

The PPDS Suite

The PPDS Suite provides accurate physical property data covering a wide range of process engineering applications in the oil and gas, chemical, process and pharmaceuticals industries. PPDS users can access quality-assured data for over 1500 compounds to calculate the properties of pure components and mixtures.

The PPDS Suite has been used successfully by engineers worldwide to help solve both everyday problems as well as perform complex thermodynamic calculations. PPDS may be deployed at a single site or over a global corporate network and output rapidly to process simulators or other engineering applications.

Key Features of PPDS

- Quality-assured physical property data based on validated measurements
- Sophisticated thermodynamic calculations using industry codes and established equations-of-state
- All data and calculations are returned with full traceability and measurement uncertainty
- Proprietary databanks can be created and pure component and binary system data can be stored
- Easily integrated into other software systems, including process simulators, pipe flow calculators, equipment sizing packages and more.
- Special packages included in the Thermo-server: Petroleum Fractions, AGA-8 and Water IAPS84 and IAPWS95.

The PPDS ThermoServer

The PPDS ThermoServer is at the core of the PPDS Suite. It acts on a set of PPDS and user-created databanks to perform calculations involving pure compounds and mixtures including phase splits and phase compositions using industry standard phase equilibrium models.

With its associated databanks, the ThermoServer serves as a thermodynamic calculation engine. It provides thermodynamic and transport property data of fluids and their mixtures over a wide range of temperatures and pressures.

Specialist PPDS Modules

The DataExpert permits users to build their own pure component databanks which can then be used with the main PPDS Suite. It applies full proven techniques for data optimization and the fitting of properties and parameters that can then be stored in user-created databanks.

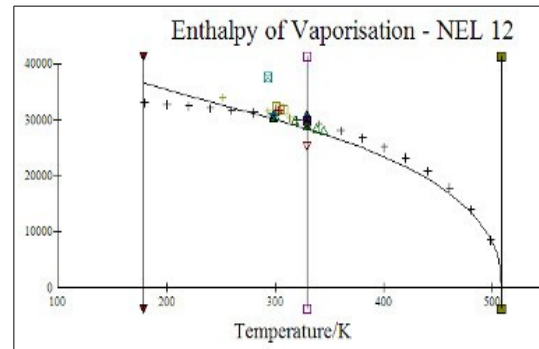


Figure 1: Fitting a T-Dependent Property Curve using the Data Expert

P-FIT regresses phase equilibrium data and creates Binary Interaction Parameter (BIP) databanks for thermodynamic models such as Peng-Robinson, Wilson and NRTL. It is used in combination with the pure components and model parameters databanks.

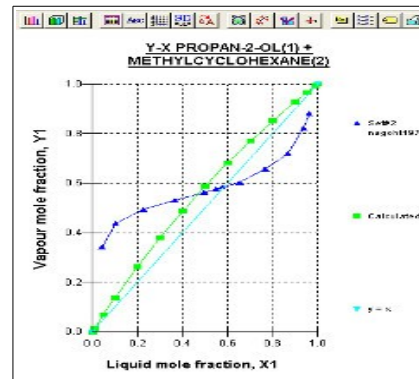


Figure 2: BIPs calculated using VLE data in P-FIT

Both the Data Expert and P-FIT come with the TRC Tables which contain a comprehensive compilation of experimental pure component and mixture data for a large number of physical properties.

PPDS Interfaces

A choice of three different interfaces provide PPDS users direct access to the ThermoServer:

The PPDS Graphical User Interface. The GUI provides a simple way to perform a variety of calculations including 1, 2 and 3 phase flashes. Most users will interact with the PPDS ThermoServer via the PPDS GUI.

The MS-Excel Interface. PPDS exports data directly to Excel. Users can access the ThermoServer by developing their own spreadsheets. This provides a powerful mechanism for customizing calculations and for transferring the results to other software tools.

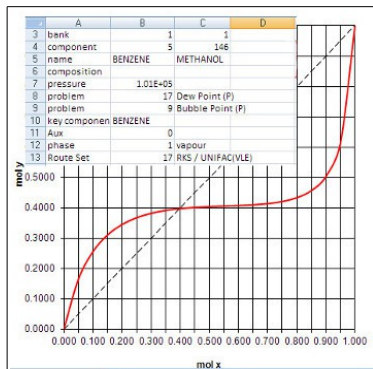


Figure 3: A VLE calculation using the PPDS MS-Excel Interface

The Application Programmable Interface (API). The ThermoServer is also accessible from the PPDS API, a customizable software package that can be called from any programming language. Users gain complete control over the PPDS I/O, allowing problem based approaches to be developed.

The PPDS GUI, Excel Interface or a customized interface developed with the API can be used to manage a diverse range of data, to output to other software packages or to generate Aspen DFMS input files, helping to ensure that all calculations are performed with consistent data.

Engineering Applications

- Fluid Properties
- Separations
- Petroleum Fractions
- Equipment Sizing
- Fluid Flow
- Phase Envelopes
- Heat Transfer
- Safety Critical Data

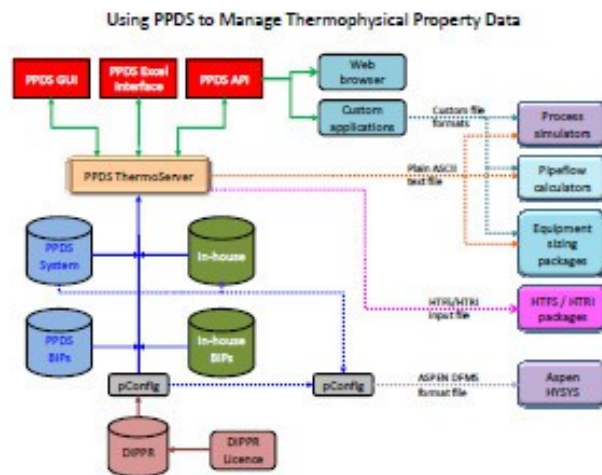


Figure 4: Using the PPDS Suite to Manage Thermophysical Property Data.

Industrial Uses

- Determine how the vapor pressure of an organic solvent varies with temperature
- Create an enthalpy-temperature curve for a multi-component mixture
- Derive the mutual solubility of a petroleum fraction in water
- Display T-x and y-x plots for a binary mixture.
- Determine the phase envelope for a natural gas
- Estimate, correlate and store the properties of a new chemical compound
- Determine binary interaction parameters for a thermodynamic model using experimental phase equilibrium data

Contact TDS for a 30-day free trial

Email: info@tds-tds.com

PPDS is developed, maintained and supported by a team of scientists and technical experts at the National Engineering Laboratory, TUV NEL

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Technical Database Services, Inc. PO Box 45, New York, NY 10024
Tel. (646) 669-8900 Email: info@tds-tds.com www.tds-tds.com