE state points, the extended GERG-2004 equation of state for natural gas mixtures, heating values, new equations of state for thermodynamic and transport properties, and other additions. The REFPROP program uses the latest high accuracy equations of state based on the Helmholtz energy for the thermodynamic properties with typical uncertainties of 0.1 % in densities, vapor pressures, and speeds of sound, 0.5 % in heat capacities, and 0.1 % in pressure in the critical region. New correlations for the viscosity surfaces for water and hydrogen have been added. The software allows the user to calculate properties of the liquid, vapor, and supercritical states, including two-phase properties for both pure fluids and mixtures. Nearly 100 fluids are available in the program, including cryogens, refrigerants, and hydrocarbons. The latest GERG-2004 equation for the properties of natural gas systems is a dedicated equation with very high accuracies for typical natural gases found throughout the world. Links with other applications such as Excel, Visual Basic, C++, and so forth are available and example files come with the program.